

CHIQUITA CANYON, LLC [FACILITY ID No. 119219] – EXHIBIT E TO DECLARATION OF CRAIG H. BENSON, PHD, PE, BCGE,
BCEE, NAE



REGION 9

SAN FRANCISCO, CA 94105

January 13, 2026

Ms. Kate Logan
Senior Remediation Project Manager
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384-2705

RE: Notice of Deficiency and Clarification of EPA's Position Regarding Extension of Covered Area of the Chiquita Canyon Landfill

Dear Ms. Logan:

On July 24, 2025, the U.S. Environmental Protection Agency ("EPA") issued a letter (the "Additional Work Letter"), enclosed as **Enclosure A**, to Chiquita Canyon, LLC ("CCL") directing CCL to implement additional work under Paragraph 90 of the Unilateral Administrative Order, EPA Docket No. RCRA 7003-09-2024-0001 and CERCLA 106-09-2024-05, In the Matter of Chiquita Canyon, LLC, issued February 21, 2024 (the "UAO"). The additional work required under the Additional Work Letter included extension of the existing geomembrane cover over the Chiquita Canyon Landfill ("Landfill"). In response to the Additional Work Letter, on October 3, 2025, CCL submitted the Draft Removal Action Workplan: Extension of Covered Area Chiquita Canyon Landfill (October 2025) (the "Plan").

CCL also submitted the Plan: (i) to the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Los Angeles County Local Enforcement Agency ("LEA"), in response to Section 4.1 of the LEA's May 1, 2025 Compliance Order ("LEA Compliance Order") and (ii) to the California Department of Toxic Substances Control ("DTSC"), in response to DTSC's April 1, 2025 Imminent and Substantial Endangerment Order ("DTSC ISE Order"). The LEA Compliance Order and the DTSC ISE Order also directed CCL to expand the existing geomembrane cover.

On November 20, 2025, the LEA provided a letter, enclosed as **Enclosure B** (the "LEA November Letter"), to CCL disapproving the Plan. The LEA November Letter stated that the LEA, in consultation with the California Department of Resources Recycling and Recovery, determined that because "CCL has failed to install a vertical soil barrier and the reaction continues to expand, the LEA's current directive is for CCL to install the approved geomembrane cover over all areas to which the reaction has expanded or has the potential to expand as stated in Section 4.1 of the [LEA Compliance Order]. The entire facility where waste is disposed (Main Canyon waste management area) shall be covered by August 31, 2026." The LEA November Letter further directed CCL to do the following:

1. By December 15, 2025, provide an estimated schedule for the 60 ml geomembrane cover installation, with final completion of no later than August 31, 2026.
2. Employ the necessary resources to complete geomembrane coverage over the entire facility where waste is disposed (Main Canyon waste management area) by August 31, 2026.
3. Continue to install the required geomembrane cover during the winter months to ensure completion within the required timeframe, as CCL has done previously.

On December 15, 2025, CCL submitted a response to the LEA November Letter, disputing the LEA's rationale for requiring a cover over the Main Canyon by August 31, 2026, and indicating that CCL "estimates completion of the additional [100 acres of] cover by July 31, 2027, in accordance with the draft master Schedule submitted to DTSC and the LEA on November 21, 2025."

On December 19, 2025, CCL submitted a Request for a Formal Appeal Hearing and Petition for Stay of the LEA's November 20, 2025, Directives ("Request for Hearing"). In the Request for Hearing, CCL asserted that the directives in the LEA November Letter conflict with the EPA's directives under the UAO:

Specifically, the November Directive requiring that Chiquita install cover over the entire Main Canyon by August 2026 conflicts with EPA's July 24, 2025 letter, issued pursuant to its authority under Paragraph 90 of the UAO, requiring Chiquita to expand the geosynthetic cover consistent with the May Compliance Order. The November Directive now directs Chiquita to cover the entire Main Canyon, which conflicts with EPA's order on the same subject.

EPA is clarifying its position that the directives in the LEA Compliance Order and the LEA November Letter do not conflict with the EPA's directives in the Additional Work Letter or the UAO. In the Additional Work Letter, EPA directed the following:

CCL shall install an EPA-approved landfill cover on all areas of the Landfill which are not presently covered by a geomembrane and to which the reaction area has expanded or has the potential to expand. The Additional Work shall be consistent with the California's Department of Toxic Substances Control ("DTSC's") Imminent and Substantial Endangerment Determination and Order, Docket No. HAS-FY24/25-082, dated April 1, 2025 ("DTSC ISE Order") and the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency ("LEA") Compliance Order, dated May 1, 2025 ("LEA Compliance Order"). **Consistent with the LEA Compliance Order**, the additional geomembrane cover must be installed over **at least** 100 acres outside the existing geomembrane cover. In no event shall installation of the cover be conditioned upon findings of the Reaction Committee.

(Emphasis added). EPA expressly contemplated that the geomembrane cover could be extended more than 100 acres outside of the existing geomembrane cover, "consistent with the LEA Compliance Order."¹ To illustrate, if CCL extends the geomembrane cover over the "entire facility where waste is

¹ EPA also noted in the Additional Work Letter at footnote 1: "The DTSC ISE Order and the LEA Compliance Order contain specific requirements for the work to expand the geomembrane cover and for the geomembrane cover, which are hereby

disposed (Main Canyon waste management area),” CCL would satisfy the LEA’s directive and also satisfy the requirement under the Additional Work Letter to install cover “over at least 100 acres outside the existing geomembrane cover.” CCL would also simultaneously satisfy the requirement in the Additional Work Letter for the cover to be installed over all areas “to which the reaction area has expanded or has the potential to expand,” because the entire Landfill represents the maximum areal extent to which the reaction has the potential to expand. EPA has not made a determination that the area to which the reaction has the potential to expand is limited to 100 acres outside of the initial geomembrane cover. The fact that the LEA, and not EPA, has made a determination that the reaction has the potential to expand to the “entire facility where waste is disposed (Main Canyon waste management area),” does not create a conflict between the directives in the LEA Compliance Order and the LEA November Letter and the directives in the Additional Work Letter and the UAO.

EPA has reviewed the October 2025 Plan, within the context of the correspondence between CCL and the LEA above, and in accordance with Paragraph 31 of the UAO, EPA disapproves, in part, of the Plan, and directs CCL to modify the Plan.

Pursuant to Paragraph 33 of the UAO, CCL shall, by January 30, 2026, correct the deficiencies listed below and resubmit the deliverable to EPA for approval:

I. Deficiencies of “3.2 Schedule” Section

- a. CCL shall promptly order the approximately 46 acres of geomembrane cover installation material for the Group C segment.
- b. CCL shall ensure that it has ordered sufficient geomembrane cover material to conduct repairs to the existing geomembrane cover in the event of new geomembrane cover installation being postponed due to major weather.
- c. CCL shall maintain sufficient staffing and equipment to place cover on prepped areas and prep the next planned segment concurrently, where technically feasible.
- d. CCL shall update the schedule for installation of the geomembrane cover as follows:
 - i. CCL shall plan for and achieve a minimum average installation rate of 10 acres every four weeks over the course of any non-rainy season period; and

incorporated by reference.” EPA stated, “these requirements include, **without limitation**,” and listed certain language, including the LEA’s language directing CCL to install geomembrane “over approximately 100 acres outside the existing geomembrane cover.” (Emphasis added). The “approximately 100 acres” language comes from the April 1, 2025, letter from the LEA, which was included as an attachment to the LEA Compliance Order, and not from the LEA Compliance Order itself. To the extent that footnote 1 implied that the “approximately 100 acres” language was in the LEA Compliance Order itself, this was in error. Despite this error, CCL cannot reasonably maintain that the Additional Work Letter limited the required geomembrane cover to an additional 100 acres. EPA explicitly incorporated by reference the requirements of the LEA Compliance Order and indicated that the language that followed represented non-exclusive examples of such requirements. A review of the LEA Compliance Order itself confirms that the LEA Compliance Order did not limit the expansion of the geomembrane cover to “approximately 100 acres,” rather, it directs CCL in Mitigation Measure 4.1 to install a cover “over all areas of the Site that are not currently covered by a geomembrane and to which the reaction area has expanded or has the potential to expand.”

- ii. CCL shall update the deadline for completion of installation of the Group C geomembrane cover extension by no later than December 1, 2026, subject to the following extension request and approval procedures:²
 1. At least five (5) days prior to any date that CCL reasonably expects that there will be a storm event of sufficient magnitude to prevent CCL from safely continuing geomembrane cover installation work, CCL may request an extension from EPA to the December 1, 2026, deadline for completion of installation of the Group C geomembrane cover extension. In its request for an extension, CCL shall specify the duration during which CCL proposes to suspend further geomembrane cover installation due to adverse weather.
 2. EPA may grant one or more extensions to the December 1, 2026, deadline to permit CCL to postpone new geomembrane cover installation work based on safety considerations.
 3. If CCL suspends any geomembrane cover installation work, CCL shall conduct repairs to existing geomembrane cover.

Notwithstanding the above, CCL shall proceed to take any action required by the non-deficient portion of the Plan in accordance with Paragraph 34 of the UAO. EPA retains the right to modify or develop the Plan and the UAO.

EPA invites CCL to, within five (5) days after the receipt of this letter, request an opportunity to meet or confer with EPA, the LEA, and DTSC to discuss the implementation of these requirements and to ensure compliance with EPA's, the LEA's, and DTSC's directives. The conference should occur no later than January 23, 2026.

If you have any questions or comments regarding this letter, please contact Laura Friedli, EPA Attorney Advisor, at (415) 972-3325 or Friedli.Laura@epa.gov.

Sincerely,

Holybee, Tyler

Digitally signed by Holybee, Tyler
Date: 2026.01.13 07:50:43 -08'00'

Tyler Holybee
EPA Project Coordinator

² If CCL proposes a deadline for completion of installation of the Group C geomembrane cover on or prior to December 1, 2026 (e.g., to comply with another agency's directive), EPA would also consider such deadline to be in compliance with this directive.

Enclosures

Enclosure A – EPA’s Additional Work Letter

Enclosure B – LEA November 20, 2025 Letter

cc: John Perkey, Waste Connections

Jim Little, Waste Connections

Kurt Shaner, Waste Connections

Sarah Phillips, Waste Connections

Megan Morgan, Beverage & Diamond

Nicole Weinstein, Beverage & Diamond

Allyn Stern, Beverage & Diamond

Todd Sax, California Environmental Protection Agency

Karen Gork, Los Angeles County Department of Public Health, acting as the Local Enforcement Agency

Amy C. Miller-Bowen, United States Environmental Protection Agency

Joel Jones, United States Environmental Protection Agency

Roshni Brahmhatt, United States Environmental Protection Agency

Rick Sakow, United States Environmental Protection Agency

Mark Anthony Relon, United States Environmental Protection Agency

Tara Frost, United States Environmental Protection Agency

Laura Friedli, United States Environmental Protection Agency

Enclosure A – EPA’s Additional Work Letter



REGION 9

SAN FRANCISCO, CA 94105

July 24, 2025

Mr. Steve Cassulo
District Manager
Chiquita Canyon, LLC
29201 Henry Mayo Drive
Castaic, CA 91384-2705

RE: Additional Work required under UAO for Geomembrane Cover Expansion

Dear Steve Cassulo:

This letter directs Chiquita Canyon LLC ("CCL") to implement additional work under Paragraph 90 of the Unilateral Administrative Order, EPA Docket No. RCRA 7003-09-2024-0001 and CERCLA 106-09-2024-05, In the Matter of Chiquita Canyon, LLC, issued February 21, 2024 (the "UAO"), the U.S. Environmental Protection Agency ("EPA"). Paragraph 90 allows EPA to direct additional work consistent with the objectives of the UAO.

The overall objectives of the UAO are set forth in Paragraph 1 of the UAO as the performance of response actions to address off-site impacts and ongoing subsurface reactions causing off-site impacts, in connection with the Chiquita Canyon Landfill ("Landfill") in Castaic, California, including identifying, investigating, remediating, and/or preventing the potential endangerment to human health or the environment from activities involving solid and hazardous waste. The objectives of the UAO specifically include the objectives of the Master Work Plan (as defined in the UAO) set forth in Paragraph 22 of the UAO as:

- (1) remedy[ing] and prevent[ing] off-Site impacts caused by odors, emissions, leachate or other waste streams; and
- (2) deploy[ing] measures to delineate, fully characterize, prevent the expansion of, contain, and reduce the smoldering or the subsurface reaction occurring at the Landfill.

A. Additional Work

EPA has determined that the following additional work ("Additional Work") is necessary to meet the foregoing objectives:

1. CCL shall install an EPA-approved landfill cover on all areas of the Landfill which are not presently covered by a geomembrane and to which the reaction area has expanded or has the

potential to expand. The Additional Work shall be consistent with the California's Department of Toxic Substances Control ("DTSC's") Imminent and Substantial Endangerment Determination and Order, Docket No. HAS-FY24/25-082, dated April 1, 2025 ("DTSC ISE Order") and the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency ("LEA") Compliance Order, dated May 1, 2025 ("LEA Compliance Order").¹ Consistent with the LEA Compliance Order, the additional geomembrane cover must be installed over at least 100 acres outside the existing geomembrane cover. In no event shall installation of the cover be conditioned upon findings of the Reaction Committee.²

B. Basis for Determination

EPA has determined, based on temperature monitoring data showing the migration of the reaction at the Landfill, findings regarding the potential for the reaction to expand to the entire main canyon of the Landfill, and the continued issuance of notices of violation based on odor complaints from community members, as described below, that the Additional Work is necessary to meet the objectives of the UAO.

State and local agencies have found, based on extensive analysis of temperature monitoring data, that the reaction has migrated beyond the portion of the Landfill currently covered with geomembrane cover. DTSC determined that "[u]nderground temperatures recorded at [the Landfill] between January 9, 2025 and February 19, 2025 demonstrate the SET event has expanded beyond the original 30 acres in the northwestern portion of the landfill in Cell 1/2A, Module 2B/3, Module 4, and Module 2B/3/4 P2," and, as of April 1, 2025, encompassed "approximately 90 acres of [the Landfill]." See **Enclosure A** at pp. 5-6. Similarly, the LEA concluded that the reaction was continuing to expand as of May 1, 2025: "Contrary to CCL's stated belief that the reaction has not expanded, new temperature data from the recently installed TMPs . . . indicates that the reaction is expanding." See **Enclosure B** at p. 5. These statements were consistent with the findings of Dr. Timothy Stark, a leading landfill expert, based on a review of Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to

¹ The DTSC ISE Order and the LEA Compliance Order contain specific requirements for the work to expand the geomembrane cover and for the geomembrane cover, which are hereby incorporated by reference. These requirements include, without limitation: "The geomembrane cover shall accommodate landfill settlement/subsidence, sufficiently limit the transmission of gases (e.g. methane permeance less than 2.5×10^{-13} m/s using ASTM D1434), and provide durability from foot traffic, exposure to ultraviolet radiation, and inclement weather, or motorized equipment, if any. In addition, the cover shall have material properties to address site-specific conditions, including but not limited to, elevated landfill temperatures, settlement, and harmful landfill gas/odor emissions. This work shall be conducted with appropriate air monitoring, use Construction Quality Assurance techniques, and be consistent with South Coast AQMD's order and other applicable requirements. The geomembrane thickness shall be adequate to withstand the activities and conditions at the facility, but no less thick than 40 mil, with material consistent to prevent heat degradation and control odors and emissions as documented in the Stark Memo, Exhibit 6," and "Install a 40- to 60-mil thick tan or green HDPE-EVOH textured geomembrane underlain by a minimum 6 oz/sy nonwoven geotextile over approximately 100 acres outside the existing geomembrane cover. This new barrier must be welded to the existing 30-mil-thick white HDPE geomembrane or placed in a suitable anchor trench. A construction and quality assurance/quality control (QA/QC) plan must be submitted for approval." See **Enclosure A** at pp. 11-12; **Enclosure B** at p. 2.)

² The Reaction Committee was formed in response to the South Coast Air Quality Management District ("SCAQMD") Stipulated Order of Abatement (Case No. 6177-4) to review applicable data, estimate the extent of the reaction, and determine the reaction area. The findings of the Reaction Committee have been disputed by regulatory agencies, such as CalRecycle, which has asserted that the "Reaction Committee has taken a conservative approach in determining the reaction area," disregarding critical data such as carbon monoxide results. See **Enclosure C** at pp. 6-7.

February 19, 2025, that CCL's contractor "believes the SET Event covers about 28 acres as of February 20, 2025 whereas [Dr. Stark's] extent of the SET Event covers about 90 acres." See **Enclosure A**, Exhibit 6 at p. 6. Analysis of temperature monitoring probe data demonstrates that the reaction has migrated beyond the area of the Landfill covered with geomembrane cover.

Further, various statements of state and local agencies, based on analyses of temperature monitoring and other data, confirm that the reaction at the Landfill has the potential to expand to the entire main canyon of the Landfill. On March 28, 2025, CalRecycle issued a letter ("CalRecycle Letter") to the LEA stating, "The reaction area is expanding, and the current containment strategy has failed." See **Enclosure C**, CalRecycle Letter at pp. 18-19. CalRecycle based its conclusion on an analysis of various reaction metrics, including temperature, landfill gas levels, settlement, cover fissures, leachate outbreaks, damage to the Landfill's gas collection and control system, and emissions and odors, among other metrics. See **Enclosure C**, CalRecycle Letter at p. 5. Similarly, DTSC found that, "Without additional action, the SET event may consume the entire waste fill in the Main Canyon, which could threaten the stability of the southern toe of the waste fill in Cell 8A." See **Enclosure A** at p. 6.

The potential for the reaction to affect the entire main canyon of the Landfill warrants expansion of the geomembrane cover over the remaining uncovered portion of the Landfill. Indeed, Dr. Stark has confirmed that given the lack of containment strategy for the reaction, that "the only option for controlling odors and emissions is to cover the area with a geomembrane . . . over which the temperature monitoring probes (TPs) have been installed." See **Enclosure A** at Exhibit 6, p. 4. Dr. Stark specifically recommended extending the cover to "cover about 183 acres and leave only about 13 acres at the southern end of the [Landfill] uncovered for current disposal operations." See **Enclosure A** at Exhibit 6, p. 5. CalRecycle also recommended installing geomembrane cover "over the approximately 100 acres outside of the current geomembrane cover." See **Enclosure C**, CalRecycle Letter at p. 19.

CCL reported to the LEA that it completed the installation of 30-mil HDPE geosynthetic cover over approximately 44.6 acres of the reaction area and over approximately 1.3 acres over the disposal area in accordance with the west toe drain workplan, as of January 17, 2025. See **Enclosure D**. CCL has reported that "[t]he cover has contributed to the substantial decrease of odors at the Landfill." See **Enclosure E** at p. 4.

Notwithstanding completion of the initial geomembrane cover, members of the community surrounding the Landfill continue to report odors from the Landfill. According to CCL's Notice of Violation Log, available at <https://chiquitacanyon.com/reports/notice-of-violation-log/>, SCAQMD has issued approximately 50 Notices of Violation to CCL for discharging air contaminants from the Landfill, based on odor complaints from the community, between February 2025 and July 8, 2025.

State and local regulatory agencies agree that expanding the geomembrane cover will address the ongoing odor issues. DTSC stated: "Extending the area covered by a geomembrane is necessary to adequately control infiltration of oxygen and water into the landfill waste, and to control production of gas emissions, odors, and leachate." See **Enclosure A** at p. 11. CCL has even acknowledged that the geomembrane cover can effectively mitigate odors: "Chiquita agrees that installation of additional cover may be an appropriate method for mitigating potential odor impacts." See **Enclosure E** at p. 4.

EPA concurs with the state and local regulatory agencies that covering the remaining uncovered portion of the Landfill with geomembrane cover is a necessary and appropriate measure to control the Landfill reaction and related odors. Expanding and improving the geomembrane cover will, among other things, control the migration of odors from the Landfill and, therefore, mitigate off-site impacts from odors or emissions.

Further, extending the geomembrane cover will control infiltration of oxygen and water into the landfill mass, which can help prevent the expansion of the smoldering or subsurface reaction occurring at the Landfill.

The Additional Work, therefore, serves the dual objectives of the Master Work Plan and the UAO, as set forth above.

Moreover, the Additional Work is necessary to meet the broader objective of the UAO to address the imminent and substantial endangerment to the public health or welfare from the Landfill resulting from the release or threatened release of a hazardous substance.

C. Submittal of Work Plan and Opportunity to Meet and Confer

EPA directs CCL to submit a Work Plan for the Additional Work within fifteen (15) days of this letter to EPA for approval, in accordance with Paragraph 90 of the UAO. Within five (5) days after the receipt of this letter, CCL shall have the opportunity to meet or confer with EPA to discuss the Additional Work. On approval of the Work Plan for the Additional Work, Respondent shall implement the Work Plan in accordance with the schedule and provisions contained therein, and the Work Plan for the Additional Work shall be incorporated by reference into the UAO.

If you have any questions or comments regarding this letter, or if you wish to exercise the opportunity to meet and confer, please contact Laura Friedli, EPA Attorney Advisor, at (415) 972-3325 or Friedli.Laura@epa.gov.

Sincerely,

Amy C. Miller-Bowen
Enforcement and Compliance Assurance Division
Director
U.S. Environmental Protection Agency, Region 9

Michael Montgomery
Superfund and Emergency Management Division
Director
U.S. Environmental Protection Agency, Region 9

Enclosures

Enclosure A – DTSC ISE Order

Enclosure B – LEA Compliance Order

Enclosure C – LEA March 2025 Letter attaching CalRecycle March 2025 Letter

Enclosure D – Cover Completion Report

Enclosure E – CCL Notice of Intent to Comply with DTSC ISE Order

cc: John Perkey, Waste Connections

Jim Little, Waste Connections

Kurt Shaner, Waste Connections

Sarah Phillips, Waste Connections

Megan Morgan, Beverage & Diamond

Nicole Weinstein, Beverage & Diamond

Allyn Stern, Beverage & Diamond

Todd Sax, California Environmental Protection Agency

Joel Jones, United States Environmental Protection Agency

Roshni Brahmhatt, United States Environmental Protection Agency

Kaoru Morimoto, United States Environmental Protection Agency

Rick Sakow, United States Environmental Protection Agency

Tyler Holybee, United States Environmental Protection Agency

Mark Anthony Relon, United States Environmental Protection Agency

Tara Frost, United States Environmental Protection Agency

Laura Friedli, United States Environmental Protection Agency

Enclosure A – DTSC ISE Order

**STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL**

In the Matter of:	)	Docket No. HSA-FY24/25-082
	)	
Chiquita Canyon Landfill	)	
29201 Henry Mayo Drive	)	IMMINENT AND SUBSTANTIAL
Castaic, California 91384	)	ENDANGERMENT
	)	DETERMINATION AND ORDER
Respondents:	)	
	)	
Chiquita Canyon, LLC	)	
29201 Henry Mayo Drive	)	Health and Safety Code
Castaic, California 91384	)	Sections 58009, 58010,
	)	78870, and 79055(a)(1)(B)
Chiquita Canyon, Inc.	)	
3 Waterway Square Place, Suite 110	)	
The Woodlands, Texas 77380	)	
	)	
Waste Connections US, Inc.	)	
3 Waterway Square Place, Suite 110	)	
The Woodlands, Texas 77380	)	

I. INTRODUCTION

1.1 **Parties.** The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) issues this Imminent and Substantial Endangerment Determination and Order (Order) to Chiquita Canyon, LLC, Chiquita Canyon, Inc., and Waste Connections US, Inc. (Respondents).

1.2 **Property/Site.** This Order applies to the property located at 29201 Henry Mayo Drive, Castaic, California 91384. The property is approximately 639 acres and is identified as Assessor's Parcel number(s) 3271002039, 3271002036, 3271005034, 3271002019, 3271002013, and 3271002011. This Order applies to the property and the areal extent of contamination that resulted from activities on the property (hereinafter, the "Site").

1.3 **Permitting Status.** Respondents own and/or operate a class III landfill/solid waste disposal facility known as Chiquita Canyon Landfill (CCL), which is operating under a permit (Solid Waste Facilities Permit No. 19-AA-0052), issued by the Los Angeles County Department of Public Health Solid Waste Management Program, acting as the Local Enforcement Agency (LEA). CCL has publicly stated that it is no longer accepting any waste as of January 1, 2025. CCL previously accepted non-hazardous solid waste, including municipal solid waste from

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various areas within Los Angeles County in accordance with California Code of Regulations, title 27 (27 CCR), section 20005 et seq. The Respondents engage in the management of landfill/solid waste disposal pursuant to a Conditional Use Permit (CUP 2004-00042-(5)) issued by the County of Los Angeles.

1.4 Jurisdiction. This Order is issued by DTSC to Respondents pursuant to its authority under Health and Safety Code sections 58009, 58010, 78870, and 79055(a)(1)(B).

Health and Safety Code section 78870 authorizes DTSC to take various actions, including issuance of an Imminent or Substantial Endangerment Determination and Order, when DTSC determines that there may be an imminent or substantial endangerment to the public health or welfare or to the environment, because of a release or a threatened release of a hazardous substance.

Health and Safety Code section 79055(a)(1)(B) authorizes DTSC to issue an order establishing a schedule for removing or remedying a release of a hazardous substance at a site, or for correcting the conditions that threaten the release of a hazardous substance. The order may include, but is not limited to, requiring specific dates by which the nature and extent of a release shall be determined and the site adequately characterized, appropriate plans prepared and submitted to DTSC for approval, and a removal or remedial action completed.

Health and Safety Code section 58009 authorizes DTSC to commence and maintain all proper and necessary actions and proceedings to enforce its rules and regulations; to enjoin and abate nuisances related to matters within its jurisdiction which are dangerous to health; to compel the performance of any act specifically enjoined upon any person, officer, or board, by any law of this state relating to matters within its jurisdiction; and/or on matters within its jurisdiction, to protect and preserve the public health.

Health and Safety Code section 58010 authorizes DTSC to abate public nuisances related to matters within its jurisdiction.

II. FINDINGS OF FACT

DTSC hereby finds:

2.1 Liability of Respondents. Respondents are responsible parties or liable persons as defined in Health and Safety Code section 78145.

2.1.1 Chiquita Canyon, LLC – Chiquita Canyon, LLC is the owner of CCL. In addition, Chiquita Canyon, LLC operates CCL subject to the control of Waste Connections US, Inc., including, without limitation, by maintaining an office at CCL, registering the fictitious business name “Chiquita Canyon Landfill,” and obtaining a conditional use permit from Los Angeles County to operate CCL. Chiquita Canyon, Inc. is the sole member of Chiquita Canyon, LLC, and Ronald J. Mittelstaedt is identified as a manager.

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April 1, 2025

2.1.2 Chiquita Canyon, Inc. – Chiquita Canyon, Inc. wholly owns Chiquita Canyon, LLC. Ronald J. Mittelstaedt is the Chief Executive Officer of Chiquita Canyon, Inc. Chiquita Canyon, Inc. and Chiquita Canyon, LLC share a principal address, at 3 Waterway Square Place, Suite 110, The Woodlands, TX 77380. Chiquita Canyon, Inc. operates CCL subject to the control of Waste Connections US, Inc.

2.1.3 Waste Connections US, Inc. – Waste Connections US, Inc. is a parent corporation of Chiquita Canyon, LLC and Chiquita Canyon, Inc. Ronald J. Mittelstaedt is the President and Chief Executive Officer of Waste Connections US, Inc., and has served in this role since Waste Connections US, Inc. was founded in 1997, with the exception of the period between July 2019 and April 2023, when he served as Executive Chairman. Waste Connections US, Inc. exercises significant control over CCL, Chiquita Canyon, LLC, and Chiquita Canyon, Inc., including, without limitation, by managing, directing, and conducting operations related to disposal or leakage of hazardous waste at CCL. Waste Connections US, Inc.’s employees also make decisions about CCL’s compliance with environmental regulations and represent CCL before regulatory agencies, governmental entities, and the media. As of December 10, 2024, the “About Chiquita Canyon” page of the CCL website stated that CCL “is owned and operated by Waste Connections.” At some point after December 10, 2024, that statement about Waste Connections US, Inc.’s ownership and operation of CCL was removed from the CCL website. (See Exhibit 1.)

2.2 Physical Description of Site. CCL is located at 29201 Henry Mayo Drive, Castaic, California 91384 in the County of Los Angeles. The Site lies within the United States Geological Survey (USGS) Val Verde, 7½-Minute Quadrangle. The coordinates of the Site are North 34 42.619 and West 118 64.680. CCL is approximately 639 acres in size and is in an area zoned A-2-2 heavy agricultural. The property is currently occupied and operating as a lined, class III non-hazardous municipal solid waste landfill. The surrounding area consists of industrial, agricultural, and residential properties. The nearest residential development is the Val Verde community, located approximately 1,000 feet northwest of CCL. (See Exhibit 2.)

CCL is comprised of landfill modules (2B/3/4, 4, and 5), cells (2 PH 2A, 2 PH 2B, 1/2A, 6, 8A and 8B), and canyons (Primary Canyon, Canyon A, Canyon B, Canyon C Cell 1, Canyon C Cell 2 PH1, and Canyon D). (See Exhibit 3.) The Primary Canyon (approx. 55 acres) operated from 1970 to 1987, and Canyon B (approx. 15 acres) operated from 1987 to 1988. The “Main Canyon” is comprised of Canyons A, C, and D, and Cells 1 through 6, and 8. Leachate is piped from extraction wells to remove perched liquid from the waste mass, as well as from condensate sumps and leachate sumps. Leachate is accumulated in seven distinct areas across CCL, which include: #2 East Perimeter; #3 Ameresco Condensate Tanks; #4 Leachate Collection Manifold; #6 North Perimeter; #7 Tank Farm; #8 Primary Canyon; and #9 Tank Farm (also referred to as “Tank Farm 9”).

Tank Farm 9 is of particular concern because it is located on CCL’s “top deck,” which herein refers to the surface area directly above the Subsurface Elevated Temperature (SET) event, which presently includes, at a minimum, all or part of Module 2B/3/4, Module 4, Cell 1/2A, Cell 2 PH 2B, Canyon C Cell 2 PH1, and Canyon C Cell 1.¹ (See Exhibit 3.) Tank Farm 9

¹ In landfill industry parlance, “top deck” typically refers to the uppermost element of a landfill, such as a cap barrier

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is vulnerable to the effects (i.e., subsidence, cracks or separations in the “top deck,” elevated temperatures, and settlement (total and differential)) of a known uncontrolled SET event (see Section 2.3 below). CCL currently has no physical breaks/barriers preventing the expansion of the SET event across the “top deck” and the east slope, consequently the entire landfill including Cell 8A may be impacted by the SET event. Because Cell 8A: (1) is being used for disposal of on-site materials, (2) can be used as a location for a soil berm to increase south slope stability, and (3) is adjacent to the main ingress and egress road, allowing the SET event to enter this cell could have irreversible negative results. Cell 8A is the southernmost slope of the landfill, located in the southern portion of the Main Canyon near the main entrance that allows access to areas throughout CCL. As a result, stability of Cell 8A is of particular concern because the SET event will increase leachate and gas pressure that can affect slope stability should it enter this cell.

2.3 Site History and Current Status. CCL was first approved for waste disposal in 1967. It has been in use as a class III non-hazardous solid waste landfill since 1972, and has been permitted to accept non-hazardous solid waste for disposal, including municipal solid waste, green waste for composting or recycling, construction and demolition debris, and e-waste for recycling. CCL has been prohibited from accepting hazardous waste, including that which is ignitable, corrosive, reactive, or toxic. CCL was also prohibited from accepting biohazardous waste, household hazardous waste, radioactive materials, incinerator ash, sludge, automobile shredder waste, and liquid waste. On January 1, 2025, CCL ceased further acceptance of waste material. CCL must continue landfill gas and leachate collection and comply with other Los Angeles County Department of Public Health permit requirements following the landfill’s closure.

On or about May 2022, an uncontrolled SET event significantly expanded in the inactive north-western portion of CCL in an area about 30 acres in size, in portions of the landfill identified as Cell 1/2A, Module 2B/3, Module 4, and Module 2B/3/4 P2. (See Exhibit 4.) SET events are caused by subsurface oxidation and waste reactions. The most common contributor to SET events is when ambient air is pulled into the landfill mass by the gas extraction system, which creates an environment where oxidation can occur. As temperatures increase in the presence of oxygen, spontaneous combustion and a smolder can occur, causing increased odors and emissions.

SET events threaten public health, safety, and the environment. A SET event begins to occur when temperatures in subsurface landfill waste exceed 145 degrees Fahrenheit (F). As a SET event progresses above 160 degrees F, methane generation is severely curtailed, and landfill environmental control devices manufactured with plastic, including landfill cover, liner system, and gas/leachate collection systems, can be damaged. Above 160 degrees F, underground exothermic reactions are more likely to occur. When an exothermic reaction occurs, the landfill will generate heat, leachate and gas pressures, and gas containing noxious odors; increase emissions of volatile organic compounds and toxic air contaminants such as benzene and methyl ethyl ketone (MEK); and produce large amounts of leachate with hazardous characteristics. The landfill itself may become unstable, threatening potential failures which could expose smoldering solid waste and leachate with hazardous characteristics to the environment and further impact

installed after active landfilling has ended, or as waste reaches the landfill’s final grades in the cells. At CCL, the term has also been used to refer to the location on top of the SET event in the northwest area of CCL.

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landfill infrastructure (i.e., existing cover, slopes, liner(s), leachate and gas collection systems, etc.).

SET events can be detected through a combination of physical factors. Landfill gas well temperatures, gas composition changes, e.g. increases in carbon dioxide, volatile organic carbons, hydrogen, and carbon monoxide, and decreases in methane. Landfill gas temperatures increase in the waste mass and subsequently at the gas extraction well-heads. Gas pressure increases and noxious odors are generated. Leachate volume increases and quality decreases such that leachate exhibits hazardous characteristics. As the SET event progresses, rapid surface settlement occurs and slope instability may result.

Following the significant expansion of the SET event in 2022, the waste mass produced large amounts of leachate with hazardous levels of benzene and MEK. In discussions with CCL staff during a site visit on November 2, 2023, California Department of Resources Recycling and Recovery (CalRecycle, formerly the California Integrated Waste Management Board) staff learned that the boring of three gas control wells (CV-1534A, CV-1532B, and CV2338) caused leachate to be released under pressure. CCL's boring logs indicate that these wells were installed on September 26, 2023; October 12, 2023; and October 4, 2023, respectively, and describe the releases from these boreholes as "geysers." During the same November 2023 visit, DTSC and CalRecycle staff directly observed a leachate outbreak in the northern area of CCL. Additionally, slopes in the CCL were observed to be leaking so much leachate that a French drain collection system had to be installed to control the free release. The elevated temperature and continued outflow of leachate has resulted in the area around well CV-2201 settling about 25 to 30 feet between 2022 and November 2023. The SET event has also increased temperature, pressure, and gas production at CCL, and is resulting in releases of gas containing volatile organic compounds and noxious odors that constitute a nuisance to the surrounding community.

To attempt to mitigate the reaction and odors, leachate must continuously be pumped out of the landfill. Once extracted, leachate is collected in tanks in distinct geographic locations across the landfill, including Tank Farm 9, which operates in the northeast portion of the "top deck" of CCL. Due to the volume of leachate being produced at the Site and the leachate's hazardous characteristic, hazardous waste leachate is currently being treated on-site by utilizing 24 granular activated carbon vessels which each hold 4,000 pounds of carbon media. The leachate, after treatment to non-hazardous levels, is transported to non-hazardous disposal facilities. Reports from CCL reflect that approximately 62.8 million gallons of leachate was collected in 2024, which translated to around 193 acres-feet of liquid, one foot deep. In the last five months of 2024, approximately six million gallons of leachate were extracted from CCL. Over the past year, the amount of leachate produced by the landfill has more than doubled, with about 3 million gallons produced in February 2024, and about 8 million gallons produced in February 2025.

Information provided by CCL in January and February 2025 indicates that the SET event is expanding to the east and south of the existing geomembrane cover and has reached Tank Farm 9. Underground temperatures recorded at CCL between January 9, 2025 and February 19, 2025 demonstrate the SET event has expanded beyond the original 30 acres in the northwestern portion of the landfill in Cell 1/2A, Module 2B/3, Module 4, and Module 2B/3/4 P2. These

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recent reports illustrate waste temperatures of 183 degrees F and 185 degrees F at the eastern side of the top-deck of the CCL near Tank Farm 9 at Temperature Monitoring Probes (TMPs) TP-15, TP-31, and TP-29. Other wells to the east and southeast of the geomembrane cover exhibit temperatures above 170 degrees F, such as TP-08 and TP-26. Wells TP-04, TP-11, TP-14, TP-30, and TP-32, which have measured temperatures at or above 165 degrees F. Based on these data, the SET event now encompasses approximately 90 acres of CCL. (See Exhibit 5.)

Recent data from CCL also confirms that settlement is occurring around the leachate Tank Farm 9, which threatens the continued operation and integrity of the tanks and piping and threatens a release of hazardous waste. Specifically, a February 17, 2025 weekly report identified new fissures and tension cracks, which are an indication of landfill settlement and/or slope instability, in areas where elevated temperatures were or are measured. Area #148, which is just north of Tank Farm 9, experienced an opening of significant fissures and tensions cracks that have been remediated but are likely to reappear as additional buried waste undergoes thermal breakdown and settles. Area #154, which is located just south of the tank farm, also recently experienced fissuring and tension crack development. Even more concerning is Area #147, which experienced a sinkhole, indicating a significant thermal breakdown of buried waste that resulted in a void developing below the interim soil cover. Area #147 is the next grid area north of Area #148. (See Exhibit 6, Memorandum from Dr. Timothy Stark to Mr. Matthew Dwyer, *RE: Comments on November 26, 2024 Revised Soil Reaction Break/Barrier Plan and February 20, 2025 waste temperature data for Chiquita Canyon Landfill Subsurface Elevated Temperature (SET) Event* (Feb. 26, 2025) (the “Stark Memo”), at Figures 3, 4, and 5; see also Exhibit 7, CCL grid system in the north east portion of the landfill.)

Continued settlement at Tank Farm 9 could physically separate the tanks, disconnect piping that conveys leachate to and between tanks and treatment systems, and result in a release of hazardous waste to the landfill. If Tank Farm 9 is damaged, there may be insufficient tankage to manage leachate produced by the landfill, resulting in leachate buildup that could impact the stability of the landfill, potentially leading to slope failure and the release of hazardous substances. Extreme heat from SET events can damage the landfill geosynthetic bottom liner system that underlies the deposited waste, threatening the release of hazardous leachate from the landfill, which could in turn contaminate soil and groundwater.

Without additional action, the SET event may consume the entire waste fill in the Main Canyon, which could threaten stability of the southern toe of the waste fill in Cell 8A. A slope failure in the southern slope would expose the reacting and smoldering waste, hazardous waste leachate, and potentially block off the primary entrance and exit of the facility.

2.3.1 Regulatory Actions. Various regulatory agencies, including DTSC, are actively involved with overseeing CCL as part of a Multi-Agency Critical Action Team (MCAT). The MCAT also includes agencies such as the United States Environmental Protection Agency (USEPA); California Environmental Protection Agency (CalEPA); South Coast Air Quality Management District (South Coast AQMD); CalRecycle; Los Angeles Regional Water Quality Control Board (Los Angeles RWQCB); California Air Resources Board (CARB); California Office of Environmental Health Hazard Assessment (OEHHA); Los Angeles County Departments of Public Health, Regional Planning, and Public Works; and the Los Angeles

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Certified Unified Program Agency. MCAT agencies have taken various regulatory actions in response to the SET event.

On September 6, 2023, South Coast AQMD issued an Order for Abatement that required certain Respondents to take actions to reduce odors from the landfill that have impacted the community. Pursuant to the Order for Abatement, Respondents submit reports summarizing landfill leachate leak, spill, and seep information. Additionally, pursuant to the Los Angeles RWQCB's Monitoring and Reporting Program (No. CI-6231), Respondents are required to report leachate seeps. The reports submitted to South Coast AQMD and the Los Angeles RWQCB are published on CCL's website (<https://chiquitacanyon.com/odor-mitigation/>).

On November 2, 2023; December 12–13, 2023; and February 20 and 27, 2024, DTSC participated in multi-agency site visits at CCL. During the December 12, 2023 site visit, DTSC collected samples of landfill leachate and determined the samples exceeded Resource Conservation and Recovery Act (RCRA) and California hazardous waste regulatory levels for benzene. Subsequent sampling by CCL has also shown regulatory hazardous waste threshold exceedances in leachate and/or condensate at CCL.

On February 15, and March 29, 2024, DTSC issued two Summaries of Violations (SOVs) to certain Respondents identifying alleged violations of the California Hazardous Waste Control Act (Health & Safety Code, § 25100 et seq.). Per the SOV dated February 15, 2024, DTSC alleges that Respondents failed to minimize the possibility of a release of hazardous waste or hazardous waste constituents, which included a compliance requirement to report all releases of hazardous waste to DTSC. (See Exhibit 8.)

On February 21, 2024, the USEPA issued a Unilateral Administrative Order (UAO) to certain Respondents, which required Respondents to perform certain response actions to address off-site impacts and ongoing subsurface reactions causing off-site impacts. The UAO provides further detail on Respondents' operation of the landfill, the SET event, and recent federal, state, and local regulatory actions to address issues related to noxious odors, leachate, and leachate condensate. The UAO requires Respondents to provide and implement a Master Work Plan that includes a Leachate Management Plan, Soil Reaction Break/Barrier Plan, Cover Installation Plan, Slope Stability Analysis, Air Monitoring Plan, and Off-Site Migration Prevention Plan. USEPA's oversight of the Respondents' work plans and required response actions is ongoing. (See Exhibit 9.)

On June 6, 2024, the Los Angeles County Department of Public Health Solid Waste Management Program, acting as the LEA, issued a Compliance Order to certain Respondents to correct violations related to state minimum standards for gas monitoring and control and site maintenance. (See Exhibit 10.) The LEA's Compliance Order required Respondents to implement mitigation measures to correct the violations, such as constructing a soil reaction break/barrier at a predesignated area(s), installing temperature monitoring devices, developing a cover repair and maintenance plan, performing a slope stability analysis, and collecting temperatures in and around the reaction area to ensure the French drain system meets manufacturer temperature design specifications/recommendations.

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In January 2025, CCL completed installation of a 30 mil thick white HDPE geomembrane cover over Cell 1/2A, Module 2B/3, Module 4, and Module 2B/3/4 P2 in order to address the SET event, consistent with the USEPA and LEA orders. CCL has not yet installed a vertical soil break/barrier to contain the reaction as required under the USEPA and LEA orders.

This Order is therefore intended to supplement the USEPA's UAO, the LEA's Compliance Order, and other MCAT regulatory actions by requiring Respondents to perform additional removal actions to protect public health or welfare or the environment, because of a release or a threatened release of a hazardous substance.

2.4 Hazardous Substances Found at the Site. On December 12, 2023, DTSC's Office of Criminal Investigations completed a site investigation at the Site and collected leachate samples from three well heads and one sump located in the reaction area. The results showed the following concentrations of benzene at the three well heads:

- Well CV-2306, Sample CCL-4B with 0.590 milligrams per Liter (mg/L);
- Well CV-2203, Sample CCL-6B with 0.912 mg/L; and
- Well CV-2338, Sample CCL-8B with 0.196 mg/L.

Respondents also analyzed leachate samples from these same three wells. The results showed the following concentrations of benzene at the three well heads:

- Well CV-2306, Sample CCL-4A/5A with 1.2 mg/L;
- Well CV-2203, Sample CCL-6A/7A with 2.9 mg/L; and
- Well CV-2338 CCL-8A/9A with 0.59 mg/L.

The level of benzene in each of the leachate samples exceeds the federal and California hazardous waste threshold value of 0.5mg/L for benzene, except for Sample CCL-8B.

Respondents have also sampled leachate and condensate onsite in late 2023 and throughout 2024. Leachate and/or condensate samples collected reflected exceedances of federal and California hazardous waste thresholds for benzene and MEK.

MEK has been detected exceeding the federal regulatory threshold of 200 milligram per Liter (mg/L) in samples of leachate. CCL provided sample data of leachate collected in March 2024, which showed the following concentrations of MEK at the #2 East Perimeter tank area:

- Tank 48, Sample CACA0306Z005EP48 with 250 mg/L;
- Tank 52, Sample CACA0306Z005EP52 with 230 mg/L; and
- Tank 72, Sample CACA0309Z005EP72 with 200 mg/L.

2.5 Health Effects. DTSC has determined that a potential for a complete exposure pathway exists at the Site. The hazardous substances described in Paragraph 2.4 could cause serious adverse health effects if people are exposed to them. The potential health effects are described as follows:

2.5.1 Benzene. Benzene is a clear, flammable liquid that is a known human carcinogen which can affect hematological, immunological, gastrointestinal, respiratory, hepatic, neurological, and reproductive systems; and can produce myeloid leukemia, Hodgkin's disease, and lymphomas, as well as non-cancer adverse health effects. Benzene can volatilize into vapors in the air and can easily leach from soil into groundwater. Benzene breaks down more slowly in water and soil than it does in the air. Humans can be exposed to benzene from contaminated air, surface water, groundwater, drinking water, and soil.

2.5.2 Methyl Ethyl Ketone. MEK is a chemical that can cause irritation to the eyes, nose, and throat when inhaled in acute (short-term) exposure in humans. Chronic (long-term) effects of MEK in humans are not well known, but chronic inhalation studies in animals have reported slight neurological, liver, kidney, and respiratory effects. At high concentrations, MEK can cause reversible central nervous system depression in animals. MEK is classified as a flammable liquid and can cause serious eye damage/eye irritation, respiratory tract irritation, and narcotic effects.

2.6 Routes of Exposure. In addition to possible exposure via inhalation of volatile organic compounds such as benzene, individuals working on Site or residing in the vicinity of the Site may be exposed to hazardous substances through dermal contact with soil, waste, or water contaminated by hazardous leachate during recreational or occupational activities. Should hazardous leachate migrate to groundwater, the public could be exposed through ingestion of contaminated drinking water.

2.7 Public Health and/or Environmental Risk. Pursuant to the SET event and its ongoing expansion, the Site presents a serious threat to public health and to the environment due to the potential for the hazardous leachate present at the Site, and generated by the SET event, to be released in several ways.

First, leachate could be released into local groundwater supplies due to the uncontrolled nature of the SET event, and its potential impacts on landfill liners. Groundwater is present in the area of the Site in two distinct aquifers. The upper alluvial aquifer is generally bounded by the Santa Clara River flood plain, about 20 to 50 feet deep. It is underlain by the Saugus aquifer. The Los Angeles RWQCB currently monitors a network of groundwater monitoring wells to identify any potential impacts to groundwater by the SET event. The elevated temperatures and chemicals produced by the reaction may threaten the integrity of the landfill liner, which, if compromised, creates a risk of release of benzene and other hazardous substances from the leachate into these aquifers, contaminating groundwater.

Second, CCL continues to produce large volumes of leachate, much of which is stored in tanks within several tank farms at the Site, which could be compromised by deteriorating conditions caused by the SET event. In particular, the area surrounding Tank Farm 9, which includes tanks which contain hazardous leachate, is showing signs of settlement (total and differential) as a result of the expanding SET event. If the tanks are not moved before conditions in this area deteriorate further, the tanks could become unstable and release hazardous leachate into the environment which could expose individuals working onsite and migrate to soils adjacent to the landfill and threaten surface and groundwater.

Third, leachate seeps, and leachate spills, including those from Tank Farm 9, occurring during the storage and treatment process, resulting from inadequate collection and onsite storage, or from the transport of leachate for offsite disposal, could migrate into stormwater channels and basins and threaten both the Santa Clara River, and groundwater aquifers. As documented in the USEPA UAO determination, these seeps and spills may discharge via stormwater run-off into surface waters downstream and impair aquatic life and wildlife uses of the Santa Clara River.

Fourth, the increased leachate production of the landfill is impacting overall stability of landfill slopes. Should a landfill slope suffer a failure, smoldering trash could be exposed to the environment, exposing surrounding workers and residents to benzene, MEK, and other toxic air contaminants, as well as noxious odors. A landfill slope failure could also release hazardous leachate, exposing workers and potentially residents to hazardous substances such as benzene and MEK.

Lastly, the present lack of natural or installed barriers to prevent the SET event from spreading into Cell 8A creates the potential for the entrance to the facility to become blocked, or too dangerous for entry, such that emergency equipment and workers could no longer enter the facility, thereby jeopardizing emergency or other response actions. The spread of the SET event into Cell 8A could also destabilize the southern toe of the waste fill in Cell 8A due to increased gas pressure and leachate volume, causing or threatening to cause slope failure. The slope failure could cause subsequent uncontrolled release of waste and hazardous leachate. Cell 8A needs to be protected given this location's unique suitability to be used to construct slope stabilization measures, such as an earthen embankment for slope stability and other possible response actions.

III. CONCLUSIONS OF LAW

3.1 Respondents are responsible parties as defined by Health and Safety Code section 78145.

3.2 Each of the substances listed in Section 2.4 is a "hazardous substance" as defined in Health and Safety Code section 78075(a).

3.3 There has been a "release" and there is a "threatened release" of hazardous substances listed in Section 2.4 at the Site, as defined in Health and Safety Code section 78105(a).

3.4 The actual and threatened release of hazardous substances at the Site may present an imminent and substantial endangerment to the public health or welfare or to the environment.

3.5 Response action is necessary to abate a public nuisance and/or to protect the public health and safety and the environment.

IV. DETERMINATION

4.1 Based on the foregoing findings of fact and conclusions of law, DTSC hereby determines that response action is necessary at the Site because there has been a release and/or there is a threatened release of a hazardous substance.

4.2 Based on the foregoing findings of fact and conclusions of law, DTSC hereby determines that there may be an imminent and/or substantial endangerment to the public health or welfare or to the environment because of the release and/or the threatened release of the hazardous substances at the Site.

V. ORDER

Based on the foregoing FINDINGS, CONCLUSIONS, AND DETERMINATION, IT IS HEREBY ORDERED THAT Respondents conduct the following response actions in the manner specified herein, and in accordance with the schedule specified by DTSC, as follows:

5.1 All response actions taken pursuant to this Order shall be consistent with the requirements of Health and Safety Code division 45 (commencing with section 78000 et seq.), and any other applicable state or federal statutes and regulations.

5.1.1 Site Response Strategy. The purpose of this Order is to require for the Site preparation of Removal Action Workplans and implementation of the removal actions described in the Workplans and approved by DTSC.

If necessary for the protection of public health and the environment, DTSC shall require additional removal actions not specified in this Order to be performed. Removal actions shall be implemented in accordance with a workplan and implementation schedule submitted by Respondents and approved by DTSC.

5.1.2. Removal Actions. Respondents shall undertake removal actions because DTSC has determined that they are necessary to mitigate the release or threatened release of hazardous substances at or emanating from the SET event at the Site. In addition to the other requirements of this Order, Respondents shall implement the following removal actions:

- a) Extension of Covered Area. Respondents shall install a DTSC-approved landfill cover on all areas of the Site which are not presently covered by a geomembrane and to which the reaction area has expanded or has the potential to expand. Extending the area covered by a geomembrane is necessary to adequately control infiltration of oxygen and water into the landfill waste, and to control production of gas emissions, odors, and leachate. The geomembrane cover shall accommodate landfill settlement/subsidence, sufficiently limit the transmission of gases (e.g. methane permeance less than 2.5×10^{-13} m/s using ASTM D1434), and provide durability from foot traffic, exposure to ultraviolet radiation, and inclement weather, or motorized equipment, if any. In addition, the cover shall have material properties to address site-specific conditions, including but not limited to, elevated landfill temperatures,

settlement, and harmful landfill gas/odor emissions. This work shall be conducted with appropriate air monitoring, use Construction Quality Assurance techniques, and be consistent with South Coast AQMD's order and other applicable requirements. The geomembrane thickness shall be adequate to withstand the activities and conditions at the facility, but no less thick than 40 mil, with material consistent to prevent heat degradation and control odors and emissions as documented in the Stark Memo, Exhibit 6.

- b) Interim Relocation and Stabilization of Containerized Waste. Incident to installation of a DTSC-approved landfill cover in the current non-capped areas of the Site, and to address threatened releases caused by destabilization of leachate storage tanks resulting from elevated temperatures within the buried waste material surrounding Tank Farm 9, and/or in response to signs of settlement and differential movement in the area, Respondents shall relocate the leachate storage tanks within Tank Farm 9 from the "top deck" to a stable location within CCL to ensure stability, continued effective performance, and to minimize/eliminate threats from the expanding reaction area and landfill settlement to the tank farm. Consistent with (a) above, the integrity of the covered area is paramount, and the tanks, or any other structures, may not be placed upon the covered area upon completion of said cover or any area that may be subject to the SET event in the future.
- c) Protect Cell 8A from Intrusion of Subsurface Elevated Temperature Event. Cell 8A is considered critical infrastructure due to its proximity to the primary point of ingress to and egress from the facility, its favorable location for potential disposal of onsite generated waste, and its unique suitability for slope stabilization activities should that become necessary. Therefore, limiting intrusion of the SET event into Cell 8A is crucial, and Respondents shall implement measures to prevent the SET event from entering Cell 8A. The measures shall include, but are not limited to, the installation of a vertical barrier of inert material not subject to biological, thermal, or oxidative degradation. Respondents may link such a barrier to any existing barrier systems already in this area, provided that the barrier design meets DTSC's requirements and receives DTSC's approval.

5.1.3 Site Response Strategy Meeting. Respondents, including the Project Coordinator (Section 6.1) and Project Engineer/Geologist (Section 6.2), shall meet with DTSC within seven (7) days from the effective date of this Order to discuss response strategy. These discussions shall include Site risks and priorities; project planning, phasing and scheduling, removal action objectives, remedial technologies, data quality objectives, and the workplan.

5.2. Public Notice. Respondents shall work cooperatively with DTSC's Office of Environmental Equity in providing public notice of all response actions at the Site.

5.3 Removal Action Workplan(s) (RAW). DTSC has determined that RAWs are appropriate to address the identified removal actions on the Site. Respondents shall prepare and submit to DTSC three (3) separate draft RAWs, pursuant to the following submittal schedule:

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- Draft RAW for Extension of Covered Area – no later than thirty (30) days following the effective date of this Order;
- Draft RAW for Interim Relocation and Stabilization of Containerized Waste – no later than thirty (30) days following the effective date of this Order; and
- Draft RAW for Protection of Cell 8A from Intrusion of SET event – no later than ninety (90) days following the effective date of this Order.

Each draft RAW shall be prepared in accordance with Health and Safety Code sections 78130, and 79195–79240, and shall include the items listed below, at a minimum. This list is subject to change based on the site’s evolving characterization.

- a) A Site description which includes current site conditions, ownership and operational history, contamination and characterization activities conducted, and any response actions taken;
- b) The goals to be achieved by the removal actions identified in 5.1.2 of this Order;
- c) A Design and Implementation Plan. The design portion of the plan shall include, at a minimum, relevant criteria and final plans and specifications. The implementation portion of the plan shall detail, at a minimum, the techniques and methods to implement the removal activities, including any excavating, storing, handling, transporting, treating, and disposing of material on or off the Site;
- d) A Sampling and Analysis Plan with corresponding Quality Assurance/Quality Control (QA/QC) Plan to confirm the effectiveness of the RAW;
- e) A description of methods that will be employed during the removal action to ensure the health and safety of workers and the public during the removal action;
- f) A construction air monitoring plan to be executed in coordination with the ongoing site-wide air monitoring program;
- g) Design criteria and final plans and specifications for facilities to be constructed shall be prepared by a California licensed civil engineer;
- h) Description of equipment used to excavate, handle, and transport contaminated material;
- i) A field sampling and laboratory analysis plan addressing sampling during implementation and to confirm achievement of the performance objectives of the Workplan;

- j) A transportation plan identifying routes of travel and final destination of wastes generated and disposed, if necessary;
- k) An updated health and safety plan addressing the implementation activities;
- l) Identification of any necessary permits and agreements;
- m) An operation and maintenance plan including any required periodic and long-term monitoring;
- n) A detailed schedule for implementation of the removal action consistent with the schedule contained in the approved Workplan including procurement, mobilization, construction phasing, sampling, facility startup, and testing; and
- o) A construction quality assurance plan that includes quality assurance and testing procedures sufficient to ensure implemented removal actions meet the approved design(s) and specifications.

5.4 Workplan Implementation. DTSC shall review the draft RAWs and either approve them or provide comments to Respondents. If comments are provided, Respondents shall submit to DTSC for review within fifteen (15) days a revised draft RAW that addresses the comments. Upon DTSC approval of the final RAWs, Respondents shall implement the RAW in accordance with the approved schedule in the RAW. Within thirty (30) days of completion of field activities, Respondents shall submit an implementation report (“Implementation Report”) documenting the implementation of the final RAW.

5.5 Workplan Revisions. If Respondents propose to modify any methods or initiate new activities, Respondents shall prepare an addendum to the approved plan(s) for DTSC review and approval prior to modifying the method or initiating new activities. DTSC may propose to modify any methods or request new activities and request Respondents to prepare an addendum to the approved plan(s) for DTSC review and approval prior to modifying the method(s) or initiating new activities.

5.6 One-Year Review. After a period of one (1) year from the date of the Implementation Report, Respondents shall conduct an inspection of the Site and evaluate the adequacy and integrity of the completed removal actions. Thirty (30) days prior to the first anniversary of the Implementation Report, Respondents shall submit a workplan to describe such inspections and evaluations (“One-Year Review Workplan”) to DTSC for review and approval. Respondents shall implement the One-Year Review Workplan within sixty (60) days of its approval by DTSC, and Respondents shall submit a comprehensive report of the results of the removal action review. The report shall (a) describe the results of all sample analyses, tests, and other data generated or received by Respondents; and (b) evaluate the adequacy of the implemented removal action in protecting public health, safety, and the environment. As a result of any review performed under this Section, Respondents may be required to perform additional work as necessary to achieve the objectives of the approved RAW.

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5.7 Changes During Implementation of the Workplan. During the implementation of the RAW(s), DTSC may specify such additions, modifications, and revisions to the Workplan as DTSC deems necessary to protect public health and safety or the environment or to implement the removal actions.

5.8 Stop Work Order. In the event that DTSC determines that any activity (whether or not pursued in compliance with this Order) may pose an imminent or substantial endangerment to the health or safety of people on the Site or in the surrounding area or to the environment, DTSC may order Respondents to stop further implementation of this Order, in full or in part, for such period of time needed to abate the endangerment. In the event that DTSC determines that any site activities (whether or not pursued in compliance with this Order) are proceeding without DTSC authorization, DTSC may order Respondents to stop further implementation of this Order (in full or in part) or activity for such period of time needed to obtain DTSC authorization, if such authorization is appropriate. Any deadline in this Order directly affected by a Stop Work Order, under this Section, shall be extended for the term of the Stop Work Order.

5.9 Emergency Response Action/Notification. In the event of any action or occurrence (such as a fire, earthquake, explosion, or human exposure to hazardous substances caused by the release or threatened release of a hazardous substance) during the course of this Order, Respondents shall immediately take all appropriate action to prevent, abate, or minimize such emergency, release, or immediate threat of release, and shall immediately notify the Project Manager. Respondents shall take such action in consultation with the Project Manager and in accordance with all applicable provisions of this Order. Within seven (7) days of the onset of such an event, Respondents shall furnish a report to DTSC, signed by Respondents' Project Coordinator, setting forth the events which occurred and the measures taken in the response thereto. In the event that Respondents fail to take appropriate response and DTSC takes the action instead, Respondents shall be liable to DTSC for all costs of the response action. Nothing in this Section shall be deemed to limit any other notification requirement to which Respondents may be subject.

5.10 Discontinuation of Removal Technology. Any technology employed in implementation of the removal actions shall be left in place and operated by Respondents until and except to the extent that DTSC authorizes Respondents in writing to discontinue, move or modify some or all of the technology because Respondents has met the criteria specified in the final RAW for its discontinuance, or because the modifications would better achieve the goals of future response actions.

5.11 Financial Assurance. Upon request, Respondents shall demonstrate to DTSC and maintain financial assurance for identified and approved operation and maintenance and monitoring activities. Respondents shall demonstrate financial assurance prior to the time that operation and maintenance activities are initiated and shall maintain it throughout the period of time necessary to complete all required operation and maintenance activities. The financial assurance mechanisms shall meet the requirements of Health and Safety Code sections 79310–79330. All financial assurance mechanisms are subject to the review and approval of DTSC.

5.12 California Environmental Quality Act (CEQA). DTSC finds that, due to the unique and special circumstances of the expanding SET event at the Site, immediate action is needed to prevent clear and imminent adverse effects to health and the environment. Accordingly, DTSC finds that the work needed to implement this Order is exempt from CEQA as an enforcement action pursuant to California Code of Regulations, title 14, section 15321(a); and as action necessary to prevent or mitigate an emergency, pursuant to Public Resources Code, sections 21060.3 and 21080(b)(4); and California Code of Regulations, title 14, section 15269(c).

VI. GENERAL PROVISIONS

6.1 Project Coordinator. Within seven (7) days from the date the Order is signed by DTSC, Respondents shall submit to DTSC in writing the name, address, and telephone number of a Project Coordinator whose responsibilities shall be to receive all notices, comments, approvals, and other communications from DTSC. Respondents shall promptly notify DTSC of any change in the identity of the Project Coordinator. Respondents shall obtain approval from DTSC before the new Project Coordinator performs any work under this Order.

6.2 Project Engineer/Geologist. The work performed pursuant to this Order shall be under the direction and supervision of a qualified professional engineer or a registered geologist in the State of California, with expertise in hazardous substance site cleanups. Within seven (7) days from the date this Order is signed by DTSC, Respondents must submit: (a) The name and address of the project engineer or geologist chosen by Respondents; and (b) in order to demonstrate expertise in hazardous substance cleanup, the resumé of the engineer or geologist, and the statement of qualifications of the consulting firm responsible for the work. Respondents shall promptly notify DTSC of any change in the identity of the Project Engineer/Geologist. Respondents shall obtain approval from DTSC before the new Project Engineer/Geologist performs any work under this Order.

6.3 Monthly Summary Reports. Within thirty (30) days from the effective date of this Order, and on a monthly basis thereafter, Respondents shall submit a Monthly Summary Report of its activities under the provisions of this Order. The report shall be received by DTSC by the fifteenth (15th) day of each month and shall describe:

- (a) Specific actions taken by or on behalf of Respondents during the previous calendar month;
- (b) Actions expected to be undertaken during the current calendar month;
- (c) All planned activities for the next month;
- (d) Any requirements under this Order that were not completed;
- (e) Any problems or anticipated problems in complying with this Order; and
- (f) All results of sample analyses, tests, and other data generated under this Order during the previous calendar month, and any significant findings from these data.

ISE Order – Chiquita Canyon Landfill
April 1, 2025

6.4 Quality Assurance/Quality Control (QA/QC). All sampling and analysis conducted by Respondents under this Order shall be performed in accordance with QA/QC procedures submitted by Respondents and approved by DTSC pursuant to this Order.

6.5 Submittals. All submittals and notifications from Respondents required by this Order shall be sent electronically to:

Department of Toxic Substances Control
Attn: Daniel V. Ziarkowski, Branch Chief & Peter Ruttan, Project
Manager
Site Mitigation and Restoration Program
Legacy Landfills Office
8800 Cal Center Drive
Sacramento, CA 95826
dan.ziarkowski@dtsc.ca.gov
peter.ruttan@dtsc.ca.gov

6.6 Communications. All approvals and decisions of DTSC made regarding submittals and notifications shall be communicated to Respondents in writing by the Site Mitigation Branch Chief, or his/her designee. No informal advice, guidance, suggestions, or comments by DTSC regarding reports, plans, specifications, schedules, or any other writings by Respondents shall be construed to relieve Respondents of the obligation to obtain such formal approvals as may be required.

6.7 DTSC Review and Approval. All response actions taken pursuant to this Order shall be subject to the approval of DTSC.

- a) Respondents shall submit all deliverables required by this Order to DTSC. Once the deliverables are approved by DTSC, they shall be deemed incorporated into, and where applicable, enforceable under this Order.
- b) If DTSC determines that any report, plan, schedule, or other document submitted for approval pursuant to this Order fails to comply with this Order or fails to protect public health or safety or the environment, DTSC may:
 - 1) Modify the document as deemed necessary and approve the document as modified; or
 - 2) Return comments to Respondents with a description of needed changes and a date by which Respondents must submit to DTSC a revised document incorporating the changes.
- c) Any modifications, comments, or other directives issued pursuant to this Section, are incorporated into this Order. Any noncompliance with these modifications or directives shall be deemed a failure or refusal to comply with this Order.

6.8 Compliance with Applicable Laws. Nothing in this Order shall relieve Respondents from complying with all other applicable laws and regulations, including but not limited to compliance with all applicable waste discharge requirements issued by the State Water Resources Control Board or a California Regional Water Quality Control Board. Respondents shall conform all actions required by this Order with all applicable federal, state, and local laws and regulations.

6.9 Respondents Liabilities. Nothing in this Order shall constitute or be construed as a satisfaction or release from liability for any conditions or claims arising as a result of past, current or future operations of Respondents. Nothing in this Order is intended or shall be construed to limit the rights of any of the parties with respect to claims arising out of or relating to the deposit or disposal at any other location of substances removed from the Site. Nothing in this Order is intended or shall be construed to limit or preclude DTSC from taking any action authorized by law to protect public health or safety or the environment and recovering the cost thereof. Notwithstanding compliance with the terms of this Order, Respondents may be required to take further actions as necessary to protect public health and the environment.

6.10 Site Access. Access to the Site (and laboratories used for analyses of samples, when necessary) under this Order shall be provided at all reasonable times to employees, contractors, and consultants of DTSC. Nothing in this Section is intended or shall be construed to limit in any way the right of entry or inspection that DTSC or any other agency may otherwise have by operation of any law. DTSC and its authorized representatives shall have the authority to enter and move freely about all property at the Site at all reasonable times for purposes including, but not limited to: inspecting records, operating logs, sampling and analytic data, and contracts relating to this Site; reviewing the progress of Respondents in carrying out the terms of this Order; conducting such tests as DTSC may deem necessary; and verifying the data submitted to DTSC by Respondents.

To the extent the Site or any other property to which access is required for the implementation of this Order is owned or controlled by persons other than Respondents, Respondents shall use best efforts to secure from such persons access for Respondents, as well as DTSC, its representatives, and contractors, as necessary to effectuate this Order. To the extent that any portion of the Site is controlled by tenants of Respondents, Respondents shall use best efforts to secure from such tenants, access for Respondents, as well as for DTSC, its representatives, and contractors, as necessary to effectuate this Order. For purposes of this Section, “best efforts” includes the payment of reasonable sums of money in consideration of access. If any access required to complete the Work is not obtained within forty-five (45) days of the effective date of this Order, or within forty-five (45) days of the date DTSC notifies Respondents in writing that additional access beyond that previously secured is necessary, Respondents shall promptly notify DTSC, and shall include in that notification a summary of the steps Respondents has taken to attempt to obtain access. DTSC may, as it deems appropriate, assist Respondents in obtaining access. Respondents shall reimburse DTSC in obtaining access, including, but not limited to, attorneys fees and the amount of just compensation.

6.11 Sampling, Data and Document Availability. Respondents shall permit DTSC and

ISE Order – Chiquita Canyon Landfill
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its authorized representatives to inspect, and review, and Respondents shall provide in electronic format, as requested, any and all copies of all sampling, testing, monitoring, or other data, including raw data, generated by Respondents or on Respondents' behalf, in any way pertaining to work undertaken pursuant to this Order, or related to monitoring the SET event and associated conditions at the Site. Such data includes, but is not limited to:

- a) All raw data generated regarding temperature data at CCL, and any prepared graphs, in .txt format;
- b) All raw data generated regarding down well temperatures;
- c) All raw data generated regarding gas well head temperatures;
- d) All raw data generated regarding leachate production and any characterization;
- e) All raw data generated regarding landfill gas production and any characterization;
- f) All raw data generated via unmanned aerial vehicles (UAVs);
- g) All raw data generated regarding perimeter gas wells;
- h) All raw data generated regarding landfill gas pressures;
- i) All raw data and reports generated regarding slope stability;
- j) All raw data regarding survey benchmark and monuments, including process used to establish the datum;
- k) All aerial or photographic images, surveys, and scans of the facility, fissures, tension cracks, cover tears, leachate outbreaks or pools, and storage tanks taken since January 2022;
- l) All raw landfill gas data including notes;
- m) A copy of all current Standard Operating Procedures (SOPs), including but not limited to, the SOPs for landfill gas and leachate collection and treatment;
- n) Continuous web access to all data stored online including TMPs, FLIR images, and gas data.

Respondents shall submit all such data upon the request of DTSC. Copies shall be provided within seven (7) days of receipt of DTSC's written request. Respondents shall inform DTSC at least seven (7) days in advance of all field sampling under this Order, and Respondents shall allow DTSC and its authorized representatives to take duplicates of any samples collected by Respondents pursuant to this Order. Respondents shall maintain a central depository of the data, reports, and other documents prepared pursuant to this Order.

6.12 Record Retention. All such data, reports, and other documents shall be preserved by Respondents for a minimum of five (5) years after the conclusion of all activities under this Order. If DTSC requests that some or all of these documents be preserved for a longer period of time, Respondents shall either comply with that request, deliver the documents to DTSC, or permit DTSC to copy the documents prior to destruction. Respondents shall notify DTSC in writing at least six (6) months prior to destroying any documents prepared pursuant to this Order.

6.13 Government Liabilities. The State of California shall not be liable for any injuries or damages to persons or property resulting from acts or omissions by Respondents, or related parties specified in Section 6.25, Parties Bound, in carrying out activities pursuant to this Order, nor shall the State of California be held as party to any contract entered into by Respondents or its agents in carrying out activities pursuant to this Order.

ISE Order – Chiquita Canyon Landfill
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6.14 Additional Actions. By issuance of this Order, DTSC does not waive the right to take any further actions authorized by law.

6.15 Extension Requests. If Respondents are unable to perform any activity or submit any document within the time required under this Order, Respondents may, prior to expiration of the time, request an extension of the time in writing. The extension request shall include a justification for the delay. All such requests shall be in advance of the date on which the activity or document is due.

6.16 Extension Approvals. If DTSC determines that good cause exists for an extension, it shall grant the request and specify a new schedule in writing. Respondents shall comply with the new schedule incorporated in this Order.

6.17 Liability for Costs. Respondents are liable for all of DTSC's costs that have been incurred in taking response actions at the Site (including costs of overseeing response actions performed by Respondents) and costs to be incurred in the future.

6.18 Payment of Costs. DTSC may bill Respondents for costs incurred in taking response actions at the Site prior to the effective date of this Order. DTSC shall bill Respondents quarterly for its response costs incurred after the effective date of this Order. Respondents shall pay DTSC within sixty (60) days of receipt of any DTSC billing. Any billing not paid within sixty (60) days is subject to interest calculated from the date of the billing pursuant to Health and Safety Code section 79655. All payments made by Respondents pursuant to this Order shall be by cashier's or certified check made payable to this "DTSC," and shall bear on the face the project code of the Site (Site Code 302132-00) and the Docket number of this Order. Payments shall be sent to:

Department of Toxic Substances Control
Accounting/Cashier
1001 I Street, 21st Floor
P.O. Box 806
Sacramento, California 95812-0806

A photocopy of all payment checks shall also be sent to the person designated by DTSC to receive submittals under this Order.

6.19 Severability. The requirements of this Order are severable, and Respondents shall comply with each and every provision hereof, notwithstanding the effectiveness of any other provision.

6.20 Incorporation of Plans, Schedules, and Reports. All plans, schedules, reports, specifications, and other documents that are submitted by Respondents pursuant to this Order are incorporated in this Order upon DTSC's approval or as modified pursuant to Section 6.7, DTSC Review and Approval, and shall be implemented by Respondents. Any noncompliance with the documents incorporated in this Order shall be deemed a failure or refusal to comply with this

***ISE Order – Chiquita Canyon Landfill
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Order.

6.21 Modifications. DTSC reserves the right to unilaterally modify this Order. Any modification to this Order shall be effective upon the date the modification is signed by DTSC and shall be deemed incorporated in this Order.

6.22 Time Periods. Unless otherwise specified, time periods begin from the effective date of this Order and “days” means calendar days.

6.23 Termination and Satisfaction. Except for Respondents obligations under Sections 5.6 One-Year Review, 6.12 Record Retention, 6.17 Liability for Costs, and 6.18 Payment of Costs, Respondents obligations under this Order shall terminate and be deemed satisfied upon Respondents receipt of written notice from DTSC that Respondents has complied with all the terms of this Order.

6.24 Calendar of Tasks and Schedules. This Section is merely for the convenience of listing in one location the submittals required by this Order. If there is a conflict between the date for a scheduled submittal within this Section and the date within the Section describing the specific requirement, the latter shall govern.

Calendar of Tasks and Schedules

TASK	SCHEDULE
1. Provide written notice of whether Respondents intend to comply with Order; Section 7	Within seven (7) days of the effective date of this Order.
2. Schedule and attend Site Response Strategy Meeting; Section 5.1.3	Within seven (7) days of the effective date of this Order.
3. Identify Project Coordinator; Section 6.1	Within seven (7) days of the effective date of this Order.
4. Provide requested sampling, data, and documentation; Section 6.11	Within seven (7) days of receipt of DTSC’s request.
5. Identify Project Engineer/Geologist; Section 6.2	Within seven (7) days of the effective date of this Order.

***ISE Order – Chiquita Canyon Landfill
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TASK	SCHEDULE
6. Submit Monthly Report(s); Section 6.3	Within thirty (30) days of the effective date of this Order; then every month thereafter, by the 15 th day of each month, until satisfaction of all obligations under this Order.
7. Submit Draft Removal Action Workplan for Extension of Covered Area; Section 5.3	Within thirty (30) days of the effective date of this Order.
8. Submit Draft Removal Action Workplan for Interim Relocation and Stabilization of Containerized Waste; Section 5.3	Within thirty (30) days of the effective date of this Order.
9. [If DTSC Issues Comments to Draft RAW(s)] Submit Revised Draft Removal Action Workplan(s); Section 5.4	Within fifteen (15) days of the receipt of comments on Draft RAW(s) from DTSC.
10. Submit Draft Removal Action Workplan for Protection of Cell 8A from Intrusion of SET event; Section 5.3	Within ninety (90) days of the effective date of this Order.
11. Submit Implementation Report; Section 5.4	Within thirty (30) days of the completion of field activities required under this Order.
12. Submit One-Year Review Workplan; Section 5.6	At least thirty (30) days prior to the first anniversary of the submission of the Implementation Report.
13. Implement One-Year Review Workplan; Section 5.6	Within sixty (60) days of DTSC approval of One-Year Review Workplan.
14. Submit One-Year Review Report; Section 5.6	Within sixty (60) days of DTSC approval of One-Year Review Workplan.
15. Maintain central depository of data, reports, and documentation; Section 6.12	At least five (5) years after conclusion of all activities conducted pursuant to this Order.
16. Provide prior written notice to DTSC before destroying any documentation prepared pursuant to this Order; Section 6.12	At least six (6) months prior to destroying any documents.

6.25 Parties Bound. This Order applies to and is binding upon Respondents, and their officers, directors, agents, employees, contractors, consultants, receivers, trustees, successors and assignees, including but not limited to, individuals, partners, and subsidiary and parent

ISE Order – Chiquita Canyon Landfill
April 1, 2025

corporations. Respondents shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants which are retained to conduct any work performed under this Order, within fifteen (15) days after the effective date of this Order or the date of retaining their services, whichever is later. Respondents shall condition any such contracts upon satisfactory compliance with this Order. Notwithstanding the terms of any contract, Respondents are responsible for compliance with this Order and for ensuring that its subsidiaries, employees, contractors, consultants, subcontractors, agents, and attorneys comply with this Order.

6.26 Change in Ownership. No change in ownership or corporate or partnership status relating to the Site shall in any way alter Respondents' responsibility under this Order. No conveyance of title, easement, or other interest in the Site, or a portion of the Site, shall affect Respondents' obligations under this Order. Unless DTSC agrees that such obligations may be transferred to a third party, Respondents shall be responsible for and liable for any failure to carry out all activities required of Respondents by the terms and conditions of this Order, regardless of Respondents' use of employees, agents, contractors, or consultants to perform any such tasks. Respondents shall provide a copy of this Order to any subsequent owners or successors before ownership rights or stock or assets in a corporate acquisition are transferred.

6.27 Non-Duplication and Consistency with Other Orders. To ensure regulatory consistency and avoid unnecessary duplication, this Order shall be interpreted and implemented in a manner that does not conflict with or duplicate any existing orders issued by federal, state, or local agencies addressing the same or substantially similar conditions at the Site. Respondents may request modifications to this Order to reconcile apparent inconsistencies with other orders, and may request clarification or permission to avoid duplicative administrative requirements, if applicable.

VII. NOTICE OF INTENT TO COMPLY

7. Not later than seven (7) days after the effective date of this Order, Respondents shall provide written notice, in accordance with Section 6.5 of this Order, stating whether or not Respondents shall comply with the terms of this Order. If Respondents, or any one of them, do not unequivocally commit to perform all of the requirements of this Order, they, or each so refusing, shall be deemed to have violated this Order and to have failed or refused to comply with this Order. Respondents' written notice shall describe, using facts that exist on or prior to the effective date of this Order, any "sufficient cause" defenses asserted by Respondents under Health and Safety Code sections 78870 and 79055(a)(1)(B) or CERCLA section 107(c)(3), 42 U.S.C. section 9607(c)(3).

VIII. EFFECTIVE DATE

8. This Order is final and effective on the date of service.

IX. PENALTIES FOR NONCOMPLIANCE

9. Each Respondent may be liable for penalties of up to \$25,000 for each day out of compliance with any term or condition set forth in this Order and for punitive damages up to

***ISE Order – Chiquita Canyon Landfill
April 1, 2025***

three times the amount of any costs incurred by DTSC as a result of Respondents' failure to comply, pursuant to Health and Safety Code sections 78470(c), 78665, 78675, 78680, 79550, 79555, and 79570. Health and Safety Code section 79555 provides that a responsible party who complies with this Order, or with another order or agreement concerning the same response actions required by this Order, may seek treble damages from Respondents who fail or refuse to comply with this Order without sufficient cause.

ISE Order – Chiquita Canyon Landfill
April 1, 2025

DATE OF ISSUANCE: April 1, 2025

Elizabeth Anne Berg
Deputy Director
Site Mitigation and Restoration Program
Department of Toxic Substances Control

cc: Site Mitigation and Restoration Program
Headquarters, Planning & Policy
Office of Legal Counsel

CSC – Lawyers Incorporating Service
2710 Gateway Oaks Drive, Suite 150N
Sacramento, CA 95833
Corporate Registered Agent for Chiquita Canyon, LLC, Chiquita Canyon, Inc., and Waste
Connections US, Inc.

EXHIBIT 1

[About](#)[Using
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Efforts](#)[Reports](#)[Odor
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About

About Chiquita Canyon

Chiquita Canyon is a 639-acre landfill located in Castaic, California, approximately 3 miles west of the Interstate 5 on State Route 126 in the Santa Clarita Valley. It has been in continuous operation for nearly 50 years and is owned and operated by Waste Connections, an integrated solid waste services company. Chiquita Canyon has provided the Santa Clarita Valley and surrounding Los Angeles communities with environmentally safe and efficient waste disposal services.



Chiquita Canyon only accepts non-hazardous solid waste for disposal. The solid waste received at the site consists of municipal solid waste, residential and commercial waste, including yard waste, Green Waste (for composting or for recycling), clean fill soil and construction/demolition debris.

Since it began operating in 1972, Chiquita Canyon has been an active member of the Santa Clarita Valley, participating in community events and contributing to local organizations and programs. Through the Val Verde Community Benefits Funding Committee Chiquita Canyon has been an active supporter of Val Verde civic programs.

Chiquita Canyon, like other solid waste landfills, over time generates a greenhouse gas, methane, which can be safely converted into a valuable source of clean energy. Chiquita deploys a gas recovery system to collect methane which is then used to generate electricity for nearly 10,000 homes each year.

Conditional Use Permit – CUP 2004-00042

About Waste Connections

Waste Connections is an integrated solid waste services company that provides solid waste collection, transfer, disposal and recycling services in mostly secondary markets in the Western and Southern U.S. The Company serves more than one million residential, commercial and industrial customers from a network of operations in 23 states. We also provide intermodal services for the movement of containers in the Pacific Northwest.

We believe the solid waste service business is a local business managed by professionals living and working in the communities we serve. We strive to provide service excellence for those communities that place their trust in our company and are always dedicated to putting our customers first. We look to technology and growth to help our customers, employees and shareholders “Connect with the Future”. As a public company we have the resources to meet every customer’s needs in a cost effective and environmentally compatible manner. We understand the markets, the philosophy and the unique needs of the customers we serve whether they be industry, commercial accounts, municipal jurisdictions or individual subscribers.

Our Operating Values

Safety. We strive to assure complete safety of our employees, our customers and the public in all of our operations. Protection from accident or injury is paramount in all we do.

Integrity. We define integrity as “saying what you will do and then doing it.” We keep our promises to our customers, our employees and our stockholders. Do the right thing, at the right time, for the right reason.

Customer Service. We provide our customers the best possible service in a courteous, effective manner, showing respect for those we are fortunate to serve.

To be a Great Place To Work. We maintain a growth culture where our employees can maximize their potential personally and professionally. Our objective is to provide an environment where people enjoy what they do and take pride in their work. We wish to embody a work hard, play harder culture.

To be the Premier Solid Waste Services Company in the U.S. We continue to provide superior returns, remain environmentally responsible, and continue to grow in a disciplined way, deploying resources intelligently and benefiting communities we live in. We remain a “different breed”.

Want to receive alert notifications? [Sign up](#)



Chiquita Canyon is a 639-acre landfill located in Castaic, California, on State Route 126 in the Santa Clarita Valley.

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All Right Reserved.

Hours of Operation

General Public

Monday – Friday - 7 am - 4 pm
Saturday - 7 am - 2 pm
Sunday - closed

Commercial Customers

Monday – Friday - 4 am - 5 pm
Saturday - 4 am - 2 pm
Sunday - closed

Contact

info@chiquitacanyon.com

Odor Mitigation - (661) 253-5155

Business Office - (661) 257-3655

After Hours - (877) 263-2561

(Bilingual Operators)

29201 Henry Mayo Dr.
Castaic, CA 91384

[Get directions](#)

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info@chiquitacanyon.com

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Odor Mitigation

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About

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Effective January 1, 2025, Chiquita Canyon Landfill will be closed for the acceptance of waste. Chiquita Canyon, LLC will continue to manage the landfill, including addressing the elevated temperature landfill event that is affecting the northwest corner of the landfill, as well as closure and post-closure activities. While active waste disposal operations will close, we remain committed to working with federal, state and local regulators on the ongoing reaction mitigation efforts.

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English

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Hours of Operation

Contact

info@chiquitacanyon.com
Odor Mitigation - (661)
253-5155
Business Office - (661)
257-3655
After Hours - (877) 263-
2561
(Bilingual Operators)

29201 Henry Mayo Dr.
Castaic, CA 91384
[Get directions](#)

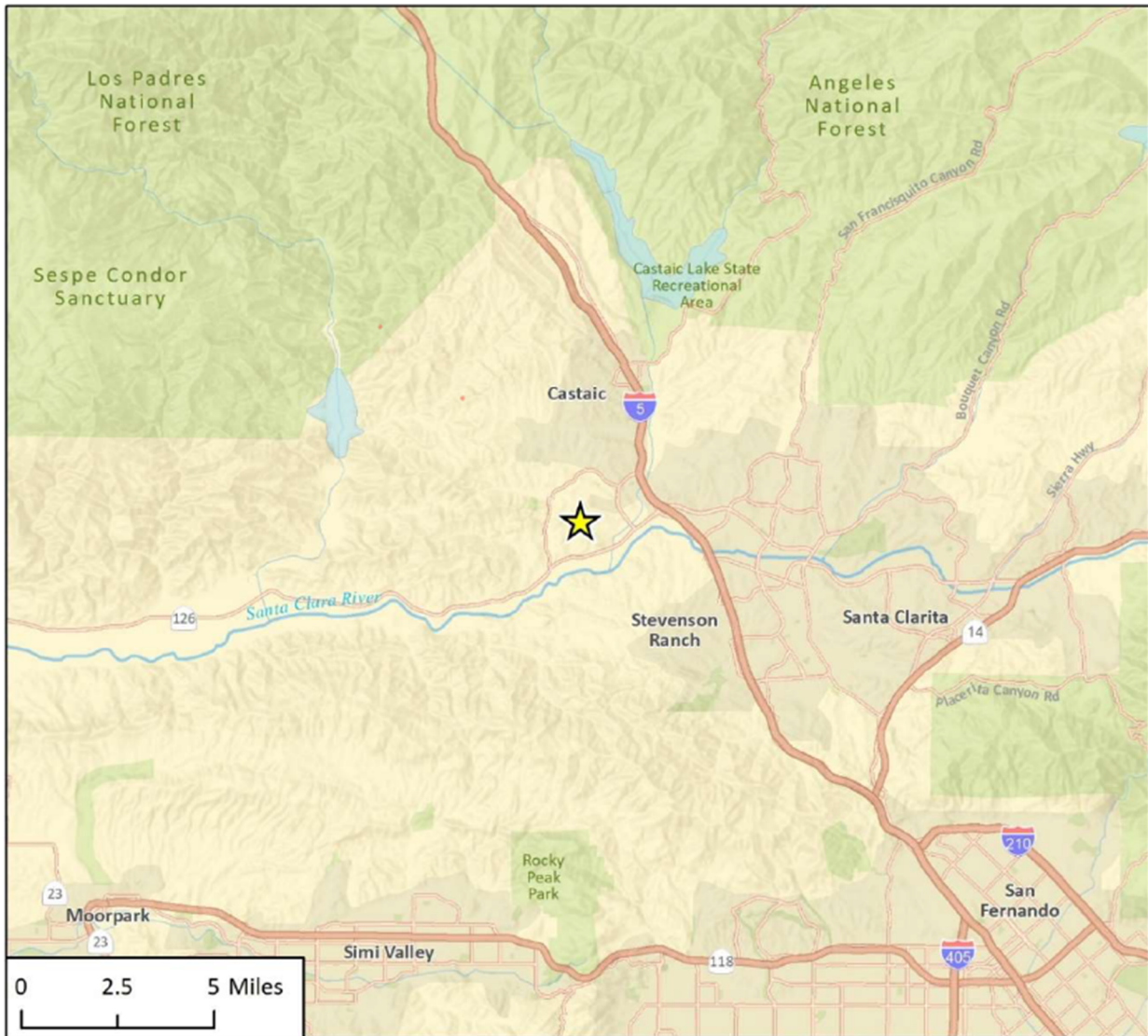
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English

EXHIBIT 2



Basemap provided by Esri and its licensors © 2021.



Not to Scale



★ CCL Location



Not to Scale



EXHIBIT 3

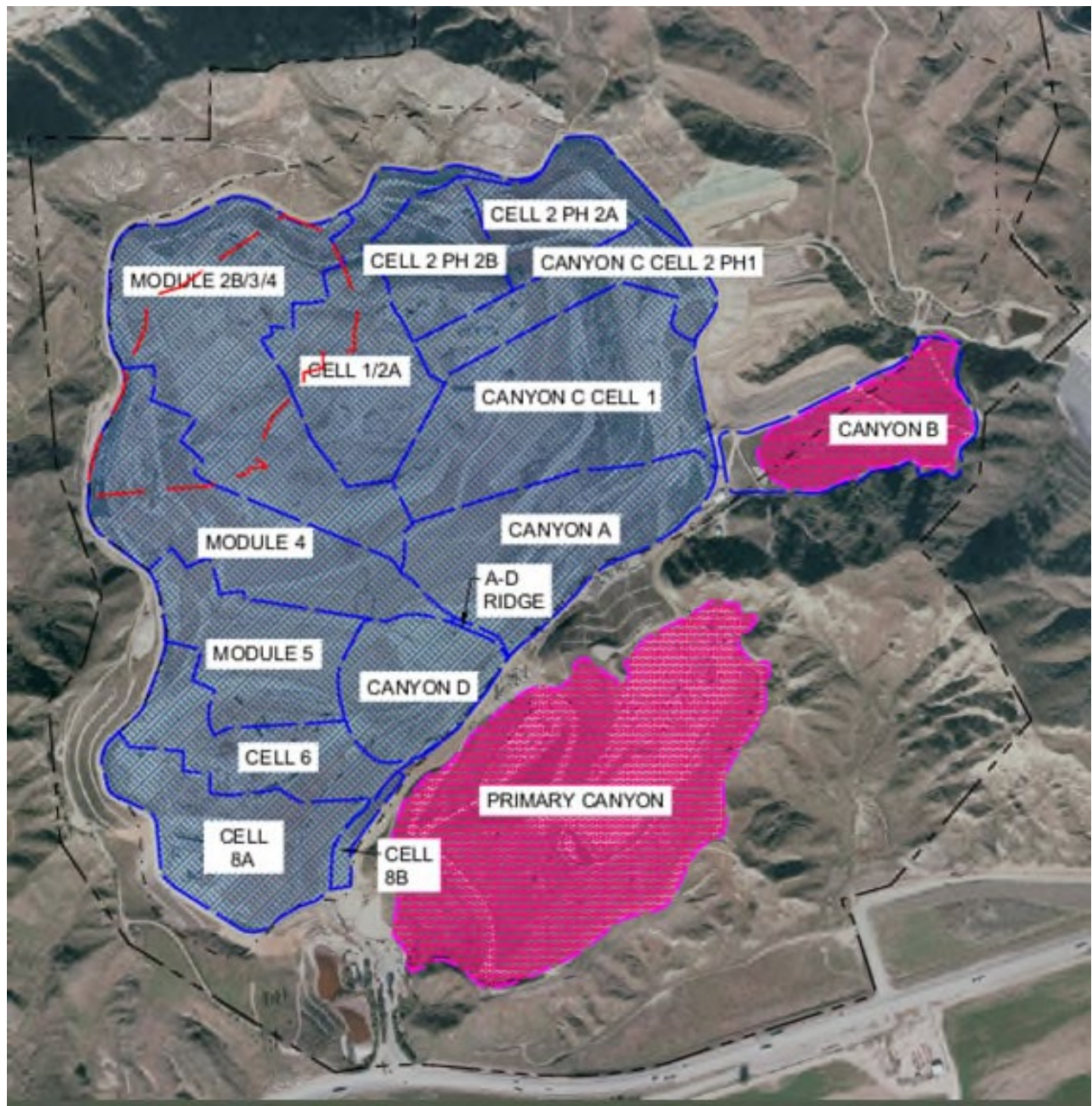


EXHIBIT 4

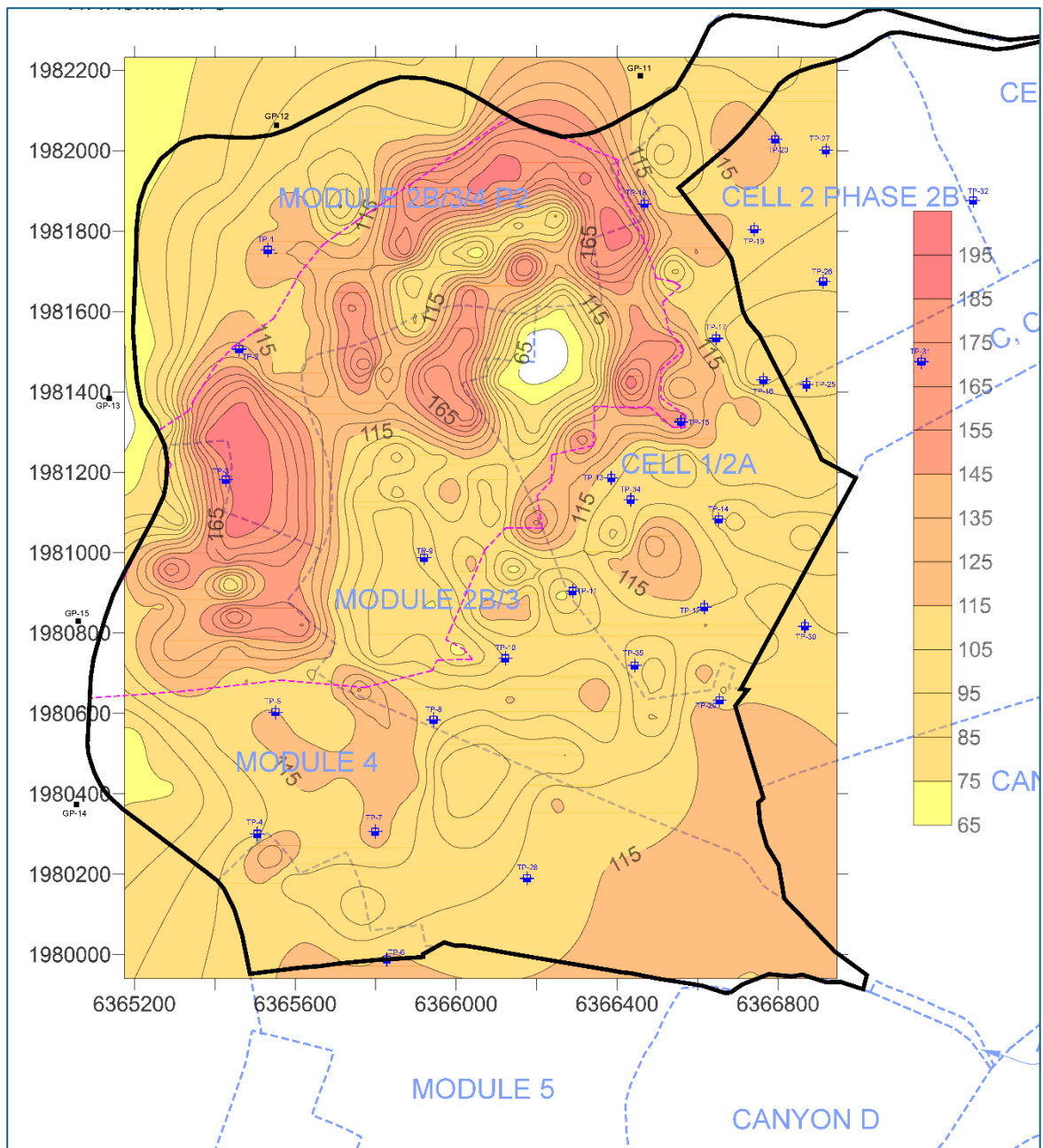
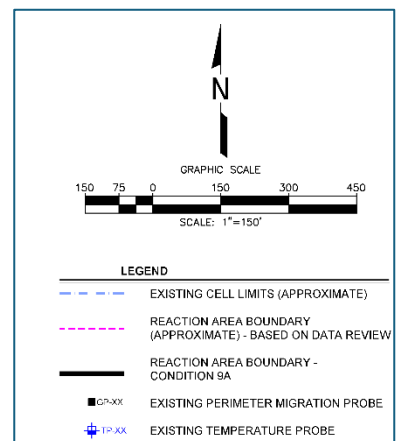


EXHIBIT 5

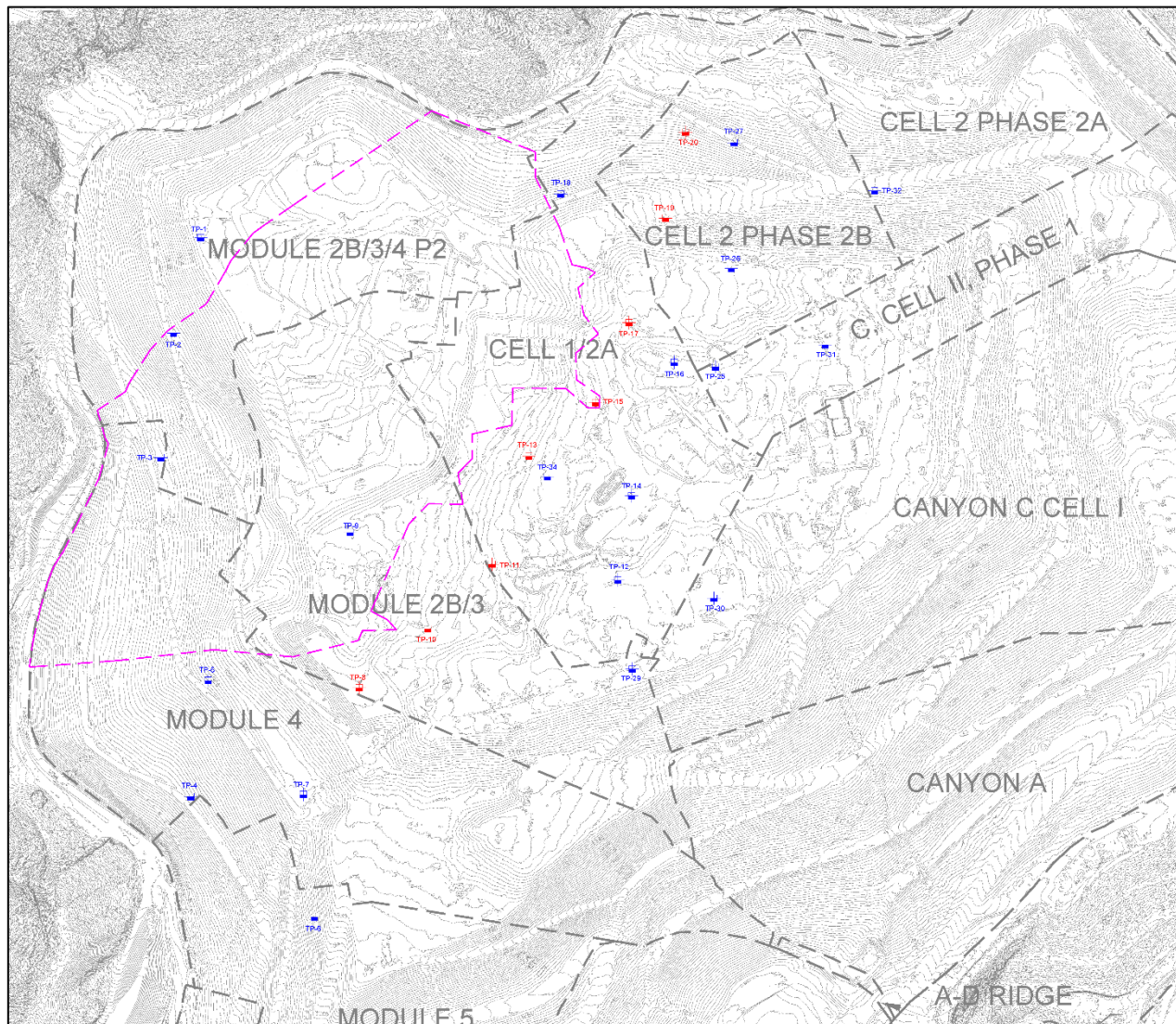
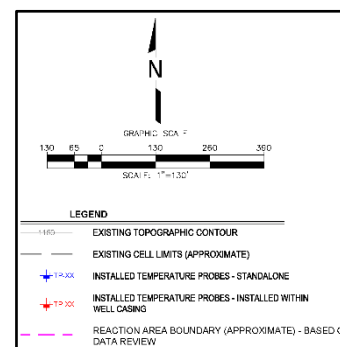


EXHIBIT 6

TIMOTHY D. STARK, Ph.D., P.E., BC.GE

Stark Consultants, Inc., 401 W. Indiana Avenue, Urbana, Illinois, 61803; tstark32@gmail.com; (217) 840 - 8263

To: Mr. Matthew Dwyer
Senior Project Manager
Regional Manager
Engineering/Remediation Resources Group, Inc. (ERRG, Inc.)
9727 Business Park Drive, Suite A
Sacramento, CA 95827
matthew.dwyer@errg.com

From: Timothy Stark, Ph.D., P.E., BC.GE, Dist.M.ASCE

Date: February 26, 2025

RE: Comments on November 26, 2024 Revised Soil Reaction Break/Barrier Plan and February 20, 2025 waste temperature data for Chiquita Canyon Landfill Subsurface Elevated Temperature (SET) Event

Pursuant to your request and Task Order #1 under my contract with ERRG, I have reviewed the November 26, 2024 Revised Soil Reaction Break/Barrier Plan¹, waste temperature data provided by SCS dated February 20, 2025², and the weekly tracking of fissures and tension cracks in the impacted area dated February 17, 2025³ and submitted by the Chiquita Canyon Landfill (CCL) operated by Waste Connections, Incorporated to the Legal Enforcement Agency (LEA) on February 25, 2025.

Landfill Location and Description:

The CCL is located at 29,201 Henry Mayo Drive, Castaic, California, in northern Los Angeles County. This facility is a Class III non-hazardous municipal solid waste (MSW) landfill. The 639-acre landfill site began accepting waste in 1972. The landfill can receive up to 12,000 tons of MSW per day. The average daily tonnage in 2021 was reported to be 6,412 tons. The CCL only accepts non-hazardous solid waste for disposal, including municipal solid waste, green waste for composting or recycling, construction and demolition debris, and e-waste for recycling. The facility is prohibited from accepting hazardous waste that is ignitable, corrosive, reactive, or toxic. The landfill also does not accept biohazardous waste, household hazardous waste, radioactive materials, incinerator ash, sludge, automobile shredder fluff, or liquid waste.

The landfill site is a former limestone quarrying and crushing operation which began in 1939 and ended in 1988. The quarrying resulted in two quarry pits, the North Quarry Pit and the South Quarry Pit, which were excavated to a maximum depth of 240 feet below ground surface (bgs). The north and south quarry portions cover an area of approximately 52 acres.

¹ SCS Engineers, Revised Soil Reaction Break/Barrier Plan: Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, November 26, 2024, 198 p.

² SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

³ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

Landfilling began in the North Quarry Pit in 1974 and continued in this area until 1985. In 1985, the landfill underwent expansion to the southwest into the area known as the South Quarry Pit. This continued until August 2005 when the landfill stopped accepting waste to reduce the potential for birds to interfere with nearby airport operations. The total waste thickness is approximately 320 feet which means about 80 feet is above ground surface and about 240 feet is below ground surface. The landfill accepted approximately 17,000,000 in-place cubic yards of waste, including commercial, and municipal solid wastes.

The permitted landfill disposal footprint totals 257 acres and is comprised of three separate areas designated as “Primary” Canyon, “Canyon B,” and the Main Canyon (including Canyons A, C, D and subsequent fill modules). Currently, 231 acres of the footprint have been used for disposal. All areas except the Primary Canyon have geosynthetic bottom liner systems and leachate collection and removal systems. Leachate is collected and trucked off-site, but condensate from the gas extraction wells is injected into the flare.

Revised Barrier Plan:

The Revised Barrier Plan states a:

“discrete portion of the waste mass in the northwestern section of the Landfill is experiencing elevated temperature landfill (ETLF) conditions. ETLF conditions can generally be characterized as when the typical waste decomposition processes and corresponding methanogenesis associated with anaerobic digestion of organic solid waste materials disposed in a landfill are impeded because of heat accumulation. As a result, certain abiotic (non-biological) processes and chemical reactions within the buried wastes occur instead.”

Even though SCS Engineers (SCS) claims the Subsurface Elevated Temperature (SET) Event only is impacting a “discrete portion of the waste mass”, they review five options for isolating and containing the SET Event to impede heat flow into other adjacent portions of the waste mass. These five options are:

- (1) Air Break through avoidance of placement of additional waste lifts overlying existing buried wastes.
- (2) Air Break through excavation to “cut out” existing buried wastes.
- (3) Soil Barrier through placement of soil layer atop existing landfill surface.
- (4) Soil Barrier through excavation and backfilling of a deep trench.

5) Inert Material Barrier through Borehole Drilling, Dewatering, and Flowable Fill Injection.

SCS concludes an air break through avoidance of additional waste placement (option #1) or excavation (option #2) are “implausible” and thus are not being pursued by CCL. In addition, SCS deemed option #4 (soil barrier through excavation and backfilling) “implausible”, and the technology involved in introducing an inert material for Option #5 “uncertain”. As a result, options #4 and #5 are not being pursued by CCL.

Option #3 was deemed by SCS to be the “most plausible and may accomplish the desired objective without incurring substantial environmental and safety risks.” Option #3 simply involves placing additional soil over the top of the landfill, i.e., to create a thicker soil cover. This option will be less effective for controlling odors and emissions from CCL than a geomembrane cover (discussed below) because of many issues including inadequate soil compaction especially on the sideslopes, differential settlement causing cracks in the soil cover, and creation of desiccation cracks during the hot and dry months.

The Revised Soil Reaction Break/Barrier Plan⁴ was issued on November 26, 2024, which is important because CCL claims:

“CCL has implemented extensive mitigation measures that reduce the likelihood that CCL will need to construct any form of the various reaction break concepts, including CCL’s proposed additional mitigation measures. Previous experience at other ETLF landfills demonstrates that landfill reactions and resulting odors have been mitigated by best management practices, including increased gas extraction and liquid removal (e.g., through expanding systems and providing adequate LFG control capacity and leachate disposal capacity). Another best management practice is to improve cover integrity, which reduces infiltration of precipitation and limits the amount of excess liquids available to sustain various chemical reactions. Implementing these measures will help slow the reaction, impede the spread of the reaction to new areas, and mitigate impacts.”

“Further, Chiquita is constantly monitoring the landfill for signs of potential ETLF conditions so that it can react quickly in the event of changing conditions. CCL and SCS are confident that implementation of the best management practices developed by the landfill industry and EPA to contain and manage the reaction will succeed in slowing the propagation of the reaction area. Other landfills that have experienced widespread ETLF heating events during the past approximately 15 years have

⁴ SCS Engineers, Revised Soil Reaction Break/Barrier Plan: Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, November 26, 2024, 198 p.

successfully utilized these tools to contain those events. Continued application of the current mitigation measures will result in cooling of the buried wastes, which enable methanogenesis to ultimately be re-initiated within a large section of the affected waste mass. This in turn will mitigate and abate the detrimental impacts, such as odors, being experienced by surrounding off-site communities.”

Unfortunately, the waste temperature data released on February 20, 2025⁵ shows these “best management practices” have not “helped slow the reaction, impede the spread of the reaction to new areas, and mitigate impacts” as claimed by CCL and SCS above, as discussed in the next section. In summary, the removal of “hot” gas and leachate has not been successful in containing the SET Event.

Summary of Recent Temperature Data

SCS presents Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁶ An aerial image of CCL with a table of maximum temperatures is included in the subject SCS Report and reproduced in **Figure 1**. I have placed the maximum waste temperature from the table in **Figure 1** adjacent to some of the gas extraction wells to facilitate understanding the extent of the SET Event, especially on the east side of CCL. **Figure 1** shows waste temperatures of 183°F and 185°F at the eastern side of the top deck of the CCL. This means the SET Event has migrated from the western slope (TP03) to the eastern side of the CCL (TP31). Expansion of the SET Event has the following implications:

- Elevated temperatures (185°F to 189°F) surround the leachate tank farm (see red arrow in **Figure 1**). This area is going to undergo significant settlement, if it has not already started to do so, due to thermal breakdown of the buried waste. This settlement will cause differential movement of the leachate tanks, which could result in a leachate release. As a result, I recommend the leachate tank farm be moved off the top deck and to a site off the CCL and on native soil because the SET Event continues to expand.
- Waste temperatures of 183°F and 185°F are already present on the eastern side of the top deck of the CCL. As a result, it is not possible to “isolate and contain” this SET Event using a north-south vertical barrier as previously discussed. Thus, the only option for controlling odors and emissions is to cover the area with a geomembrane (discussed below) over which the temperature monitoring probes (TPs) have been installed. This means the geomembrane should cover from the west to the east side of the CCL and from the north

⁵ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

⁶ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

end to just south of TP06 shown in **Figure 1**. In other words, the exposed geomembrane cover would cover about 183 acres and leave only about 13 acres at the southern end of the CCL uncovered for current disposal operations.

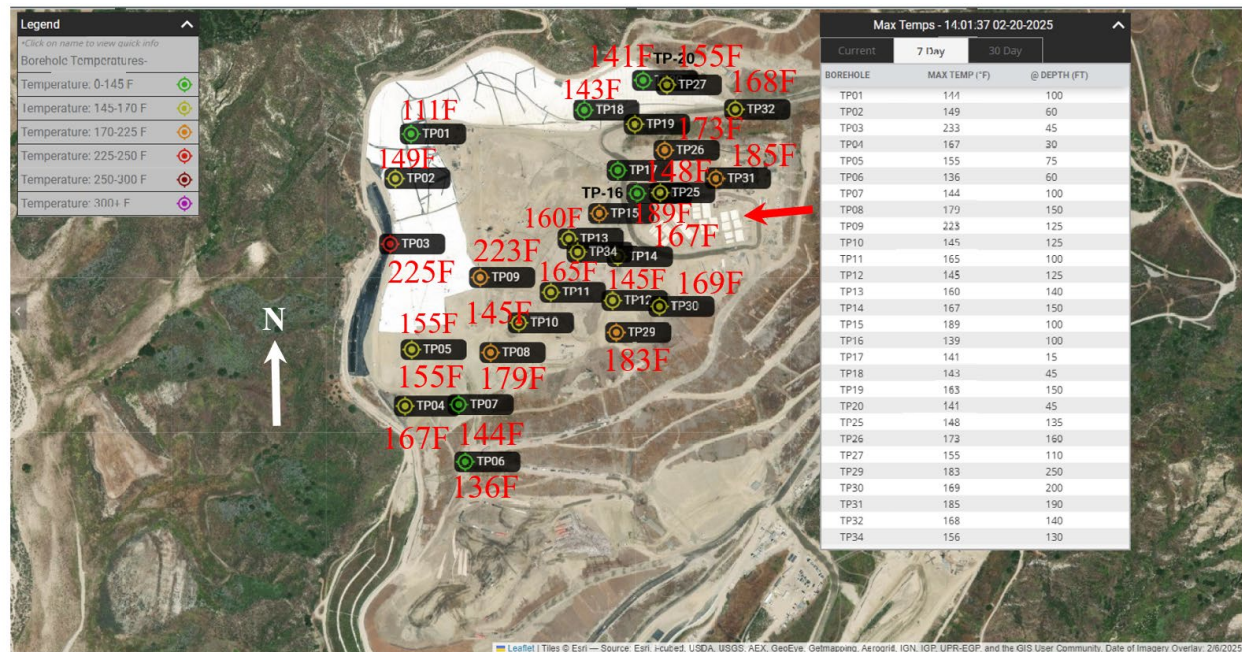


Figure 1. Temperature profiles over six weeks from 1/9/2025 to 2/19/2025 from SCS report dated February 20, 2025.

Figure 2 presents Sheet #1 from the SCS Report that presents the Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁷ The dashed pink line represents the extent of the SET Event as determined by SCS on February 20, 2025. This extent is slightly larger than the dashed blue line, which represents the extent of the SET Event on March 27, 2024 as reported by SCS in the initial Soil Reaction Break/Barrier Plan.⁸ **Figure 2** also presents my extent of the SET Event as of February 26, 2025 (see dashed red line) based on the Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁹ **Figure 2** shows the western slope and entire top deck of the CCL is now part of the

⁷ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

⁸ SCS Engineers, Soil Reaction Break/Barrier Plan, Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, March 27, 2024, 17 p.

⁹ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

SET Event, which is a significant increase over the extent reported by SCS on March 27, 2024¹⁰ and February 20, 2025.¹¹ Based on **Figure 2**, SCS believes the SET Event only covers about 28 acres as of February 20, 2025 whereas my extent of the SET Event covers about 90 acres.

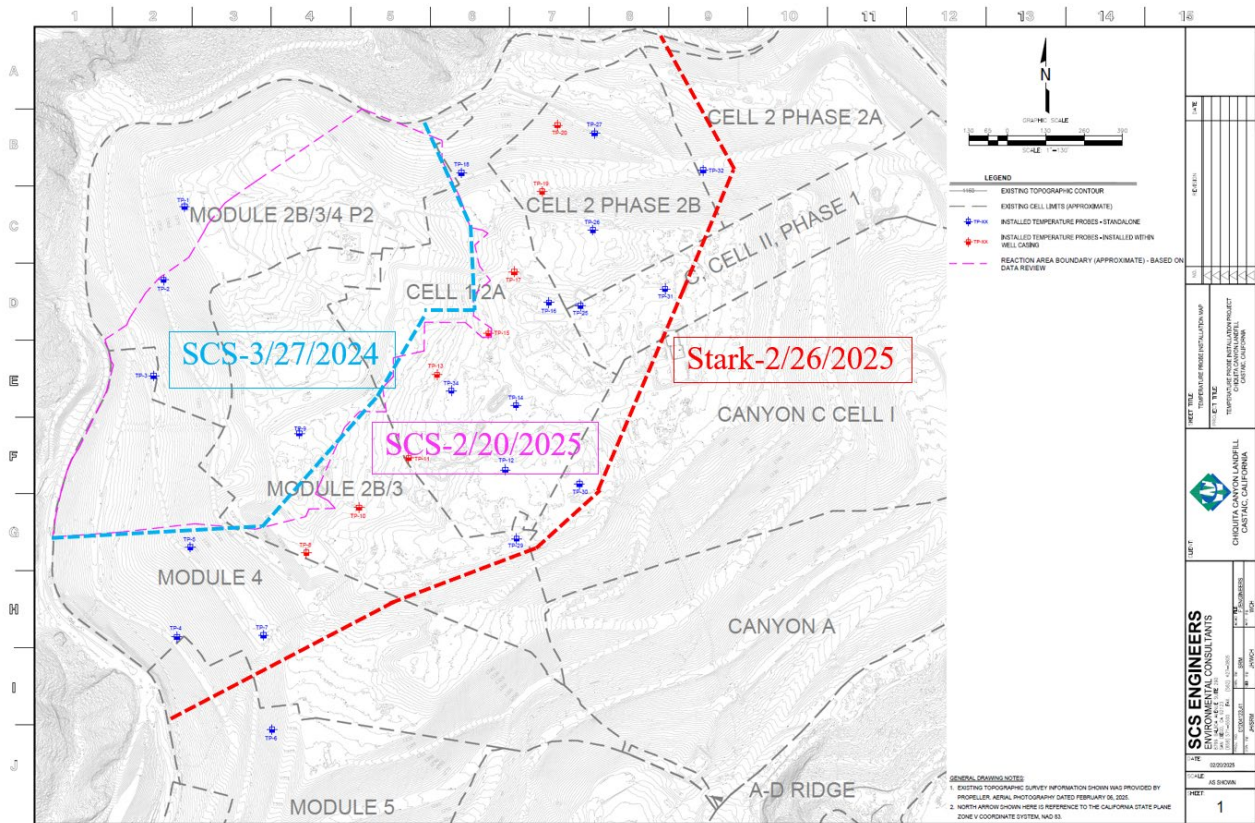


Figure 2. Extent of elevated temperatures from March 27, 2024 to February 26, 2025.

¹⁰ SCS Engineers, Soil Reaction Break/Barrier Plan, Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, March 27, 2024, 17 p.

¹¹ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

Weekly Fissures and Tension Cracks Report Dated February 17, 2025

CCL also presented their 4050 – Chiquita Reaction Area Tracking of Fissures and Tension Cracks weekly report on February 17, 2025¹². This report presents: (1) observations of new fissures and tension cracks, which are usually due to landfill settlement and/or slope instability, (2) exposed geomembrane tears and defects, and (3) other geosynthetic cover issues.

This weekly report dated February 17, 2025¹³ confirms that settlement has started to occur around the leachate tank farm, which reinforces the recommendation above that the tanks should be moved off the top deck and to a site off the CCL and on native soil. In particular, Area #148, which is just north of the tank farm (see red dot in **Figure 3**), experienced opening of significant fissures and tensions cracks that have been remediated but are likely to reappear as additional buried waste undergoes thermal breakdown. Area #154, which is located just south of the tank farm (see **Figure 3**), also recently experienced fissuring and tension crack development. Even more concerning is Area #147 experienced a significant sinkhole, which indicates a significant thermal breakdown of buried waste that resulted in a void developing below the interim soil cover. Area #147 is the next grid area north of Area #148.



Figure 3. Red dot shows location for fissures and tension cracks identified in weekly CCL report dated February 17, 2025¹⁴.

¹² Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹³ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁴ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

Figure 4 shows a tension crack in Grid #148 near the leachate tank farm on the top deck of the CCL. This photograph also reinforces the recommendation above that the tanks should be moved off the CCL. This photograph was taken during a South Coast Air Quality Management District (SCAMD), Inspection of the CCL on February 27, 2025.



Figure 4. Photograph of tension crack in Grid #148 near leachate tanks on top of CCL dated February 27, 2025¹⁵.

¹⁵ South Coast Air Quality Management District (SCAMD), Inspection Report - Chiquita Canyon Landfill, by Larry Israel, Gerardo Vergara, and Christin Ojeda, February 27, 2025, 21 p.

The weekly report dated February 17, 2025¹⁶ also discusses recent tears and defects in the exposed 30 mil thick white HDPE geomembrane cover. In particular, this weekly report presents photographs of four significant tears in the exposed geomembrane. For example, **Figure 5** presents two of these tears, which were repaired using an extrusion welded patch. Unfortunately, the location of these two tears is not identified in the weekly report dated February 17, 2025¹⁷. This indicates the 30-mil thick white HDPE geomembrane may be deteriorating in the presence of the SET Event temperatures and related activities and equipment, which is discussed below.



Photo 1



Photo 2

Figure 5. Photographs of exposed geomembrane tears identified in weekly CCL report dated February 17, 2025¹⁸.

The weekly report dated February 17, 2025¹⁹ also discusses other “Geosynthetic Cover” issues. In particular, this report presents fourteen photographs illustrating “instability under the cover”.

¹⁶ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁷ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁸ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁹ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

For example, **Figure 6** presents two of these photographs, which show settlement under the geomembrane due to thermal breakdown of the buried waste.



Photo 3



Photo 4

Figure 6. Photographs of other exposed geomembrane issues identified in weekly CCL report dated February 17, 2025²⁰.

Temporary Exposed Geomembrane Cover

Given the west side and top deck of the CCL are experiencing elevated temperature, I unfortunately think the only remedial option is to cover the entire landfill north of TP06 or north of the red and blue dashed line shown in **Figure 7**. The elevated temperatures have not manifested themselves on the eastern slope yet, but I anticipate leachate outbreaks could start occurring because elevated temperatures (183°F and 185°F as shown in **Figure 1**) are present at the crest of the eastern slope.

Currently, CCL is using a 30-mil thick high-density polyethylene (HDPE) geomembrane with a white reflective and textured surface. This geomembrane was manufactured by Solmax and shipped in 22.5 ft wide rolls from Canada to the CCL. An Ethylene Vinyl Alcohol (EVOH) geomembrane has been found to be better at containing odors and omissions during other long-term SET Events, e.g., Bridgeton Landfill. EVOH geomembranes are manufactured as a “sandwich” with the outside layers comprised of HDPE with an inner layer of semi-crystalline thermoplastic resin that resists odor and gas transmission.

Bridgeton Landfill near St. Louis has been experiencing a SET Event since 2011 and is covered with green colored 60 mil thick EVOH geomembrane. Given there is no mechanism to “isolate and contain” the CCL SET Event, I am anticipating this facility will continue to generate odors and emissions for many years to come. As a result, I recommend the CCL consider installing an

²⁰ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

exposed EVOH geomembrane over the area to the north of the red and blue dashed line shown in **Figure 7**.

The exposed EVOH geomembrane could consist of a tan (easier to UV stabilize, reduces heat, and better matches dry surroundings) or green (less visible during wet periods) 40 or 60 mil thick EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile. A tan EVOH geomembrane color is recommended because there are number of tan geomembranes that have been in exposed for a number of years, so a suitable UV stabilized formulation is available.

The EVOH geomembrane should be continuously seamed and continuously tied into the existing exposed 30 mil HDPE geomembrane cover along the top deck. The EVOH geomembrane can be welded to the existing 30 mil thick HDPE exposed geomembrane because the outside layers are comprised of HDPE and thus can be welded with traditional HDPE welding equipment. As the existing 30-mil thick exposed white HDPE geomembrane deteriorates with time, it should be replaced with the selected EVOH geomembrane.

The selected EVOH geomembrane (GM) should have a life span of about 10 years due to the large amount of waste that is being impacting by the SET Event. Given the long and steep slopes, a double-sided textured EVOH GM may be required. However, to facilitate walking on the EVOH GM, the exposed side should probably be textured. The EVOH GM also should be able to withstand a temperature of about 180°F because TP15 is showing a waste temperature of 175°F at a depth of only 15 feet. Finally, the EVOH GM should exhibit a methane permeance of less than 2.5×10^{-13} m/s obtained using ASTM D1434²¹ to control benzene and other emissions.

The total area proposed for the EVOH geomembrane cover is about 100 acres, i.e., the area not covered with the 30-mil thick white HDPE geomembrane. The nonwoven geotextile underlying the EVOH geomembrane will be installed on a prepared subgrade and provide a cushion and gas and liquid transmission layer under the geomembrane. Alternatively, a geonet with two heat-bonded nonwoven geotextiles could underlie the EVOH geomembrane and provide a higher transmissivity than a geotextile.

The EVOH geomembrane could be installed by deploying the manufactured rolls across the top deck and down the sideslopes. The perimeter edge of the new EVOH geomembrane cover will either be welded to the existing 30 mil thick white HDPE geomembrane or anchored along the perimeter of the CCL. Of course, the CCL should design appropriate long-term ballasting for the existing HDPE geomembrane and the proposed EVOH geomembrane because of the long duration of other SET Events. The EVOH geomembrane should be installed by an experienced contractor

²¹ ASTM D1434-23, Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting, ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428, <https://compass.astm.org/document/?contentCode=ASTM%7CD1434-23%7Cen-US&proxycl=https%3A%2F%2Fsecure.astm.org&fromLogin=true>.

and crews in accordance with CCL project specifications and an accompanying QA/QC Plan. Given the long-term application of the EVOH geomembrane, the installation should be monitored in accordance with the QA/QC Plan by an experienced third-party engineering firm. A final certification report should be prepared under the direction of a certified engineer and be submitted to the CCL and proper local authority, e.g., Los Angeles Regional Water Quality Control.

Pipe penetrations of the HDPE and EVOH geomembrane cover should be sealed utilizing a suitable pipe boot and pipe clamp or seal. These boots can be the source of significant odor release and/or oxygen intrusion so these pipe boots and seals should be inspected and monitored regularly for vapor emissions so defects due to total and differential can be remediated quickly.

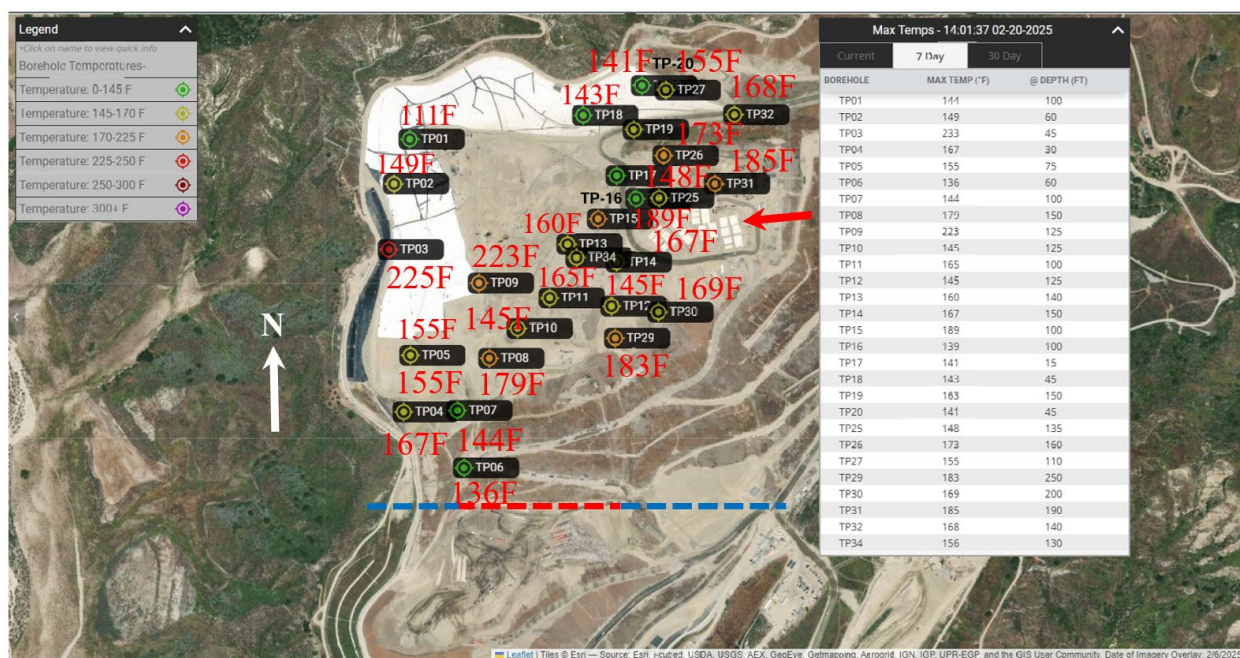


Figure 7. Extent of elevated temperatures on February 26, 2025 and location of a possible vertical barrier to isolate southernmost 13 acres.

Proposed Vertical Barrier

This section discusses installing a thermal barrier south of TP06 (see dashed red and blue line in **Figure 7**). A thermal barrier is recommended along the dashed red and blue line in **Figure 7** for at least the following reasons:

- CCL is using the approximately 13 acres south of the dashed red and blue line in **Figure 7** for disposal operations so elevated temperatures should be prevented from reaching this area, so the landfill continues to have an area to dispose of on-site wastes.
- Ensure continued ingress and egress from the CCL.
- Reduce the amount of waste that can be consumed by the SET Event and thus reduce the duration of odors and emissions to the surrounding communities.
- Maintain stability of the southern sideslope.

The red dashed line in **Figure 7** roughly delineates the location of a thermal barrier already constructed by CCL. The extent and depth of the thermal barrier are not known, so I request this information be provided by CCL. The blue dashed lines in **Figure 7** indicate the existing thermal barrier should be extended east and west so the SET Event cannot go around or under the existing thermal barrier.

If the existing thermal barrier does not extend to near below the leachate level, vertical elements can be used to create a vertical thermal barrier to prevent the SET Event from impacting the southernmost 13 acres of the CCL. The vertical elements involve excavating a vertical shaft using a three or four-foot bucket auger drill rig, which is being used to install gas extraction wells at CCL. These vertical elements would be constructed along the dashed red and blue lines in **Figure 7**. After excavating the shaft, it could be backfilled with a soil-bentonite or soil-cement mix. The shafts would be tangent, i.e., touching, or overlapped (see **Figure 7**) to create a continuous barrier across the toe of the southern sideslope to prevent the SET Event from consuming the southernmost 13 acres. If heat transfer calculations require a wider thermal barrier, a second row of vertical elements could be constructed north or south of the initial row (see **Figure 7**). The secondary row would be tangent to the initial row and be centered at each intersection of the initial row as shown below (see **Figure 7**).

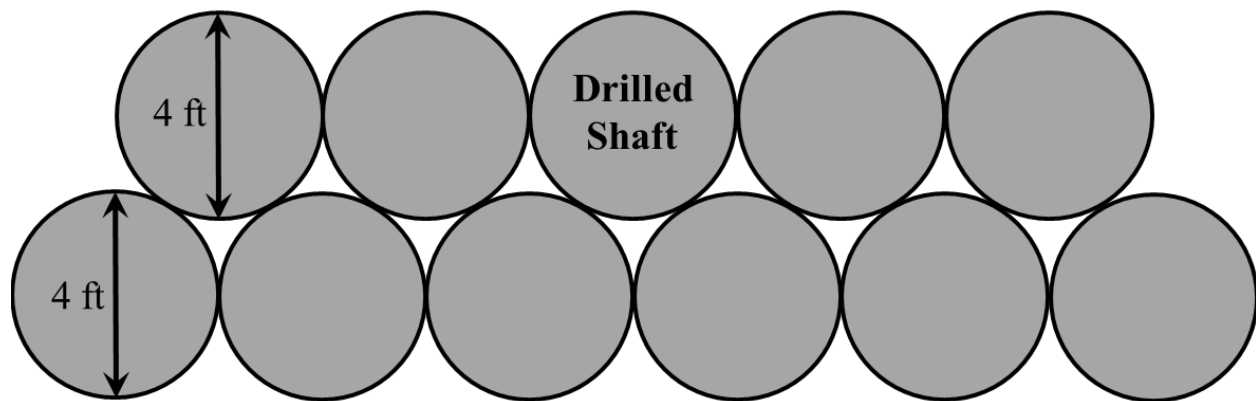


Figure 8. Possible configurations of 3 to 4 ft diameter vertical elements to comprise a heat barrier system south of TP06 to isolate southernmost 13 acres.

Summary

This section summarizes the main findings and recommendations presented in this report:

1. SET Event has expanded to the east side of the top deck of the CCL,
2. Leachate Tank Farm should be relocated off the top deck because the CCL is undergoing settlement under the tanks,
3. Due to the movement of the SET Event, the Tank Farm should be relocated to a site off the CCL and on native soil,
4. Given the extent of the SET Event, install 40 or 60 mil thick tan or green HDPE EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile over the approximately 100 acres currently exposed and weld it to the existing 30-mil thick white HDPE geomembrane or place it in a suitable anchor trench,
5. Submit a Request For Information (RFI) regarding the current extent and depth of the thermal barrier installed near the southern end of the CCL (see red dashed line in **Figure 7**), and
6. Expand the current thermal barrier so it reduces the potential for the SET Event to impact the southernmost 13 acres of the CCL.

EXHIBIT 7

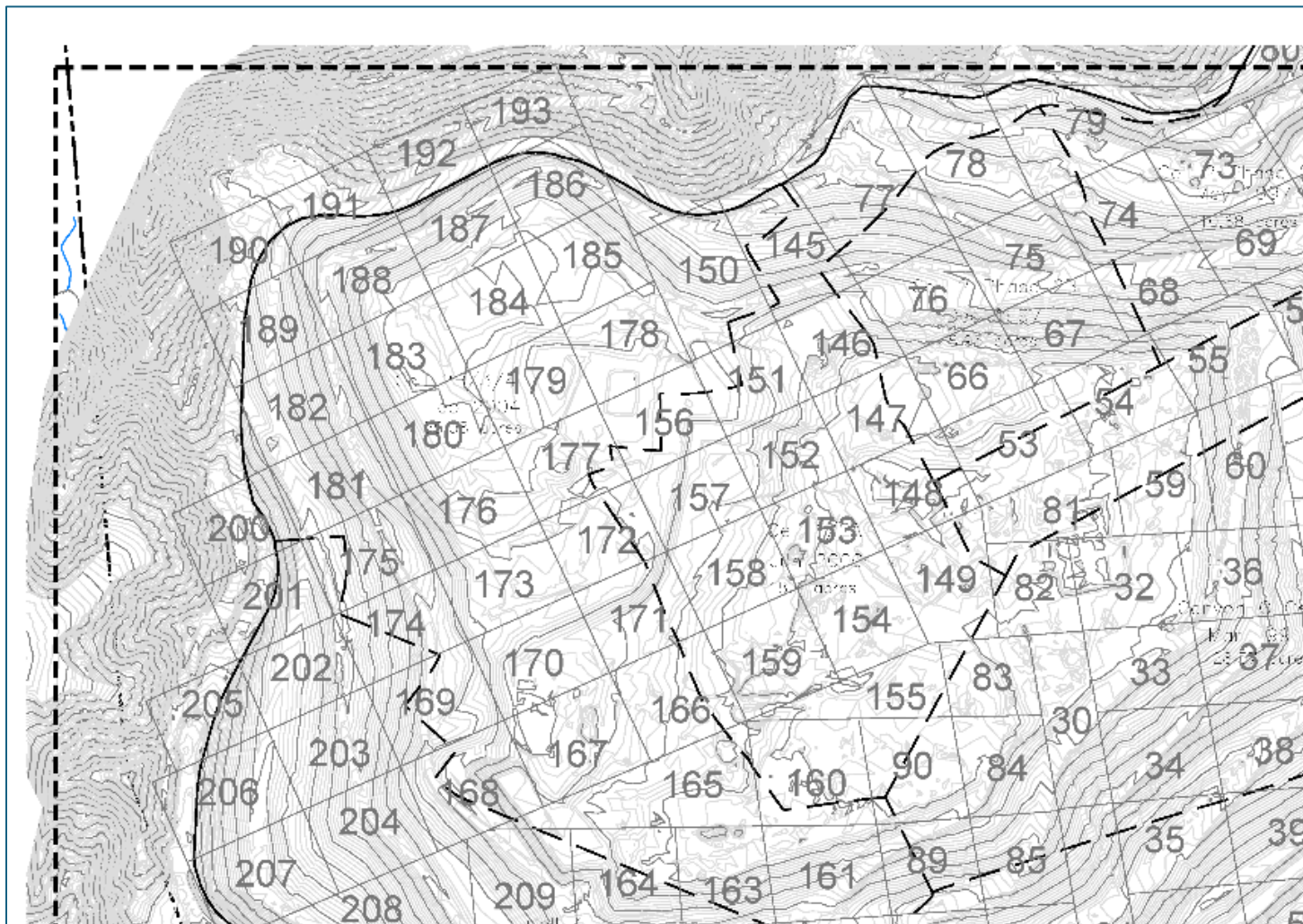
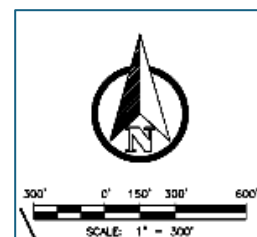


EXHIBIT 8



Yana Garcia
Secretary for
Environmental Protection



Department of Toxic Substances Control

Meredith Williams, Ph.D., Director
7575 Metropolitan Drive, Suite 108
San Diego, CA 92108



Gavin Newsom
Governor

SUMMARY OF VIOLATIONS

On December 12, 2023, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), conducted an investigation at:

Facility Name: Chiquita Canyon, LLC

Facility Address: 29201 Henry Mayo Drive, Castaic, CA 91384

EPA ID Number: CAL000347030 **County:** Los Angeles

As a result of this investigation, DTSC discovered violations of the California Hazardous Waste Control Laws and its implementing regulations that are identified on the attached pages. You must correct the following violations within the schedule for compliance for each violation. If you disagree with the alleged violations listed in this Summary of Violations, you must inform DTSC in writing. If additional violations are found after this investigation, such violations, if any, will be identified in writing.

DTSC will provide you with a complete investigation report within 65 days of the date of this investigation. You may request a meeting with DTSC to discuss the investigation, investigation report, or this Summary of Violations. The issuance of this Summary of Violations does not preclude DTSC from taking administrative and/or civil action or from referring the matter for criminal prosecution as a result of the violations identified herein or violations that have not been corrected within the time specified by DTSC. Failure to comply with a schedule for compliance is a violation of the law subject to a civil penalty of up to \$70,000 for each day of noncompliance. In addition, a false statement that compliance has been achieved is a violation of the law and subject to a penalty of up to \$70,000 for each occurrence. DTSC may re-investigate this facility at any time.

Facility Representative Accepting
Summary of Violations

DTSC Representative

Name:

Name:

Erin Neal

Signature:

Signature:

Title:

Title:

Environmental Scientist

Date:

Date:

2/15/2024



Department of Toxic Substances Control
7575 Metropolitan Drive, Suite 108
San Diego, CA 92108

SUMMARY OF VIOLATIONS

Facility Name: Chiquita Canyon, LLC

Date: 2/15/2024

SECTION I: NON - MINOR VIOLATIONS AND REQUIRED CORRECTIVE ACTION (Violations not considered Minor Violations)

You must correct the following violation(s) within the specified time frame for each violation.

Violation # 1

Violation Citation:

22 CCR § 66262.11, A person who generates a waste, as defined in section 66261.2, shall determine if that waste is a hazardous waste using the following method:

- (a) the generator shall first determine if the waste is excluded from regulation under section 66261.4 or section 25143.2 of the Health and Safety Code;
- (b) the generator shall then determine if the waste is listed as a hazardous waste in articles 4 or 4.1 of chapter 11 or in Appendix X of chapter 11 of this division. If the waste is listed in Appendix X and is not listed in articles 4 or 4.1 of chapter 11, the generator may determine that the waste from his particular facility or operation is not a hazardous waste by either:
 - (1) testing the waste according to the methods set forth in article 3 of chapter 11 of this division, or according to an equivalent method approved by the Department pursuant to section 66260.21; or
 - (2) applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used and the characteristics set forth in article 3 of chapter 11 of this division.

Description:

On and/or before December 27, 2023, Chiquita Canyon, LLC (owned by and a subsidiary of Waste Connections, Inc.) failed to make a proper waste determination on waste leachate. Chiquita Canyon, LLC sent 4,600 gallons of hazardous waste leachate from its landfill at 29201 Henry Mayo Drive, Castaic, CA 91384, to Radford Alexander Corp. DBA Avalon (Avalon) located at 14700 S. Avalon Boulevard, Gardena, CA 90248 on non-hazardous waste manifest #NH004695, for treatment and disposal. Avalon collected split samples from the tanker truck carrying this leachate from Chiquita



Department of Toxic Substances Control
7575 Metropolitan Drive, Suite 108
San Diego, CA 92108

Canyon Landfill. One sample was provided to the Los Angeles County Fire Department, Health Hazardous Materials Division (County of Los Angeles Certified Unified Program Agency) and the other was kept by Avalon for analysis. DTSC Environmental Scientist Erin Neal and Supervising Environmental Scientist Zana Zmily were present during sampling of the tanker trunk. Chiquita Canyon, LLC obtained the sample lab results from the Avalon samples and then sent lab results of Avalon's leachate split sample to DTSC on January 17, 2024. These results show that the leachate sampled from the truck was in exceedance for benzene, reporting 0.538 mg/L. This is above the Toxicity Characteristic Leaching Procedure (TCLP) regulatory limit for benzene of 0.5 mg/L.

Violation Classification:

This is a class 1 violation.

Compliance Requirement:

On February 9, 2024 and February 14, 2024, Chiquita Canyon, LLC informed DTSC that they have hired a third-party consultant to assist with sampling, analyses, and characterization of the waste leachate. Chiquita Canyon, LLC shall ensure that hazardous waste leachate is properly characterized. Within 30 days of this Summary of Violations, Chiquita Canyon, LLC shall provide a written plan for making a proper waste determination for waste leachate.

Violation # 2

Violation Citation:

HSC 25189.2(c), A person who disposes, or causes the disposal of, a hazardous or extremely hazardous waste at a point that is not authorized according to the provisions of this chapter is liable for a civil penalty of not more than seventy thousand dollars (\$70,000) for each violation and may be ordered to disclose the fact of this violation or these violations to those persons as the court or, in the case of an administrative action, a hearing officer, may direct. Each day on which the deposit remains is a separate additional violation, unless the person immediately files a report of the deposit with the department and is complying with an order concerning the deposit issued by the department, a hearing officer, or a court of competent jurisdiction for the cleanup.

Description:

On and/or before December 27, 2023 Chiquita Canyon, LLC disposed and/or caused the disposal of 4,600 gallons of hazardous waste leachate by sending this leachate to Avalon at 14700 S. Avalon Boulevard, Gardena, CA 90248 on non-hazardous waste manifest #NH004695. Avalon is not permitted by DTSC as a treatment, storage, and disposal facility for hazardous waste. As discussed in violation 1, the leachate sampled from the truck was in exceedance for benzene, reporting 0.538 mg/L. This is above the TCLP regulatory limit for benzene of 0.5 mg/L.



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Violation Classification:

This is a class 1 violation.

Compliance Requirement:

Chiquita Canyon, LLC shall immediately stop disposing of hazardous waste leachate at Avalon and any other point that is not authorized. Within 30 days of this Summary of Violations, Chiquita Canyon, LLC shall provide a written explanation of how hazardous waste leachate will be disposed.

Violation # 3

Violation Citation:

HSC 25189.2(d), A person who treats or stores, or causes the treatment or storage of, a hazardous waste at a point that is not authorized according to this chapter, shall be liable for a civil penalty not to exceed seventy thousand dollars (\$70,000) for each separate violation or, for continuing violations, for each day that the violation continues.

Description:

On and/or before December 27, 2023 Chiquita Canyon, LLC caused the storage and treatment of 4,600 gallons of hazardous waste leachate by Avalon at 14700 S. Avalon Boulevard, Gardena, CA 90248. 4,600 gallons of waste leachate was sent on non-hazardous waste manifest #NH004695 to Avalon for treatment and disposal. Avalon confirmed that this load was processed at their facility. Avalon is a wastewater treatment facility that has been accepting waste leachate from Chiquita Canyon Landfill. Leachate is treated through Avalon's organic Subcategory C wastewater treatment process, which includes filtration and granular activated carbon adsorption. Once treated, this wastewater is discharged to the Los Angeles County sewer. Avalon is not permitted by DTSC as a treatment, storage, and disposal facility for hazardous waste. Avalon does not have a hazardous waste treatment permit with the local CUPA.

As discussed in violation 1, the leachate sampled from the truck was in exceedance for benzene, reporting 0.538 mg/L. This is above the TCLP regulatory limit for benzene of 0.5 mg/L.

Violation Classification:

This is a class 1 violation.

Compliance Requirement:

Chiquita Canyon, LLC shall immediately stop causing the storage and treatment of hazardous waste leachate at Avalon and any other point that is not authorized.



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Violation # 4

Violation Citation:

22 CCR § 66262.20(a), A generator who transports, or offers for transport a hazardous waste for offsite treatment, storage, or disposal, or a treatment, storage, or disposal facility that offers for transport a rejected hazardous waste load, shall prepare a Manifest (OMB Control number 2050-0039), EPA Form 8700-22, and, if necessary, EPA Form 8700-22A before the waste is transported off-site.

Description:

On and/or before December 27, 2023 Chiquita Canyon, LLC offered for transport hazardous waste for off-site treatment, storage, and disposal, and failed to prepare a hazardous waste manifest for 4,600 gallons of hazardous waste leachate. Chiquita Canyon, LLC sent the waste leachate to Avalon at 14700 S. Avalon Boulevard, Gardena, CA 90248 on non-hazardous waste manifest #NH004695.

As discussed in violation 1, the leachate sampled from the truck was in exceedance for benzene, reporting 0.538 mg/L. This is above the TCLP regulatory limit for benzene of 0.5 mg/L.

Violation Classification:

This is a class 1 violation.

Compliance Requirement:

Chiquita Canyon, LLC shall immediately stop using non-hazardous waste manifests for transportation and disposal of hazardous waste leachate. Chiquita Canyon, LLC shall prepare and use hazardous waste manifests for waste leachate that is deemed to be hazardous waste.

Violation # 5

Violation Citation:

22 CCR § 66265.31, Facilities shall be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

Description:

On and/or before December 12, 2023, Chiquita Canyon, LLC failed to minimize the possibility of releases of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.



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On December 12, 2023, DTSC personnel observed leachate pooling on the scrim liner on the northwest side of the facility and also observed well CV-2201 actively leaking. In addition, DTSC personnel observed staining on the ground surrounding wells CV-2203 and CV-2338. DTSC personnel collected samples from well heads CV-2203 and CV-2338 and provide split samples to Chiquita Canyon, LLC. The DTSC sample (CCL-6B) collected from CV-2203 was in exceedance for TCLP benzene, reporting 0.912 mg/L. Chiquita Canyon, LLC also ran TCLP analysis on the split sample provided by DTSC from well CV-2203, which was also in exceedance for TCLP benzene, reporting 2.9 mg/L. The DTSC sample (CCL-8B) collected from CV-2338 reported a benzene concentration of 0.196 mg/L, below the TCLP regulatory limit for benzene of 0.5 mg/L. Chiquita Canyon, LLC also ran TCLP analysis on the split sample provided by DTSC from well CV-2338, which was in exceedance for benzene, reporting 0.59 mg/L.

On January 16, 2024, during a South Coast Air Quality Management District (SCAQMD) Hearing Board public hearing (South Coast AQMD vs. Chiquita Canyon LLC, Case #6177-4), "Petitioner's Exhibit 18" showed a video of a leachate geyser that took place at one of the wells. This geyser was observed and recorded during a joint inspection conducted by the US EPA and SCAQMD on November 8, 2023. This well appeared to be the same well that was later sampled by DTSC on December 12, 2023 and had exceeded the regulatory limit for benzene of 0.5 mg/L.

On February 7, 2024, Roux Associates, Inc., contracted by the Los Angeles County Department of Public Health, issued a report titled, "Community Air Sampling and Health Risk Screening Evaluation Report: Val Verde and Castaic Communities Los Angeles County, California" which assessed potential health risks for the communities surrounding the Chiquita Canyon Landfill. The report states that "[o]n some days, benzene concentrations measured in Community air appear to be incrementally greater than what was observed on the same day in background locations." The report also states that "[d]ays where the Community benzene air concentrations are observed to significantly exceed background benzene air concentrations may represent an incremental contribution of benzene resulting from Chiquita landfill gas emissions."

On November 2, 2023, DTSC personnel observed leachate actively seeping out on the northwest side of the facility. DTSC air monitoring equipment detected volatile organic compound readings between 0 and 5 ppm near this seep.

Violation Classification:

This is a class 1 violation.

Compliance Requirement:

Chiquita Canyon, LLC shall maintain and operate its facility in a manner that minimizes the possibility of any unplanned sudden or non-sudden releases of hazardous waste or



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hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. Within 30 days of this Summary of Violations, Chiquita Canyon, LLC shall provide a written explanation of how the facility will minimize the possibility of any unplanned sudden or non-sudden releases of hazardous waste or hazardous waste constituents. Chiquita Canyon, LLC shall also document and report all releases of hazardous waste to DTSC.

SECTION III: OTHER ISSUES/CONCERNS

The following issues/concerns were identified during this investigation. Further research may identify additional violations. Any new violations, with the prescribed corrective action and schedule for compliance, will be identified in the Violation section of the investigation report.

-
1. The Los Angeles County Fire Department also ran lab analyses on the split sample collected from the tanker truck at Avalon on December 27, 2023. The lab report for the TCLP analysis states that the sample was received by the lab outside of holding time and the sample was prepared outside of the preparation holding time.
 2. On January 25, 2024, Chiquita Canyon, LLC responded to an information request by DTSC. On January 31, 2024, DTSC requested additional information and received this information on February 12, 2024. DTSC received an additional letter from Chiquita Canyon, LLC on February 15, 2024. The information and the letters provided by Chiquita Canyon, LLC are currently under review.



Yana Garcia
Secretary for
Environmental Protection



Department of Toxic Substances Control

Meredith Williams, Ph.D., Director
7575 Metropolitan Drive, Suite 108
San Diego, CA 92108



Gavin Newsom
Governor

SUMMARY OF VIOLATIONS

On December 12, 2023, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), began an investigation at:

Facility Name:	Chiquita Canyon, LLC		
Facility Address:	29201 Henry Mayo Drive, Castaic, CA 91384		
EPA ID Number:	CAL000347030	County:	Los Angeles

As a result of this continued investigation, DTSC discovered violations of the California Hazardous Waste Control Law and its implementing regulations that are identified on the attached pages. You must correct the following violations within the schedule for compliance for each violation. If you disagree with the alleged violations listed in this Summary of Violations, you must inform DTSC in writing. If additional violations are found after this investigation, such violations, if any, will be identified in writing.

DTSC will provide you with a complete investigation report within 65 days of the date of this investigation. You may request a meeting with DTSC to discuss the investigation, investigation report, or this Summary of Violations. The issuance of this Summary of Violations does not preclude DTSC from taking administrative and/or civil action or from referring the matter for criminal prosecution as a result of the violations identified herein or violations that have not been corrected within the time specified by DTSC. Failure to comply with a schedule for compliance is a violation of the law subject to a civil penalty of up to \$70,000 for each day of noncompliance. In addition, a false statement that compliance has been achieved is a violation of the law and subject to a penalty of up to \$70,000 for each occurrence. DTSC may re-investigate this facility at any time.

Facility Representative Accepting
Summary of Violations

Name:	Steve Cassulo
Signature:	Original Signed by Steve Cassulo
Title:	District Manager
Date:	4/1/2024

DTSC Representative

Name:	Erin Neal
Signature:	Original Signed by Erin Neal
Title:	Environmental Scientist
Date:	3/29/2024



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SUMMARY OF VIOLATIONS

Facility Name: Chiquita Canyon, LLC Date: 3/29/2024

SECTION I: NON - MINOR VIOLATIONS AND REQUIRED CORRECTIVE ACTION (Violations not considered Minor Violations)

You must correct the following violation(s) within the specified time frame for each violation.

Violation # 1

Violation Citations:

California Code of Regulations, title 22 (22 CCR) § 66265.31, Facilities shall be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

Description:

On and/or before March 11, 2024, Chiquita Canyon, LLC failed to minimize the possibility of releases of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.

On February 14, 2024, Chiquita Canyon, LLC memorialized in a letter to DTSC the need for the use of the immediate response exemption pursuant to 22 CCR § 66264.1(g)(8)(A)(2), 66265.1(e)(11)(A)(2), and 66270.1(c)(3)(A)(2). Chiquita Canyon, LLC stated:

“[T]here is an imminent and substantial threat that such potential hazardous wastes could be discharged into the environment. ... [D]ue to the space constraints and limitations in accumulation capacity, Chiquita has temporarily shut off pumps to reduce the amount of liquids that are extracted from the reaction. This does not mean that liquid is not being produced by the reaction; it means that liquid is continuing to accumulate inside of the waste mass. The liquid must go somewhere.”

On March 5, 2024, DTSC issued an information request to Chiquita Canyon, LLC for all leachate manifests since January 1, 2024. Chiquita Canyon, LLC provided DTSC with hazardous waste manifests on March 12, 2024. According to the records provided by Chiquita Canyon, LLC, no leachate was manifested for hazardous waste disposal from 2/14/2024 to 2/25/2024, 3/2/2024 to 3/3/2024, 3/5/2024 to 3/7/2024, and 3/10/2024 to



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3/11/2024. As a result, Chiquita Canyon, LLC did not utilize all resources to demonstrate an immediate response to minimize the possibility of releases of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. Chiquita Canyon, LLC failed to utilize all permitted hazardous waste treatment, storage, and disposal facilities (TSDFs) for off-site shipments of hazardous waste leachate.

Violation Classification:

This is a class 1 violation.

Compliance Requirement:

Chiquita Canyon, LLC shall utilize all potential hazardous waste disposal options to the fullest extent to minimize the possibility of any unplanned sudden or non-sudden releases of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. Within **three** days of this Summary of Violations, Chiquita Canyon, LLC shall provide a written list of all potential permitted hazardous waste disposal facilities where leachate can be disposed, including the daily maximum quantities allowed and Chiquita **must** send daily shipments of hazardous waste leachate at the maximum allowable quantities to the identified offsite disposal locations. At the end of each and every day (by 11:59 PM), Chiquita shall provide copies of hazardous waste manifests to DTSC for all shipments of hazardous waste leachate sent off-site that day.

Violation # 2

Violation Citations:

Health and Safety Code (HSC) § 25189.2(c), A person who disposes, or causes the disposal of, a hazardous or extremely hazardous waste at a point that is not authorized according to the provisions of this chapter is liable for a civil penalty of not more than seventy thousand dollars (\$70,000) for each violation and may be ordered to disclose the fact of this violation or these violations to those persons as the court or, in the case of an administrative action, a hearing officer, may direct. Each day on which the deposit remains is a separate additional violation, unless the person immediately files a report of the deposit with the department and is complying with an order concerning the deposit issued by the department, a hearing officer, or a court of competent jurisdiction for the cleanup.

Description:

On and/or before February 21, 2024, Chiquita Canyon, LLC disposed and/or caused the disposal of two truckloads, approximately 10,000 gallons total, of hazardous waste leachate by sending this leachate to Patriot Environmental Services (Patriot) at 314 W. Freedom Avenue, Orange, CA 92865 on non-hazardous manifest #9229 and #9133. The leachate was pulled from Tank #45 at Chiquita Canyon Landfill, which was sampled on February 18, 2024, indicating that the tank contained benzene at 0.6 mg/L, above the Toxicity Characteristic Leaching Procedure (TCLP) regulatory threshold of 0.5 mg/L



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for benzene. Approximately 18 hours after treatment, on February 20th, post-treatment sampling was conducted on Tank #45. Sampling results from Chiquita Canyon, LLC showed that the tank contained benzene at 0.5 mg/L, at the TCLP regulatory threshold for benzene. Samples were also collected of waste leachate remaining in Tank #45 after most of the waste was already received and processed by Patriot. This sample had 0.6 mg/L benzene.

Chiquita Canyon, LLC sent a letter to Patriot regarding these exceedances on February 26, 2024. Chiquita Canyon, LLC stated in its letter that it recognized that this leachate was released into Patriot's treatment process.

Violation Classification:

This is a class 1 violation.

Compliance Requirement:

Chiquita Canyon, LLC shall immediately take steps to ensure that hazardous waste leachate is not disposed of at a point that is not authorized. Within 15 days of this Summary of Violations, Chiquita Canyon, LLC shall provide a written explanation of how the facility will ensure that hazardous waste leachate is not disposed of at unauthorized locations.

Violation # 3

Violation Citations:

HSC § 25189.2(c), A person who disposes, or causes the disposal of, a hazardous or extremely hazardous waste at a point that is not authorized according to the provisions of this chapter is liable for a civil penalty of not more than seventy thousand dollars (\$70,000) for each violation and may be ordered to disclose the fact of this violation or these violations to those persons as the court or, in the case of an administrative action, a hearing officer, may direct. Each day on which the deposit remains is a separate additional violation, unless the person immediately files a report of the deposit with the department and is complying with an order concerning the deposit issued by the department, a hearing officer, or a court of competent jurisdiction for the cleanup.

Description:

On and/or before February 23, 2024, Chiquita Canyon, LLC disposed and/or caused the disposal of hazardous waste leachate due to a release onto the soil caused by a ruptured hose associated with the leachate treatment and storage tank, Tank #47, during treatment processes occurring at 29201 Henry Mayo Drive, Castaic, CA 91384. Tank #47 was sampled on February 21, 2024 by the facility and was found to have an exceedance for benzene, reporting 0.8 mg/L. This is above the TCLP regulatory limit for benzene of 0.5 mg/L. At the time of the release the tank was undergoing re-treatment and in addition to the hazardous waste leachate contained iron chelate and/or peroxide from the treatment process. The hazardous waste leachate and treatment mixture that was released came into contact with an employee of Chiquita Canyon, LLC. Per



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CalOES Spill Control #24-1157, that employee was injured by the release and transported to a local hospital.

Violation Classification:

This is a class 1 violation.

Compliance Requirement:

Chiquita Canyon, LLC shall immediately take steps to ensure that hazardous waste leachate is not released or disposed of at a point that is not authorized and remains safely contained. Within 15 days of this Summary of Violations, Chiquita Canyon, LLC shall provide a written explanation of how the facility will ensure that no release or disposal occurs.

SECTION II: OTHER ISSUES/CONCERNS

The following issues/concerns were identified during this investigation. Further research may identify additional violations. Any new violations, with the prescribed corrective action and schedule for compliance, will be identified in the Violation section of the investigation report.

1. The facility is generating RCRA hazardous waste and thus should have a federal EPA ID number. Please provide us with that number or obtain one if you have not already.

EXHIBIT 9

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION IX

	)	
IN THE MATTER OF:	)	
	)	
Chiquita Canyon, LLC	)	
	)	UNILATERAL ADMINISTRATIVE
	)	ORDER
	)	
RESPONDENT	)	EPA DOCKET NO.
	)	RCRA 7003-09-2024-0001 and
Proceeding under Section 7003 of the	)	CERCLA 106-09-2024-05
Resource Conservation and Recovery Act,	)	
as amended, 42 U.S.C. Section 6900, et seq.,	)	
and Section 106(a) of the Comprehensive	)	
Environmental Response, Compensation,	)	
and Liability Act, 42 U.S.C. Section 9601	)	
et seq.	)	
	)	

I. INTRODUCTION

1. This Unilateral Administrative Order (“UAO”) is issued by the United States Environmental Protection Agency, Region IX (“EPA”) to Chiquita Canyon, LLC, dba Chiquita Canyon Landfill (“CCL” or “Respondent”). This UAO provides for the performance of response actions to address off-Site impacts and ongoing subsurface reactions causing off-Site impacts, including any additional work that maybe required by Section XXIV (Additional Work) of this UAO, by Respondent in connection with the property located at 29201 Henry May Drive in Castaic, California (the “Site”). In issuing this UAO, EPA intends for Respondent to identify, investigate, remedy, and/or prevent the potential endangerment to human health or the environment from activities involving solid and hazardous waste, and to ensure that the Work ordered by EPA is designed and implemented to protect human health or the environment. Respondent shall finance and perform the Work in accordance with this UAO, plans, standards, specifications and schedules set forth in this UAO or developed by Respondent and approved by EPA pursuant to this UAO.
2. EPA has determined that Respondent has contributed or is contributing to the past or present handling, storage, treatment, transportation or disposal of solid and hazardous waste that may present an imminent and substantial endangerment to health or the environment.
3. EPA has notified the State of California of this action pursuant to the Resource Conservation and Recovery Act (also known as the Solid Waste Disposal Act), as amended, 42 U.S.C. §§ 6901, *et seq.* (RCRA), Section 7003(a), 42 U.S.C. § 6973(a), and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq.* (CERCLA), Section 106(a), 42 U.S.C. § 9606(a).

II. JURISDICTION

4. This UAO is issued under the authority vested in the Administrator of EPA by Section 7003 of RCRA, 42 U.S.C. § 6973, which authority has been delegated to the Regional Administrators of EPA by Delegation 8-22 (January 18, 2017), and redelegated to the Director of the Enforcement and Compliance Assurance Division of EPA Region IX by Delegation R9 8-22 (March 8, 2017). This UAO is also issued under the authority vested in the President of the United States by Section 106(a) of CERCLA, 42 U.S.C. § 9606(a), which authority has been delegated to the Administrator of the EPA by Executive Order No. 12580, 52 Fed. Reg. 2923 (Jan. 23, 1987), further delegated to the Regional Administrators of EPA by Delegations 14-14A (January 31, 2017) and 14-14B (January 18, 2017), and redelegated to the Director of the Superfund and Emergency Management Division of EPA Region IX by Delegation R9 14-14A and 14-14B (May 9, 2018 and May 1, 2019).

III. PARTIES BOUND

5. This UAO shall apply to and be binding on Respondent and Respondent's officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, and on all persons, including, but not limited to, contractors and consultants, acting on behalf of Respondent, as well as on subsequent purchasers of the Site. Any change in the ownership or corporate status of Respondent, including, but not limited to, any transfer of assets or real or personal property, shall not alter Respondent's responsibilities under this UAO.
6. Respondent shall provide a copy of this UAO to any subsequent owners or successors before a controlling interest in ownership rights, stock, assets or the Site is transferred. Respondent shall be responsible for, and liable for, completing all of the activities required pursuant to this UAO, regardless of whether there has been a transfer of ownership or control of the Site or whether said activities are to be performed by employees, agents, contractors, subcontractors, laboratories, or consultants of Respondent. Respondent shall provide a copy of this UAO within seven (7) days of the Effective Date, or the date that such services are retained, to all contractors, subcontractors, laboratories, and consultants that are retained to conduct or monitor any portion of the Work performed pursuant to this UAO. Respondent shall condition all contracts or agreements with contractors, subcontractors, laboratories or consultants in connection with this UAO, on compliance with the terms of this UAO. Respondent shall ensure that their respective contractors, subcontractors, laboratories, and consultants comply with this UAO.
7. Not later than sixty (60) days prior to any voluntary transfer by Respondent of any interest in the Site or the operation of the facility, Respondent shall notify EPA of the proposed transfer. In the case of a voluntary transfer through a bankruptcy, Respondent shall notify EPA within twenty-four (24) hours of the decision to transfer property. Respondent shall notify EPA of any involuntary transfers immediately on Respondent's initial receipt of notice of any involuntary transfer. Not later than three (3) days after any transfer, Respondent shall submit copies of the transfer documents to EPA.

IV. DEFINITIONS

8. Unless otherwise expressly provided herein, terms used in this UAO that are defined in RCRA or CERCLA shall have the meaning assigned to them in the applicable statute. Whenever the terms listed below are used in this UAO the following definitions apply:

"CalRecycle" shall mean California's Department of Resources Recycling and Recovery.

"CCR" means the California Code of Regulations.

“CERCLA” shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq.*

“Clean Air Act” shall mean the Clean Air Act, as amended, 42 U.S.C. §§ 7401, *et seq.*

“Day” or “day” shall mean a calendar day unless expressly stated otherwise. In computing any period of time under this UAO, where the last day would fall on a Saturday, Sunday, or federal or State holiday, the period shall run until the close of business on the next working day.

“DTSC” shall mean California’s Department of Toxic Substances Control.

“Effective Date” shall be the effective date of this UAO pursuant to Section XXVII (Effective Date).

“EPA” shall mean the United States Environmental Protection Agency and its successor departments, agencies, or instrumentalities.

“LEA” shall mean the Los Angeles County Department of Public Health, Solid Waste Management Program, certified to act as the Local Enforcement Agency by CalRecycle.

“NCP” shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

“Paragraph” shall mean a portion of this UAO identified by an Arabic numeral or an upper or lower case letter.

“Parties” shall mean EPA and Respondent.

“RCRA” shall mean the Resource Conservation and Recovery Act (also known as the Solid Waste Disposal Act), as amended, 42 U.S.C. §§ 6901, *et seq.*

“Regulatory Agencies” shall mean EPA, LEA, CalRecycle, California’s South Coast Air Quality Management District, Los Angeles Regional Water Quality Control Board, DTSC, and any successor departments or agencies of these entities.

“Respondent” shall mean Chiquita Canyon, LLC.

“RWQCB” shall mean the Los Angeles Regional Water Quality Control Board.

“Section” shall mean a portion of this UAO identified by a Roman numeral.

“Site” shall mean the facility located at 29201 Henry May Drive, in Castaic,

California (91384).

“South Coast AQMD” shall mean California’s South Coast Air Quality Management District.

“State” shall mean the State of California.

“United States” shall mean the United States of America and each department, agency, and instrumentality of the United States, including EPA.

“Waste Material” shall mean (a) any “hazardous substance” under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (b) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); (c) any “solid waste” under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (d) any “hazardous waste” under California Health & Safety Code, Division 20, Chapter 6.5 (Hazardous Waste Control Law), Section 25117 and Title 22 of the California Code of Regulations (22 CCR), Section 66261.3.

“Work” shall mean all the activities and requirements Respondent is required to perform under this UAO, except those required by Section XVI (Record Retention).

“Work Plan(s)” shall mean the Master Work Plan and/or the work plans incorporated therein.

V. FINDINGS OF FACT

9. Operation of the Landfill.

- a. CCL is registered as a limited liability company in the State of Delaware. CCL is a subsidiary of Waste Connections US, Inc., which is registered as a corporation in the State of Delaware. Waste Connections US, Inc. is a subsidiary of Waste Connections, Inc., which is registered as a business corporation in Ontario, Canada.
- b. CCL operates a Class III non-hazardous municipal solid waste landfill (“Landfill”) located on the Site in the northern portion of the County of Los Angeles. The County of Los Angeles Department of Regional Planning regulates the Landfill under a conditional use permit. The 639-acre Landfill property was first approved for waste disposal in 1967. It has been in use as a landfill since 1972. The property has continued to be used and operated as a landfill under a series of conditional use permits issued by the County of Los Angeles. CCL was most recently granted a renewed conditional use permit in 2017 (as renewed and/or amended from time to time, “CUP”) to allow continued operations and expansion of the Landfill.

- c. CCL is permitted to accept non-hazardous solid waste for disposal, including municipal solid waste, green waste for composting or recycling, construction and demolition debris, and e-waste for recycling. CCL is prohibited from accepting hazardous waste that is ignitable, corrosive, reactive, or toxic. CCL is also prohibited from accepting biohazardous waste, household hazardous waste, radioactive materials, incinerator ash, sludge, automobile shredder waste, and liquid waste.
- d. Per the CUP, CCL is permitted to dispose of up to 12,000 tons of municipal solid waste per day at the Landfill. Under a Solid Waste Facility Permit issued on October 19, 2018, by the LEA with CalRecycle's concurrence, non-hazardous mixed organics material for composting shall not exceed 560 tons per day and any combination of non-hazardous waste, beneficial reuse material and composting green material shall not exceed 12,000 tons per day or 60,000 tons per week. The CUP permits disposal of a maximum of 2,800,000 tons of municipal solid waste per year through December 2024, at which time the Landfill's maximum annual capacity will reduce to 1,800,000 tons. The average daily tonnage of municipal solid waste disposed in the Landfill in 2021 was reported to be 6,412 tons.
- e. At the Landfill, CCL operates a landfill gas collection and control system that includes vertical and horizontal gas collection wells and associated piping and trenches, multiple collection headers and blowers for venting landfill gas, a landfill gas treatment system, a condensate/leachate collection and storage system and flares that combust landfill gas. South Coast AQMD has issued permits for CCL's operation pursuant to South Coast AQMD Rules 201, 203, 1150.1, and 3002, including permits for CCL's landfill gas collection system, landfill gas treatment system, landfill gas condensate/leachate collection and storage system, two (2) portable diesel engines driving tippers, nine (9) portable diesel engines driving fans, and the landfill gas flare systems. South Coast AQMD permits also require CCL to comply with the federal rules and regulations, including the National Emissions Standards for Hazardous Air Pollutants at 40 C.F.R. Part 63, Subpart AAAA, the New Source Performance Standards at 40 C.F.R. Part 60, Subpart XXX and the Clean Air Act Title V permitting program. The Title V permitting program is a comprehensive stationary source operating permit program that implements Title V of the federal Clean Air Act by issuance of operating permits pursuant to 40 C.F.R. Parts 70 and 71.

10. Reaction Event and Effects.

- a. In May 2022, conditions at the Landfill began deteriorating in an area approximately thirty (30) acres in size, located in the north-western portion of the Landfill (the "Reaction Area"). See Attachment A, Map of Landfill.

- b. Based on CalRecycle's review of the Landfill data, the Landfill sustained the following conditions from around May 2022 through mid-October 2023:¹
- (1) Landfill cover integrity issues;
 - (2) Increased temperatures and pressures in the landfill gas control systems and waste mass;
 - (3) Oxygen intrusion above 5% by volume;
 - (4) Landfill gas temperatures over 170°F;
 - (5) Landfill subsurface temperatures over 195°F;
 - (6) Decreased methane production;
 - (7) Elevated carbon monoxide concentrations exceeding 1000 parts per million volume;
 - (8) Unusual landfill settlement;
 - (9) Damaged gas wells;
 - (10) Poor gas well performance in and around the Reaction Area; and
 - (11) The heating/smoldering event expanding in size and intensity.
- c. On October 16, 2023, CalRecycle concluded, "The conditions at the [L]andfill are causing additional gas pressure, noxious odors, elevated well and leachate temperatures, and damage to the gas extraction system at the [L]andfill."²
- d. EPA also confirmed from its review of the Landfill data provided by CCL on January 26, 2024, in response to EPA's December 28, 2023, request for information, that the Landfill has sustained the following conditions:
- (1) Landfill gas collection system well temperatures above 145°F at multiple wells, from January 2022 through December 2023, and likely ongoing; and
 - (2) Increased leachate production at the Site from 151,187 gallons per week in January 2022 to 1,014,532 gallons per week in December 2023.

¹ Letter from CalRecycle to LEA, dated October 16, 2023, regarding Review of the Odor Incident at Chiquita Canyon Landfill (19-AA-0052) (the "CalRecycle October 2023 Letter.")

² CalRecycle October 2023 Letter at 17.

- e. During on-Site visits on November 2, 2023, November 8, 2023, January 9, 2024, and January 18, 2024, EPA observed the following ongoing conditions at the Landfill:
- (1) Sour odors throughout the Reaction Area;
 - (2) Settlement of the Landfill surface about twenty (20) to thirty (30) feet below the previous grade;
 - (3) Leachate flowing out of the base of the Landfill on the northwestern side of the Reaction Area;
 - (4) Leachate bubbling out of the surface of the Landfill on the northern base of the Landfill next to the perimeter road;
 - (5) Leachate seeping out of the northside of the Landfill at a different location;
 - (6) Repairs to a Landfill well system to prevent imminent failure of the well and pressurized leachate condensate and steam ejecting from the well during such repairs;
 - (7) Cover integrity issues creating areas of exposed trash and exceedances measured during surface emissions monitoring;
 - (8) Standing liquid, appearing dark and with small, discrete bubbling, ponding above the scrim on the French drain; and
 - (9) Landfill gas pockets, or ballooning, and gas bubbles occurring underneath and above the scrim, respectively.
- f. During on-Site monitoring on November 8, 2023, and January 9, 2024, EPA conducted surface emissions monitoring s under EPA Method 21, “Determination of Volatile Organic Compound Leaks” (2017), using hydrocarbon detection instruments to measure methane as a surrogate for hazardous air pollutants to evaluate compliance with the National Emissions Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills, § 63.1958, which requires operators of municipal solid waste landfills to operate a gas collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. The surface emissions monitoring detected exceedances of the limit of 500 parts per million of methane under 40 C.F.R. § 63.1958, both inside and outside the Reaction Area, including:

- (1) Surface emissions concentrations of methane in excess of 500 parts per million at thirteen (13) out of thirty (30) wells sampled in the Reaction Area; and
 - (2) Surface emissions concentrations of methane in excess of 500 parts per million at fifty (50) unique locations on the Landfill, both inside and outside the Reaction Area.
- g. As of January 17, 2024, the Reaction Area was located approximately 1,000 feet from the nearest resident.

11. Complaints, Violations and Endangerment Due to Noxious Odors.

- a. In the spring of 2023, CCL experienced a significant increase in the number of odor complaints it received in connection with the Landfill. In 2023, South Coast AQMD received almost 6,800 complaints of odors from the public, particularly members of the public located in the communities of Val Verde, Hasley Canyon, Hillcrest, Williams Ranch, North Bluffs, Hasley Hills and Live Oak, in California, with numerous complaints alleging CCL as the source.³ The complaints describe various odors but primarily describe landfill gas and other non-trash odors.
- b. A majority of the complaints were received from individuals reporting from the community of Val Verde, which lies northwest and immediately adjacent to the Landfill, and the community of Castaic Junction, which lies northeast of the Landfill.
- c. South Coast AQMD inspectors investigated the complaints – by verifying odors with complainants and tracing them back to CCL – and confirmed CCL as the source of the odors on numerous occasions. On May 18, 2023, South Coast AQMD issued a Notice of Violation (“NOV”) to CCL for public nuisance in violation of South Coast AQMD Rule 402 and California Health and Safety Code (CA H&S) Section 41700. Between April and December 31, 2023, South Coast AQMD issued 107 NOVs to CCL for public nuisance under South Coast AQMD’s Rule 402 and CA H&S Section 41700.
- d. CalRecycle also determined that odors were attributable to the reaction occurring at the Landfill. CalRecycle reported on October 16, 2023, that “the landfill gas generated in and around the reaction settlement area has exceeded the designed gas generation flow rate and caused increased emissions and odors.”⁴

³ These complaints appear in the Summary of Complaints Alleging Chiquita Landfill as Source from January 1, 2023, through December 31, 2023, prepared by South Coast AQMD (the “2023 Complaints Summary.”)

⁴ CalRecycle October 2023 Letter at 17.

- e. The complaints filed reflect that the public has suffered impacts due to the noxious odors, including reports of eye irritation, nosebleeds, tinnitus, nausea, migraines, vomiting, vertigo, respiratory symptoms, cardiac issues, and skin issues. Various members of the public reported that they are unable to have their children play outside in the yard, walk their pets, or exercise outdoors, due to odors from the Landfill. Noxious odors were reported by concerned parents, teachers, staff and students at schools as near as approximately 1.7 miles, and as far as approximately 5.0 miles, from the Landfill, including at Headstart Preschool in Val Verde, Playmakers Preschool in Castaic, Santa Clarita Valley International Elementary School in Castaic, Live Oak Elementary School in Castaic, Castaic Elementary School in Castaic, Castaic High School in Castaic, Rio Vista Elementary School in Canyon Country, West Ranch High School in Stevenson Ranch, and Valencia High School in Valencia.⁵ One parent in Castaic reported that it was “literally difficult to even walk to the car to take [the] kids to school.”⁶
- f. CCL maintains several air monitoring stations around the Landfill perimeter and within the nearest residential community. Pursuant to the CUP issued by the County of Los Angeles Department of Regional Planning, CCL’s monitoring stations continuously monitor for hydrogen sulfide (“H₂S”) and particulate matter (“PM”) concentrations. CCL’s H₂S monitors in the community showed the presence of H₂S in excess of 30 parts per billion from November 2022 through 2023.⁷
- g. Since mid-2023, CCL has also regularly collected grab samples and 24-hour samples for various compounds at the air monitoring sites in the community.⁸ Several of CCL’s 24-hour and grab samples showed above-background concentrations of benzene, exceeding 1 part per billion.⁹ One 24-hour sample in the community showed the presence of benzene in excess of 8 parts per billion.¹⁰
- h. On September 1, 2023, September 19, 2023, October 25, 2023, November 28,

⁵ See 2023 Complaints Summary.

⁶ Complaint was filed on September 15, 2023. See 2023 Complaints Summary.

⁷ Graph prepared by South Coast AQMD from Respondent’s sampling data from continuous air monitors in the community surrounding the Landfill, included as Petitioner’s Exhibit 29 to Proposed Findings and Decision for a Modified Stipulated Order for Abatement, In the Matter of South Coast Air Quality Management District vs. Chiquita Canyon, LLC, Case No. 6177-4, before the Hearing Board of the South Coast Air Quality Management District (“Proposed Modified AO.”)

⁸ Atmospheric Analysis & Consulting, Inc. report analyzing selected grab and 24-hour samples from the community surrounding the Landfill, sampled by Respondent, included as Petitioner’s Exhibit 30 to the Proposed Modified AO (“Community Grab and 24-hour Samples Lab Report.”)

⁹ See sampling data from September 5, 2023, October 10, 2023, October 17, 2023, November 7, 2023, November 21, 2023, and December 5, 2023, respectively, in the Community Grab and 24-hour Samples Lab Report.

¹⁰ See sampling data from November 7, 2023, in the Community Grab and 24-hour Samples Lab Report.

2023, and December 19, 2023, respectively, the LEA conducted inspections at the Landfill. The LEA inspector observed on each of these occasions that the methane gas concentrations at perimeter monitoring wells were above five percent (5%) by volume in air. The LEA issued violations to CCL for non-compliance with gas monitoring and control requirements under Title 27 of the California Code of Regulations (27 CCR), Section 20921(a).

- i. On September 7, 2023, the South Coast AQMD Hearing Board issued a Stipulated Abatement Order (the “Stipulated Abatement Order”) requiring, among other things, investigation and mitigation of odors, investigation of the Reaction Area, expansion of the landfill gas well and collection system, increased flaring, improvements to the cover of the Landfill, and a health study. Despite these efforts, noxious odors have continued to impact the communities surrounding the Landfill. South Coast AQMD has issued at least fifty-three (53) NOVs to CCL, based on the continuous noxious odors emanating from the Landfill since September 7, 2023.
- j. On January 17, 2024, the South Coast AQMD Hearing Board approved modifications to the Stipulated Abatement Order to address issues relating to the Landfill’s leachate collection system and other conditions resulting in increased emissions by, among other things, requiring expanded air monitoring and sampling in the surrounding community.¹¹ The South Coast AQMD AO states that the odor complaints received by the agency included “odor descriptions of both trash and landfill gas, but [South Coast AQMD] and [CCL] believe that all odors complained of related to landfill gas, leachate, and associated surface emissions rather than trash or the working face.”¹² South Coast AQMD asserted, “the ongoing subsurface reaction is the source of the odor complaints received from the public, and the root cause of an ongoing public nuisance.”¹³
- k. On February 7, 2024, Roux Associates, Inc. (“Roux”) issued a community air sampling and health risk report prepared on behalf of Los Angeles County for the investigation of outdoor air quality and the evaluation of potential health risks to residents of the communities surrounding the Landfill.¹⁴ From its independent review of existing continuous air monitoring data for the Landfill, Roux observed that ambient air levels for H₂S in the communities surrounding the Landfill periodically exceeded the California Environmental Protection Agency’s Office of Environmental Health Hazard Assessment acute and chronic recommended

¹¹ Findings and Decision for a Modified Stipulated Order for Abatement, In The Matter of South Coast Air Quality Management District vs. Chiquita Canyon, LLC, Case No. 6177-4, Before the Hearing Board of the South Coast Air Quality Management District (“South Coast AQMD AO.”)

¹² South Coast AQMD AO at 4.

¹³ South Coast AQMD AO at 4.

¹⁴ Roux Associates, Inc., “Community Air Sampling and Health Screening Evaluation Report: Val Verde and Castaic Communities, Los Angeles County, California,” (February 7, 2024) (“Public Health Report.”)

limits for H₂S of 0.03 ppm and 0.007 ppm, respectively. Roux explained, “H₂S can be an irritant to the eyes, nose, or throat, and can impact the neurological and respiratory systems. [Agency for Toxic Substances and Disease Registry] notes the most common symptoms following exposure to odorants include headaches, nasal congestion, eye, nose and throat irritation, hoarseness/sore throat, cough, chest tightness, shortness of breath, wheezing, heart palpitations, nausea, drowsiness and mental depression.”¹⁵

12. Complaints, Violations and Endangerment Due to Leachate and Leachate Condensate.

- a. Landfill leachate is formed when rainwater or other liquid filters through or drains from wastes placed in a landfill. When this liquid comes in contact with buried wastes, it leaches, or draws out, chemicals or constituents from those wastes. Condensate is the liquid generated as a result of the gas collection and recovery process.
- b. On September 19, 2023, October 25, 2023, and November 28, 2023, respectively, the LEA conducted inspections at the Landfill. The inspector observed on each of these occasions that leachate was leaking through slopes and pooling around gas wells in the upper northwestern to western areas of the Landfill. In November 2023, the inspector also observed that leachate was flowing and pooling on top of the installed scrim cover located on the west-facing Reaction Area slopes. The LEA issued violations to CCL for non-compliance with leachate control requirements under 27 CCR § 20790.
- c. On October 3, 2023, the RWQCB conducted an inspection of the Landfill and observed “a leachate seep in the north-western portion of the Main Canyon of the Landfill that flowed from the edge of the Landfill to a concrete V-ditch. The V-ditch widens to a flat-bottomed ditch on its course to the stormwater debris basin at the front of the Landfill.”¹⁶
- d. On October 17, 2023, the LEA stated in a letter to CCL that the conditions observed at the Landfill “are serious issues and have likely caused the many violations cited by the [South Coast AQMD] investigations this year,” and that “the CalRecycle analysis presents compelling evidence that the CCL needs to act promptly to address the current conditions for the protection of public health and the environment.”¹⁷ The LEA cautioned, with respect to CCL’s landfill gas

¹⁵ Public Health Report at 2.

¹⁶ Letter from RWQCB to Respondent, dated November 22, 2023, regarding Notice of Violation of Waste Discharge Requirements – Chiquita Canyon Landfill, Castaic, California (File No. 67-020, Order No. R4-2018-0172, Geotracker Global ID. L10003464243) (“RWQCB November 2023 NOV.”)

¹⁷ Letter from the LEA to Respondent, dated October 17, 2023, regarding Chiquita Canyon Landfill (SWIS No. 19-AA-0052) CalRecycle Review of the Ongoing Order Incident at Chiquita Canyon Landfill (“LEA October 2023 Letter.”)

control, emission, odor, and leachate issues, “[i]f prompt steps are not taken, the condition is likely to worsen, and may threaten the integrity of the landfill, thereby compromising the landfill cover.”¹⁸ The LEA expected CCL to complete various corrective and mitigation actions, including sampling of the leachate for benzene and other volatile organic compounds, as “past incidents similar to Chiquita Canyon . . . have shown that heating event increases the level of [volatile organic compounds] in the leachate.”¹⁹

- e. On November 2, 2023, representatives from the Regulatory Agencies performed a joint inspection at the Landfill. The Regulatory Agencies observed multiple new leachate outbreaks, as well as stability issues with leachate-saturated slopes and waste. They also observed continuing issues with high temperatures, landfill gas collection, excessive leachate production, and unusual and large-scale settlement. A portion of the Reaction Area had settled as much as twenty-five (25) to thirty (30) feet since 2022. From July 2023 to September 2023, the Reaction Area had expanded in all directions, most notably to the north and west, to an approximate size of thirty (30) to thirty-five (35) acres.
- f. During the November 2, 2023, joint inspection by the Regulatory Agencies, the RWQCB observed that the leachate seep into the concrete V-ditch to a flat-bottomed ditch on its course to the stormwater debris basin at the front of the Landfill was continuing. The RWQCB reported that CCL was pumping leachate into tanker trucks for off-Site disposal. Further, on November 8, 2023, EPA and South Coast AQMD inspectors observed that uncontrolled leachate condensate was spewing out of gas extraction wellheads twelve (12) to eighteen (18) feet into the air, due to the increased temperatures and pressure within the Reaction Area.
- g. Based on the findings from the joint inspection on November 2, 2023, and the LEA inspection on November 28, 2023, the LEA issued a violation to CCL for deteriorated conditions in the Reaction Area and for non-compliance with preventive maintenance program requirements under 27 CCR § 20750.
- h. On November 21, 2023, the LEA issued a letter to CCL requiring CCL to address the ongoing and uncontrolled reactions at the Landfill.²⁰ The LEA determined that it was “unlikely that CCL’s current mitigation measures will be sufficient to control and contain the reaction, which is expanding toward other areas of the [L]andfill.”²¹ The letter requires, among other actions: the installation of temperature monitoring devices to determine the intensity, depth, and direction

¹⁸ LEA October 2023 Letter at 2.

¹⁹ LEA October 2023 Letter at 3.

²⁰ Letter from the LEA to Respondent, dated November 21, 2023, regarding Chiquita Canyon Landfill (SWIS No. 19-AA-0052) CalRecycle’s Review of Conditions at the Landfill Response Letter (“LEA November 2023 Letter.”)

²¹ LEA November 2023 Letter at 2.

of the reaction; the development of a plan and constructing a soil barrier between the reaction and operational areas; the placement and compacting of a minimum cover of 24 inches of 1×10^{-6} low permeability soil in and around the reaction settlement area and any well showing signs of reaction; the development of a written plan to document and track fissures, settlement, and tension cracks in the soil cover; the performance of a slope stability analysis of the western slope near the leachate outbreak; and the collection of temperature readings in and around the Reaction Area to meet the manufacturer's temperature design specifications to ensure the French drain installed by CCL does not fail due to the elevated temperature of the leachate.

- i. On November 22, 2023, the RWQCB issued a NOV to CCL, noting that CCL failed to continuously protect and maintain leachate and landfill-gas condensate containment systems to ensure their effectiveness and to prevent commingling of leachate and gas condensate with surface water run-on and run-off. The RWQCB observed that the "conditions in the area of the leachate seep at the Landfill are not adequate to prevent the commingling of leachate and gas condensate with surface water run-on and run-off during a rain event."²² The RWQCB also cited CCL for failing to report the leachate seepage to the RWQCB upon discovery.
- j. CCL acknowledged that leachate seepage occurred on the western slope of the Landfill from April through November 2023, and was present in levels that reached the stormwater channel on the western slope and intermittently on the northern slope of the Landfill.
- k. Benzene is an EPA Hazardous Waste (No. D018) with a Toxicity Characteristic Leaching Procedure ("TCLP") regulatory level of 0.5 mg/L.
- l. Benzene causes harmful effects on the bone marrow and can cause a decrease in red blood cells, leading to anemia. It can also cause excessive bleeding and can affect the immune system, increasing the chance for infection. The United States Department of Health and Human Services has determined that benzene causes cancer in humans. Long-term exposure to high levels of benzene in the air can cause leukemia, cancer of the blood-forming organs.
- m. On December 12, 2023, DTSC and EPA performed an inspection of the Reaction Area and collected samples of the uncontrolled leachate condensate waste from the gas extraction wellheads.²³ The temperature of the leachate was as high as 180°F. There were TCLP exceedances for benzene in the samples, as high as 0.59

²² RWQCB November 2023 NOV at 2.

²³ Environmental Chemistry laboratory results from DTSC sampling data (DTSC Case #15921) from site visit on December 12, 2023 ("DTSC December Lab Report.")

mg/L and 0.91 mg/L.²⁴ CCL reported test results of the split samples of the leachate condensate provided to CCL from DTSC during the inspection with TCLP exceedances for benzene of 0.59 mg/L, 1.2 mg/L and 2.9 mg/L.²⁵

- n. CCL's test results from various samples contained evidence of TCLP exceedances for benzene in condensate samples taken as early as August 2023.²⁶
- o. CCL has been transporting leachate from the Landfill to multiple facilities for off-Site disposal, including Avalon Premium Tank Cleaning ("Avalon") and Patriot Environmental Services ("Patriot").
- p. On December 27, 2023, Avalon sampled the leachate from a tanker truck delivering leachate from the Landfill and found that the leachate had a TCLP exceedance for benzene of 0.538 mg/L.²⁷
- q. On January 25, 2024, CCL issued a letter to Avalon to inform it of "three recent laboratory tests on discrete samples of the leachate generated at the Chiquita Canyon Landfill, some of which may have been sent to [the] facility for treatment and subsequent disposal," which "three tests indicated somewhat elevated levels of [benzene]."²⁸ CCL reported that grabs samples taken from the location where the vacuum trucks connect to a set of tanks at the Landfill on November 30, 2023, December 6, 2023, and December 27, 2023, had benzene concentrations of 0.92 mg/L, 1.2 mg/L, and 0.538 mg/L, respectively. CCL estimated that there could have been as many as seventy-six (76) truck-loads of this contaminated liquid delivered to two facilities, including Avalon, over the course of numerous days.
- r. On January 26, 2024, CCL issued a letter to Patriot to inform it of "several leachate loads sent to [the] facility between January 23 and January 25, 2024, that may have contained somewhat elevated levels of benzene."²⁹ CCL reported that a grab sample taken from the location where the vacuum trucks connect to a set of tanks at the Landfill on January 23, 2024, had a benzene concentration of 0.65 mg/L. CCL advised that based on a review of its waste manifests, at least

²⁴ DTSC December Lab Report at 28.

²⁵ Weck Laboratories, Inc., Certificate of Analysis Final Reports for samples taken by Respondent on December 13, 2023.

²⁶ Weck Laboratories, Inc., Certificate of Analysis Final Reports for samples taken by Respondent on August 29, 2023, November 30, 2023 and December 6, 2023.

²⁷ Enviro – Chem, Inc. Laboratory Report, dated January 4, 2024, prepared for Avalon, analyzing samples from December 27, 2023.

²⁸ Letter from Respondent to Avalon, dated January 25, 2024, regarding Notification of Leachate Analytical Results from the Chiquita Canyon Landfill.

²⁹ Letter from Respondent to Patriot, dated January 26, 2024, regarding Notification of Leachate Analytical Results from the Chiquita Canyon Landfill.

eleven (11) truck-loads of this contaminated liquid had been sent to Patriot over the course of three (3) days.

- s. On February 15, 2024, DTSC issued violations to CCL related to CCL's leachate management and disposal including violations for failing to make a proper waste determination, disposing of hazardous waste at an unauthorized point, causing storage and treatment of hazardous waste at an unauthorized point, failing to use a hazardous waste manifest, and failing to minimize the possibility of release of hazardous waste or hazardous waste constituents.

13. Regulatory Agencies' Response and Issuance of this UAO.

- a. On November 30, 2023, a Multi-Agency Critical Action Team ("MCAT") was formed among the local, state, and federal regulatory agencies overseeing CCL for the purpose of coordinating regulatory expertise, resources and legal authorities to address the human health and environmental impacts caused by the deteriorating conditions at the Landfill. All members of the MCAT were notified of this UAO prior to issuance and were invited to share comments to, and recommendations for, its contents. This UAO reflects the technical expertise and subject-matter knowledge contributed by the MCAT through this engagement process.
- b. The actions required by this UAO, including financial assurances, may be necessary to protect human health or the environment by mitigating the noxious air emissions and properly handling, storing, treating and disposing of hazardous leachate waste resulting from the deteriorated conditions in Reaction Area within the Landfill. Such emissions and leachate emanating from the Landfill could cause injury, detriment, nuisance, annoyance or endanger the comfort, repose, health or safety of any persons or have a natural tendency to cause injury or damage to the physical environment.

VI. CONCLUSIONS OF LAW AND DETERMINATIONS

14. Based on the Findings of Fact set forth above, and an administrative record supporting this UAO, EPA has determined that:

- a. Under RCRA:
 - (1) Respondent is a "person" as defined in Section 1004(15) of RCRA, 42 U.S.C. § 6903(15).
 - (2) Contaminated soils, organic materials and other materials accepted for disposal at the Site are each discarded material, and therefore are each a "solid waste" as defined in Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

- (3) Leachate and/or leachate condensate emanating from the Landfill near or above the Reaction Area at the Site contains hazardous materials including, but not limited to, benzene, and therefore is a “hazardous waste” as defined in Section 1004(5) of RCRA, 42 U.S.C. § 6903(5).
- (4) Imminent and Substantial Endangerment Under RCRA. The past and present handling, storage, treatment and disposal of contaminated materials and leachate may present an imminent and substantial endangerment to human health or the environment within the meaning of Section 7003(a) of RCRA, 42 U.S.C. § 6973(a).
- (5) Respondent, as the operator of the Site, contributed and is contributing to the handling, storage, treatment, and disposal of solid and hazardous wastes from which air emissions and leachate waste streams are causing a potential endangerment.

b. Under CERCLA:

- (1) The Site is a “facility” as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).
- (2) Respondent is a “person” as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).
- (3) Respondent is a liability party under one or more provisions of Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), including, but not limited to, the following:
 - i. CCL is the “owner(s)” and/or “operator(s)” of the facility, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1).
- (4) The leachate condensate, which tested to include elevated levels of benzene, as identified in the Findings of Fact above, includes “hazardous substances” as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).
- (5) The conditions described in the Findings of Fact above constitute an actual and/or threatened “release” of a hazardous substance from the facility as defined by Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).
- (6) The conditions at the Site may constitute a threat to public health or welfare or the environment, based on the factors set forth in Section 300.415(b)(2) of the NCP. These factors include, but are not limited to,

the following:

- i. actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances. This factor is present at the Site due to the existence of leachate and leachate condensate emanating from the Landfill near or above the Reaction Area at the Site containing hazardous materials, including benzene with concentrations in excess of the TCLP threshold. There are several potential pathways for individuals on and off-Site to be exposed to hazardous substances, including, but not limited to: the migration of air emissions, potential contamination of the groundwater if the Reaction compromises the Landfill lining, and threats to human health caused by disposal of untreated hazardous waste leachate and/or leachate condensate at off-Site receiving facilities; and
 - ii. hazardous substances in soils largely at or near the surface, that may migrate. This factor is present at the Site due to the existence of leachate and leachate condensate emanating from the Landfill near or above the Reaction Area at the Site containing hazardous materials including, but not limited to, benzene with concentrations in excess of the TCLP threshold. The hazardous leachate or condensate may discharge via stormwater run-off into surface waters downstream and impair aquatic life and wildlife uses of the Santa Clara River. Leachate has been observed seeping into a concrete ditch on its course to the stormwater basin which ultimately discharges to the Santa Clara River. Hazardous substances may also migrate to and contaminate groundwater if the Reaction compromises the Landfill lining.
- (7) Imminent and Substantial Endangerment Under CERCLA. The conditions described in the Findings of Fact above may constitute an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of a hazardous substance from the facility within the meaning of Section 106(a) of CERCLA, 42 U.S.C. § 9606(a). The actions required by this UAO are necessary to protect human health or the environment.

VII. ORDER

15. Based on the administrative record for the Site and Section V (Findings of Fact) and Section VI (Conclusions of Law and Determinations) set forth above, the following is hereby ordered: Respondent shall comply with all provisions of this UAO, including, but not limited to, any appendices to this UAO and all documents incorporated by reference

into this UAO.

16. Respondent shall finance and perform the Work in accordance with this UAO, plans, standards, specifications and schedules set forth in this UAO or developed by Respondent and approved by EPA pursuant to this UAO.

VIII. WORK TO BE PERFORMED

17. Selection of Contractors, Personnel. All Work performed under this UAO shall be under the direction and supervision of qualified personnel. Within thirty (30) days after the Effective Date, Respondent shall notify EPA in writing of the names, titles, addresses, telephone numbers, email addresses, and qualifications of the personnel, including contractors, subcontractors, consultants, and laboratories to be used in carrying out such Work. If, after the commencement of the Work, Respondent retains additional contractors or subcontractors, Respondent shall notify EPA of the names, titles, contact information, and qualifications of such contractors or subcontractors retained to perform the Work at least five (5) days prior to commencement of Work by such additional contractors or subcontractors. EPA retains the right, at any time, to disapprove of any or all of the contractors and/or subcontractors retained by Respondent. If EPA disapproves of a selected contractor or subcontractor, Respondent shall retain a different contractor or subcontractor and shall notify EPA of that contractor's or subcontractor's name, title, contact information, and qualifications within five (5) days after EPA's disapproval. With respect to any proposed contractor, Respondent shall demonstrate that the proposed contractor demonstrates compliance with ASQ/ANSI E4:2014 "Quality management systems for environmental information and technology programs – Requirements with guidance for use" (American Society for Quality, February 2014), by submitting a copy of the proposed contractor's Quality Management Plan ("QMP"). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, Reissued May 2006) or equivalent documentation as determined by EPA. The qualifications of the persons undertaking the Work for Respondent shall be subject to EPA's review for verification based on objective assessment criteria (e.g., experience, capacity, technical expertise) and that they do not have a conflict of interest with respect to the project.
18. Project Coordinator. Before, or within two (2) days of, the Effective Date of this UAO, Respondent shall designate a Project Coordinator who shall be responsible for administration of the Work required by this UAO. Respondent shall notify EPA in writing within three (3) days of the Effective Date of this UAO of the name, address, phone number, electronic mail address and qualifications of the Project Coordinator.
19. EPA will approve/disapprove of Respondent's Project Coordinator (original or replacement) based upon the person's qualifications and ability to effectively perform this role. The qualifications of the persons undertaking the Work for Respondent shall

be subject to EPA's review, for verification that such persons meet minimum technical background and experience requirements. All persons under the direction and supervision of Respondent's Project Coordinator must possess all necessary professional licenses required by federal and state law.

20. EPA has designated the following individuals of the Regional Enforcement and Compliance Assurance Division, as its Project Coordinator and Alternate Project Coordinator (collectively, the "EPA Project Coordinators"). The EPA Project Coordinators shall be responsible for overseeing the implementation of this UAO. EPA will notify Respondent of a change of its designated EPA Project Coordinators. Communications between Respondent and EPA, and all documents concerning the activities performed pursuant to this UAO, shall be directed to the EPA Project Coordinators.

Tyler Holybee, Project Coordinator
Enforcement and Compliance Assurance Division (ENF-2-1)
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The EPA Project Coordinators shall be EPA's designated representatives for the Site. Unless otherwise provided in this UAO, all reports, correspondence, notices, or other submittals relating to or required under this UAO shall be in writing and shall be sent to the EPA Project Coordinators at the address specified in this Paragraph 20, unless EPA otherwise directs. Reports, correspondence, notices or other submittals shall be delivered by electronic mail. All correspondence shall include a reference to the case caption EPA Docket No. RCRA 7003-09-2024-0001 and CERCLA 106-09-2024-05.

21. Respondent shall undertake and complete all of the Work to the satisfaction of EPA, pursuant to RCRA § 7003, 42 U.S.C. § 6973 and CERCLA § 106, 42 U.S.C. § 9606. All of the Work performed under this UAO shall be under the direction and supervision of Respondent's Project Coordinator and shall be in accordance with the terms of this UAO.
22. Response Action. Respondent shall perform, at a minimum, all actions necessary to

implement the Work required in this UAO, and the approved Work Plan(s). The required actions to be implemented include, but are not limited to, the following:

- a. Upon the Effective Date, Respondent shall immediately store, transport leachate solid and/or hazardous waste only in accordance with RCRA, 42 U.S.C. Sections 6900, *et seq.*, and associated regulations. All hazardous waste shall be disposed of at a treatment, storage and disposal facility preapproved by EPA.
- b. Within thirty (30) days of the Effective Date, Respondent shall provide to EPA a master work plan ("Master Work Plan"), including an expeditious schedule to meet, the following objectives: (1) remedy and prevent off-Site impacts caused by odors, emissions, leachate or other waste streams; and (2) deploy measures to delineate, fully characterize, prevent the expansion of, contain, and reduce the smoldering or the subsurface reaction occurring at the Landfill. The Master Work Plan shall incorporate all ongoing and planned activities to meet environmental requirements and directives applicable to Respondent and the Landfill pursuant to local, state, or federal laws, regulations, permits, orders or agreements (each an "Environmental Obligation," and collectively, the "Environmental Obligations"), including, but not limited to, the requirements, directives and activities identified by the Regulatory Agencies to manage waste streams at the Site, to mitigate the migration of waste streams off-Site, and to mitigate the harm caused by the subsurface reaction or smoldering. In no event shall Respondent's obligations under the Master Work Plan be less stringent than Respondent's obligations under any Environmental Obligation, and in no event shall the provisions of the Master Work Plan conflict with the provisions of any Environmental Obligation.
- c. Without limiting the foregoing, the Master Work Plan shall incorporate the following:
 - (1) A "Leachate Management Plan" that includes the following criteria or components:
 - i. Standard operating procedures to identify leachate seeps and any necessary repairs or improvements to the leachate collection system;
 - ii. Process to adequately characterize leachate, condensate and all waste streams that are potentially hazardous;
 - iii. Process to collect all leachate and remove it from the Site on a daily basis or as often as necessary to reduce exposure of leachate to the atmosphere at the Landfill to the greatest extent feasible, and in any event so as to prevent standing leachate and the

- pooling or ponding of leachate exposed to the atmosphere throughout the facility;
- iv. Operating procedures to store leachate on Site in a manner that prevents leachate and leachate off-gas/VOC emissions/fumes exposure to the atmosphere, including operating procedures to route all collected gases to air emissions control equipment;
 - v. Operating procedures to transport waste streams to appropriate locations for disposal at a facility. All waste streams characterized as hazardous shall only be disposed of at a facility pre-approved by the EPA and permitted to treat, store and dispose of hazardous waste; and
 - vi. Operating procedures shall include obtaining any required permit(s) from the appropriate local, state, or federal agency for on-Site leachate management activities.
- (2) A “Soil Reaction Break/Barrier Plan” that includes the following criteria or components:
- i. Installation of temperature monitoring devices with a telemetry system to collect and record the temperature data necessary for evaluating the intensity, depth, speed and direction of the reaction;
 - ii. A set of criteria (e.g., what temperature thresholds at which temperature probes that border the Reaction Area) that would require installation of a soil reaction break between the reaction and operational areas of the Landfill;
 - iii. Specifications of the depth, width, material, and location of the containment trench (wall) based on temperature readings collected by the temperature probe network;
 - iv. Specifications of the volume of the waste to be excavated to install the soil reaction break between the reaction and operational areas of the Landfill;
 - v. Procedures for characterization and disposal of waste displaced by excavation;
 - vi. Procedure to cover the excavated area for the soil reaction break at the end of shifts;

- vii. Process to ensure that the soil reaction break is finished with 24 inches of 1×10^{-6} low permeability soil;
 - viii. Construction time estimates to complete the soil reaction break; and
 - ix. Provision for weekly updates for the soil reaction break construction until fully completed.
- (3) A "Cover Installation Plan" that includes the following criteria or components:
- i. Installation of a High-Density Polyethylene geomembrane with at least thirty (30) mil thickness ("Geomembrane Cover") to address the inadequacy of the current cover in the reaction settlement area resulting from the ongoing reaction;
 - ii. System and procedure to ensure that landfill gas ("LFG") does not accumulate under the Geomembrane Cover if the LFG collection and control system is inoperative due to power outage, such as through the use of a thermal oxidizer with its own power supply;
 - iii. System and procedure to prioritize LFG extraction from the Reaction Area over other areas of the Landfill in order to prevent the accumulation of LFG under the Geomembrane Cover should the LFG collection and control system lose vacuum;
 - iv. Timeline and provisions for weekly updates for the Geomembrane Cover installation until fully completed;
 - v. Process to document and track fissures, settlement, and tension cracks in the soil cover, including a photo log of the fissure location including the length and severity and corrective action taken and a weekly report to EPA by each Tuesday;
 - vi. Tracking and documentation of maintenance issues pertaining to the Geomembrane Cover once any portion of the Geomembrane Cover is installed. Notification to EPA of any structural issues that arise with the Geomembrane Cover; and
 - vii. Processes to ensure the maximum possible collection and control of LFG and associated odors from the Reaction Area and directly adjacent areas where Reaction Area LFG may migrate to, and minimization of fugitive emissions from the Geomembrane Cover and LFG collection components.

- (4) A “Slope Stability Analysis” work plan, subject to approval by the LEA, for the western slope in the Reaction Area.
- (5) Collection of temperature data in and around the Reaction Area to meet the manufacturer’s temperature design specifications/recommendations to ensure that the materials and parts used for mitigation activities do not fail after installation due to elevated temperature of the leachate, e.g., French drain.
- (6) An “Air Monitoring Plan” that includes the following criteria or components:
 - i. Installation and operation of air monitoring equipment on-Site and off-Site and provision of access to monitoring data so as to permit the Regulatory Agencies to identify transport of odors and other emissions from the Landfill, identify techniques that may be used to remedy potential odor impacts on the nearby community, and provide this data to inform the community in a timely manner;
 - ii. Enhancement of current ambient air monitoring program to include dimethyl sulfide and other constituents of landfill gas, including sampling at or near residential properties where recent odor complaints have been reported, sampling at on-Site locations where odors are most pronounced, and completion of a flux chamber study;
 - iii. Real-time continuous monitoring for particulate matter (“PM”) 2.5, PM10, and H2S recorded at monitoring stations at the fence-line of the Landfill (e.g., monitors MS-01 through MS-05) and in the community surrounding the Landfill (e.g., monitors MS-06 through MS-12);
 - iv. Real-time continuous monitoring for total reduced sulfur, and toxic air contaminants recorded by enhanced monitors at the fence-line of the Landfill (e.g., monitor MS-04);
 - v. Installation and implementation of instruments capable of measuring (i) hazardous substances, including Total Reduced Sulfides, Hydrogen Sulfide and all Toxic Air Contaminants listed in Table 1 of South Coast AQMD Rule 1150.1 and (ii) hourly concentrations of volatile organic compounds with Site surface emissions greater than (1) ton/year, including but not limited to, MS-02, MS-05, MS-06, MS-07, MS-10, MS-11 and MS-12; and

- vi. Requirement to make any continuous air monitoring data available to the public in real-time by posting such data on a dedicated webpage that shows a map of the location from which such data was obtained and that includes a graph of the measured pollutant(s) over time along with a depiction of any applicable health-based threshold or standard for such pollutant(s).

(7) An “Off-Site Migration Prevention Plan” to monitor and prevent off-Site migration of leachate or other contaminants or pollutants which may contaminate surface or subsurface water that includes the following criteria or components:

- i. Installation of wells in the alluvial aquifer downgradient of the Reaction Area and sediment basins, sufficient to monitor potential contamination of groundwater and interconnected surface waters, and to identify and track subsurface migration of contamination from the Landfill to groundwater or surface waters, including to the Santa Clara River;
- ii. Assessment and monitoring of the Landfill liner collection system integrity in the Reaction Area using appropriate indicators/surrogates; and
- iii. Additional monitoring for leachate-related constituents in stormwater runoff and maintenance of stormwater management systems, including but not limited to stormwater practices to prevent/minimize contact of leachate and stormwater, practices to prevent discharge of leachate contaminated stormwater to the unlined settlement basins to prevent groundwater contamination, and practices to prevent off-Site discharge of leachate contaminated stormwater.

23. The Work undertaken pursuant to this UAO shall be conducted in compliance with all applicable EPA guidance, policies and procedures, and with this UAO, and is subject to EPA approval. Pending approval of any Work Plan hereunder by EPA, Respondent shall continue, and shall not delay due to the pending approval required by this UAO, any ongoing and planned activities to meet environmental requirements and directives applicable to Respondent and the Landfill pursuant to any Environmental Obligation, including, but not limited to, the requirements, directives and activities identified by the Regulatory Agencies to manage waste streams at the Site, to mitigate the migration of waste stream off-Site, and to mitigate the harm caused by the subsurface reaction or smoldering, notwithstanding whether such work may also constitute the Work required by this UAO. Respondent shall take into consideration the progress and/or completion

of any such ongoing work when preparing its expeditious schedule for its Master Work Plan. Following EPA's approval or modification of the Master Work Plan, Respondent shall implement the Master Work Plan in accordance with the schedule and provisions approved by EPA.

24. Sampling and Analysis Plan. Within thirty (30) days after the Effective Date, Respondent shall submit a Sampling and Analysis Plan to EPA for review and approval. This plan shall consist of a Field Sampling Plan ("FSP") and a Quality Assurance Project Plan ("QAPP") that is consistent with the applicable regulations guidance documents, including "Guidance for Quality Assurance Project Plans (QA/G-5)" EPA/240/R-02/009 (December 2002), "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" EPA 240/B-01/003 (March 2001, reissued May 2006), and "Uniform Federal Policy for Quality Assurance Project Plans," Parts 1-3 EPA/505/B-04/900A-900C (March 2005). Upon its approval by EPA, the Sampling and Analysis Plan shall be incorporated into and become enforceable under this UAO.
25. Health and Safety Plan. Respondent shall develop a Health and Safety Plan and it shall be implemented during the Work performed under this UAO. This Health and Safety Plan shall be prepared in accordance with "OSWER Integrated Health and Safety Program Operating Practices for OSWER Field Activities," Pub. 9285.0-OIC (Nov. 2002), available on the NSCEP database at <https://www.epa.gov/nscep>, and "EPA's Emergency Responder Health and Safety Manual," OSWER Directive 9285.3-12 (July 2005 and updates), available at <https://www.epaosc.org/HealthSafetyManual/manual-index.htm>. In addition, the Health and Safety Plan shall comply with all currently applicable Occupational Safety and Health Administration regulations found at 29 C.F.R. Part 1910. Respondent shall incorporate all changes to the Health and Safety Plan recommended by EPA.
26. Progress Reports. Respondent shall submit a written progress report to EPA concerning actions undertaken pursuant to this UAO on a monthly basis, or as otherwise requested by EPA, from the date of receipt of EPA's approval of the Master Work Plan until notice of termination is delivered pursuant to Section XXV (Termination and Satisfaction), unless otherwise directed in writing by the EPA Project Coordinators. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, and planned resolutions of past or anticipated problems.
27. Final Report. Within fifteen (15) days after completion of all Work required by this UAO, with the exception of any continuing obligations required by this UAO, including Respondent's obligations to comply with Sections XIV (Sampling, Access and Data Availability), XVI (Record Retention), XVIII (Reservation of Rights), and XXII

(Indemnification) of this UAO, Respondent shall submit for EPA review and approval a final report summarizing the actions taken to comply with this UAO. EPA will review and approve the final report in accordance with Section XXV (Termination and Satisfaction). The final report shall include a good faith estimate of total costs or a statement of actual costs incurred in complying with the UAO, a listing of quantities and types of materials removed off-Site or handled on-Site, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destination(s) of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal actions (e.g., manifests, invoices, bills, contracts, and permits). The final report shall also include the certification required under Section XIII (Document Certification).

28. Off-Site Shipments.

- a. Respondent may ship hazardous substances, pollutants, and contaminants as defined under Sections 101(14) and (33) of CERCLA, 42 U.S.C. § 9601, from the Site to an off-Site facility only if it complies with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondent will be deemed to be in compliance with CERCLA § 121(d)(3) and 40 C.F.R. § 300.440 regarding a shipment if Respondent obtains a prior determination from EPA that the proposed receiving facility for such shipment is acceptable under the criteria of 40 C.F.R. § 300.440(b). Without limiting the foregoing, Respondent may ship hazardous waste as defined under Section 1004(5) of RCRA, 42 U.S.C. § 6903(5), from the Site to an off-Site facility only if it complies with 40 C.F.R. § 262.20 of RCRA.
- b. Respondent may ship Waste Material from the Site to an out-of-State waste management facility only if, prior to any shipment, it provides written notice to the appropriate state environmental official in the receiving facility's state and the EPA. This notice requirement will not apply to any off-Site shipments when the total quantity of all such shipments will not exceed ten cubic yards. The written notice must include the following information, if available: (1) the name and location of the receiving facility; (2) the type and quantity of Waste Material to be shipped; (3) the schedule for the shipment; and (4) the method of transportation. Respondent shall also notify the state environmental official referenced above and the EPA of any major changes in the shipment plan, such as a decision to ship the Waste Material to a different out-of-State facility. Respondent shall provide the notice after the award of the contract for the removal action and before the Waste Material is shipped.
- c. Respondent may ship Investigation Derived Waste ("IDW") from the Site to an off-Site facility only if it complies with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, EPA's "Guide to Management of Investigation

Derived Waste,” OSWER 9345.3-03FS (Jan. 1992), and any IDW-specific requirements contained in the Action Memorandum. Wastes shipped off-Site to a laboratory for characterization, and RCRA hazardous wastes that meet the requirements for an exemption from RCRA under 40 C.F.R. § 261.4(e) shipped off-Site for treatability studies, are not subject to 40 C.F.R. § 300.440.

IX. EPA APPROVAL OF DELIVERABLES

29. Deliverables required by this UAO shall be submitted to EPA for approval or modification. All deliverables must be delivered by electronic mail at EPA by the due date specified in this UAO or by schedules developed pursuant to this UAO. Deliverables shall be provided to the EPA Project Coordinators by electronic mail at:

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Holybee.Tyler@epa.gov and Relon.Markanthony@epa.gov

Additionally, Respondent shall post all deliverables on a virtual platform and make them available to the Regulatory Agencies.

30. Respondent shall submit all deliverables in electronic form. Respondent shall provide data and corresponding information in editable Excel format, and not in image format. If Excel format is not available, then the format should allow for data to be used in calculations by a standard spreadsheet program such as Excel. All other deliverables shall be submitted to EPA in the form specified by the EPA Project Coordinators.
31. After review of any deliverable that is required pursuant to this UAO, EPA will: (a) approve, in whole or in part, the submission; (b) approve the submission on specified conditions; (c) modify the submission to cure the deficiencies; (d) disapprove, in whole or in part, the submission, directing that Respondent modify the submission; or (e) any combination of the above. However, EPA will not modify a submission without first providing Respondent at least one notice of deficiency and an opportunity to cure within five (5) days, except where EPA determines that to do so would cause serious disruption to the Work or where EPA has disapproved previous submission(s) due to material defects and EPA determines that the deficiencies in the submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.
32. In the event of approval, approval on conditions, or modification by EPA, pursuant to this Section, Respondent shall proceed to take any action required by the deliverable, as approved or modified by EPA.
33. Resubmission of Deliverable. On receipt of a notice of disapproval, in whole or in part,

pursuant to this Section, Respondent shall, within five (5) days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval.

34. Notwithstanding the receipt of a notice of disapproval pursuant to this Section, Respondent shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission. Implementation of any non-deficient portion of a submission shall not relieve Respondent of any liability for penalties for non-compliance regarding the deficient portion of the deliverable.
35. In the event that a resubmitted deliverable, or portion thereof, is disapproved by EPA, EPA may again require Respondent to correct the deficiencies, in accordance with the preceding Paragraphs. EPA also retains the right to modify or develop the plan, report or other item. Respondent shall implement any action as required in a deliverable that has been modified or developed by EPA.
36. If on resubmission, a deliverable is disapproved or modified by EPA due to a material defect, Respondent shall be deemed to have failed to submit such deliverable timely and adequately.
37. All deliverables required to be submitted to EPA under this UAO shall, on approval or modification by EPA, be incorporated into and be enforceable under this UAO. In the event that EPA approves or modifies a portion of a deliverable required to be submitted to EPA under this UAO, the approved or modified portion shall be enforceable under this UAO.

X. MODIFICATION OF THE WORK

38. If at any time during the implementation of the Work, Respondent identifies a need for a compliance date modification or revision of any Work Plan, Respondent shall submit a memorandum documenting the need for the modification or revision to the EPA Project Coordinators. EPA in its discretion will determine if the modification or revision is warranted and may provide written approval or disapproval. Any approved modified compliance date or Work Plan modification is incorporated by reference into this UAO.
39. Emergency Response. In the event of any action or occurrence during the performance of the Work that constitutes an emergency situation or may present an immediate threat to human health and the environment, Respondent shall immediately take all appropriate action to minimize such emergency or threat and shall immediately notify the National Response Center at (800) 300-2193 and EPA's Project Coordinators. Respondent shall take such immediate and appropriate actions in consultation with EPA's Project Coordinators. Respondent shall take these actions in accordance with all applicable provisions of this UAO, including the Health and Safety Plan. Respondent shall then submit to EPA written notification of such emergency or threat at the Site within

three (3) days of such discovery. Respondent shall thereafter submit to EPA for approval a plan to mitigate this threat. EPA will approve or modify this plan in accordance with the provisions of Section IX (EPA Approval of Deliverables) of this UAO, and Respondent shall implement this plan as approved or modified by EPA. In the case of an extreme emergency, Respondent may act as it deems appropriate, at its own risk, to protect human health or the environment.

40. Release Reporting. Upon the occurrence of any event during performance of the Work that Respondent is required to report pursuant to Section 103 of CERCLA, 42 U.S.C. §9603, or Section 304 of the Emergency Planning and Community Right-To-Know Act (EPCRA), 42 U.S.C. § 11004, Respondent shall immediately orally notify the EPA Project Coordinators, or, in the event of their unavailability, the Regional Duty Officer at (800) 300-2193, and the National Response Center at (800) 424-8802. This reporting requirement is in addition to, and not in lieu of, the reporting required by CERCLA § 103 or EPCRA § 304.

XI. QUALITY ASSURANCE

41. Respondent shall use quality assurance, quality control, and other technical activities and chain of custody procedures for all samples consistent with “EPA Requirements for Quality Assurance Project Plans (QA/R5),” EPA/240/B-01/003 (March 2001, reissued May 2006), “Guidance for Quality Assurance Project Plans (QA/G-5),” EPA/240/R-02/009 (December 2002), and “Uniform Federal Policy for Quality Assurance Project Plans,” Parts 1-3, EPA/505/B-04/900A-900C (March 2005).
42. Respondent shall ensure that EPA personnel and its authorized representatives are allowed access at reasonable times to all laboratories utilized by Respondent pursuant to this order. Respondent shall ensure that all laboratories employed for analyses shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance, quality control, and technical activities that will satisfy the stated performance criteria as specified in the QAPP and that sampling and field activities are conducted in accordance with the EPA’s “EPA QA Field Activities Procedure,” CIO 2105-P-02.1 (9/23/2014) available at <https://www.epa.gov/irmpoli8/epa-qa-field-activities-procedures>. Respondent shall ensure that the laboratories it utilizes for the analysis of samples taken pursuant to this UAO meet the competency requirements set forth in EPA’s “Policy to Assure Competency of Laboratories, Field Sampling, and Other Organizations Generating Environmental Measurement Data under Agency-Funded Acquisitions” available at <https://www.epa.gov/measurements/documents-about-measurement-competency-under-acquisition-agreements> and that the laboratories perform all analyses using EPA-accepted methods. Accepted EPA methods consist of, but are not limited to, SW 846 “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods” (<https://www.epa.gov/hw-sw846>). However, upon approval by EPA, Respondent may use other appropriate analytical method(s), as long as

(i) quality assurance/quality control (“QA/QC”) criteria are contained in the method(s) and the method(s) are included in the QAPP, (ii) the analytical method(s) are at least as stringent as the methods listed above, and (iii) the method(s) have been approved for use by a nationally recognized organization responsible for verification and publication of analytical methods, e.g., EPA, ASTM, NIOSH, OSHA, etc. Respondent shall ensure that all laboratories it uses for analysis of samples taken pursuant to this UAO have a documented Quality System that complies with ASQ/ANSI E4:2014 “Quality management systems for environmental information and technology programs – Requirements with guidance for use” (American Society for Quality, February 2014), and “EPA Requirements for Quality Management Plans (QA/R-2)” EPA/240/B-01/002 (March 2001, reissued May 2006), or equivalent documentation as determined by EPA. EPA may consider Environmental Response Laboratory Network laboratories, laboratories accredited under the National Environmental Laboratory Accreditation Program, or laboratories that meet International Standardization Organization standards or other nationally recognized programs as meeting the Quality System requirements. Respondent shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this UAO are conducted in accordance with the procedures set forth in the QAPP approved by EPA.

43. EPA reserves the right to require a change in laboratories for reasons which may include, but shall not be limited to, QA/QC performance, conflict of interest, or confidential agency audit information. In the event EPA requires a laboratory change, Respondent shall propose two alternative laboratories within thirty (30) days. Once EPA approves of the laboratory change, Respondent shall ensure that laboratory service shall be made available within fifteen (15) days.

XII. ADMINISTRATIVE DOCUMENTATION

44. EPA retains the responsibility for the issuance of any decision documents related to the Site.
45. EPA will provide Respondent with copies of all decision documents for the Site.
46. Submission of Documentation. EPA will determine the contents of and maintain the administrative record file. The administrative record supporting this UAO and the Work to be performed shall be available for public review in EPA’s offices at 75 Hawthorne Street, San Francisco, California (94105). A copy of the administrative record will also be available for viewing at a local repository established by EPA.

XIII. DOCUMENT CERTIFICATION

47. Any report or other document submitted by Respondent pursuant to this UAO that makes recommendations as to whether or not further actions are necessary or makes any representation concerning Respondent’s compliance or noncompliance with any

requirement of this UAO shall be certified by a responsible corporate officer for Respondent. A responsible corporate officer means: a president, secretary, treasurer, or vice-president in charge of a principal business function, or any other person who performs similar policy or decision-making functions.

48. The certification required by Paragraph 47 above shall be in the following form:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____

Name: _____

Title: _____

Date: _____

XIV. SAMPLING, ACCESS AND DATA AVAILABILITY

49. All results of sampling, testing, modeling or other data generated (including raw data if requested) by Respondent, or on Respondent's behalf, during implementation of this UAO shall be validated by Respondent and submitted to EPA promptly upon receipt by Respondent or its agents of such results by posting such results at the Chiquita Canyon Landfill Task Force Update webpage. Respondent shall tabulate data chronologically by media. EPA will make available to Respondent data generated by EPA for the purposes of oversight of the Work unless it is exempt from disclosure by any federal or state law or regulation.
50. Upon request, Respondent shall provide split or duplicate samples to EPA or its authorized representatives. Respondent shall notify EPA not less than seven (7) days in advance of any sample collection activity. In addition, EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall provide to Respondent split or duplicate samples of any samples it takes as part of EPA's oversight of Respondent's implementation of the Work.
51. Site Access. Pursuant to RCRA Section 3007(a), 42 U.S.C. § 6927(a) and CERCLA Section 104(e)(3), 42 U.S.C. § 9604(e)(3), Respondent shall provide access to the Site at reasonable times to EPA, EPA's contractors and oversight officials. Respondent shall use their best efforts to gain access to areas owned by or in the possession of someone

other than Respondent, as necessary to implement this UAO, as described in Paragraph 53. Such access shall be provided to EPA, its contractors and oversight officials. These individuals shall be permitted to move freely about the Site and appropriate off-Site areas in order to conduct actions that EPA determines to be necessary. EPA, its contractors and oversight officials shall notify Respondent of their presence on the Site by presenting their credentials.

52. Pursuant to this Section, any denial of access at reasonable times to any portion of the Site property where a request for access was made for the purposes of enforcing the requirements of RCRA, CERCLA or this UAO shall be construed as a violation of the terms of this UAO subject to the penalty provisions outlined in Section XVII (Penalties) of this UAO.
53. Access Agreements. Where action under this UAO is to be performed in areas owned by, or in possession of, someone other than Respondent, Respondent shall use best efforts to obtain all necessary access agreements within forty-five (45) days of approval of any Work Plan for which access is necessary or as otherwise specified, in writing, by the EPA Project Coordinators. Any such access agreement shall provide (i) for access by EPA and its representatives to move freely in order to conduct actions that EPA determines to be necessary and (ii) for such non-Respondent owner to refrain from using such property in any manner EPA determines will pose an unacceptable risk to human health or to the environment due to exposure to Waste Material, or interfere with or adversely affect the implementation, integrity, or protectiveness of the response action. The access agreement shall specify that Respondent is not EPA's representative with respect to any liabilities associated with activities to be performed. Respondent shall provide EPA's Project Coordinators with copies of any access agreements. Respondent shall immediately notify EPA if after using Respondent's best efforts it is unable to obtain such agreements within the time required. Best efforts as used in this Paragraph shall include, at a minimum, a certified letter from Respondent to the present owner of such property requesting access agreements to permit Respondent, EPA, and EPA's authorized representatives to enter such property, and the offer of payment of reasonable sums of money in consideration of granting access. Respondent shall, within ten (10) days of its receipt of a denial of access, submit in writing, a description of its efforts to obtain access. EPA may, at its discretion, assist Respondent in obtaining access. In the event EPA obtains access, Respondent shall undertake the Work on such property and Respondent shall reimburse EPA for all costs and attorney fees incurred by the United States in obtaining such access.
54. Respondent shall provide to EPA and the other Regulatory Agencies, upon request, copies of all records, reports, documents, and other information (including records, reports, documents, and other information in electronic form) (hereinafter referred to as "Records") within Respondent's possession or control or that of its contractors or agents relating to activities at the Site or to the implementation of this UAO, including,

but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information regarding the Work. Respondent shall also make available to EPA and the other the Regulatory Agencies, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

55. Confidential Business Information. Respondent may assert a claim of business confidentiality covering part or all of any information submitted to EPA or any Regulatory Agency pursuant to the terms of this UAO under 40 C.F.R. § 2.203 in the manner described at 40 C.F.R. § 2.203(b) and substantiated with the information described at 40 C.F.R. § 2.204(e)(4). Information EPA determines is confidential will be given the protection specified in 40 C.F.R. Part 2. If no such claim or substantiation accompanies the information when it is submitted to EPA, it may be made available to the public or state or tribal officials by EPA without further notice to Respondent.
56. Privileged Documents. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Respondent asserts such a privilege in lieu of providing documents, Respondent shall have the burden of demonstrating to EPA by clear and convincing evidence that such privilege exists. Respondent shall provide EPA with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the author's name and title; (4) the name and title of each addressee and recipient; (5) a description of the contents; and (6) the privilege asserted by Respondent. If a claim of privilege or protection applies only to a portion of a Record, Respondent shall provide to EPA or any Regulatory Agency in redacted form to mask the privileged or protected portion only. However, Respondent may make no claim of privilege, confidentiality or protection regarding: (1) any data regarding the Site, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, radiological, or engineering data, or the portion of any other Record that evidences conditions at or around the Site; or (2) the portion of any Record that Respondent is required to create or generate pursuant to this UAO.
57. Notwithstanding any provision of this UAO, all Regulatory Agencies retain all of their information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

XV. COMPLIANCE WITH OTHER LAWS

58. Respondent shall perform all actions required pursuant to this UAO in accordance with all applicable local, state, and federal laws and regulations, including, but not limited to, the laws and regulations underlying the Environmental Obligations. Respondent shall obtain or cause its representatives to obtain all permits and approvals necessary under

such laws and regulations in a timely manner so as not to delay the Work required by this UAO.

XVI. RECORD RETENTION

59. Respondent shall preserve all documents and information, including raw data, relating to the Work performed under this UAO, or relating to any solid waste or hazardous waste found at the Site, for five (5) years following the termination of the UAO in accordance with Section XXV (Termination and Satisfaction).
60. Respondent shall acquire and retain copies of all documents that relate to the Site that are in the possession of its employees, agents, accountants, contractors or attorneys.
61. Respondent shall make available to EPA all employees and persons, including contractors, who engage in activities under this UAO, and ensure their cooperation with EPA with respect to this UAO.
62. After the five (5) year retention period and ninety (90) days before any document or information is destroyed, Respondent shall notify EPA that such documents and information are available to EPA for inspection, and on request, shall provide the originals or copies (at no extra cost) of such documents and information to EPA. Notification shall be in writing and shall reference the effective date, caption, and docket number of this UAO, and shall be addressed to EPA's Enforcement and Compliance Assurance Division Director. In addition, Respondent shall provide documents and information retained under this Section at any time before expiration of the five (5)-year retention period at the written request of EPA.
63. All documents pertaining to this UAO shall be stored by Respondent in a centralized location at the Site, or an alternative approved by Respondent to promote easy access by EPA or its representatives.

XVII. PENALTIES

64. Civil Penalties. Any willful violation, or failure or refusal to comply with any provision of this UAO may subject Respondent to civil penalties up to the maximum amount authorized by law pursuant to Section 7003(b) of RCRA, 42 U.S.C. § 6973(b) and/or pursuant to Section 106(b)(1) of CERCLA, 42 U.S.C. § 9606(b)(1), as applicable. As of the date of issuance of this UAO, the statutory maximum amount under Section 7003(b) of RCRA, 42 U.S.C. § 6973(b), is eighteen thousand, one hundred and thirty-nine dollars (\$18,139.00) per violation per day and the statutory maximum amount under Section 106(b)(1) of CERCLA, 42 U.S.C. § 9606(b)(1), is sixty-nine thousand, seven hundred and thirty-three dollars (\$69,733) per violation per day. This maximum amount may increase in the future, as EPA amends its civil penalty amounts through rulemaking pursuant to the 1990 Federal Civil Penalties Inflation Adjustment Act (Public Law 101-410, codified at

28 U.S.C. § 2461), as amended by the 2015 Federal Civil Penalties Inflation Adjustment Act Improvements Act (Section 701 of Public Law 114-74)). The maximum amount to be applied to this violation will be set as the most recent maximum amount set forth in 40 C.F.R. Section 19.4 as of the date that the U.S. District Court assesses any such penalty. In the event of such willful violation, or failure or refusal to comply, EPA may unilaterally carry out the actions required by this UAO, pursuant to any applicable authorities, and may seek judicial enforcement of this UAO. In addition, nothing in this UAO shall limit EPA's authority under Section XXI (Cost Estimates and Financial Assurance). Respondent may also be subject to punitive damages in an amount up to three (3) times the amount of any cost incurred by the United States as a result of such failure to comply, as provided in Section 107(c)(3) of CERCLA, 42 U.S.C. §9607(c)(3).

XVIII. RESERVATION OF RIGHTS

65. Notwithstanding any other provisions of this UAO, the United States retains all of its authority to take, direct, or order any and all actions necessary to protect public health or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants, or contaminants, or hazardous or solid waste or constituents of such wastes, on, at, or from the Site, including but not limited to the right to bring enforcement actions under RCRA, CERCLA, and any other applicable statutes or regulations.
66. EPA reserves all of its statutory and regulatory powers, authorities, rights, and remedies, both legal and equitable, which may pertain to Respondent's failure to comply with any of the requirements of this UAO, including without limitation the assessment of penalties under Section 7003 of RCRA, 42 U.S.C. § 6973 and/or any claims under Sections 106 of and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607, as applicable.
67. This UAO shall not be construed as a covenant not to sue, release, waiver, or limitation of any rights, remedies, powers, claims, and/or authorities, civil or criminal, which EPA has under RCRA, CERCLA, or any other statutory, regulatory, or common law authority of the United States.
68. This UAO is not intended to be, nor shall it be construed to be, a permit. Compliance by Respondent with the terms of this UAO shall not relieve Respondent of its obligations to comply with RCRA, CERCLA or any other applicable local, state, tribal or federal laws and regulations.
69. Notwithstanding any other provision of this UAO, no action or decision by EPA pursuant to this UAO, including without limitation any action or decision by any authorized representative of EPA pursuant to this UAO, shall constitute final agency action giving rise to any right of judicial review prior to EPA's initiation of a judicial action to enforce this UAO, including an action for penalties or an action to compel Respondent's compliance with the terms and conditions of this UAO.

XIX. OTHER CLAIMS

70. By issuance of this UAO, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. Neither the United States nor EPA shall be deemed a party to any contract, agreement or other arrangement entered into by Respondent or its officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, contractors, or consultants in carrying out actions pursuant to this UAO.
71. Nothing in this UAO constitutes a satisfaction of or release from any claim or cause of action against Respondent or any person not a party to this UAO, for any liability such person may have under RCRA, CERCLA, other statutes, or common law, including but not limited to any claims of the United States under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.
72. Nothing in this UAO shall be deemed to constitute preauthorization of a claim within the meaning of Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2), or 40 C.F.R. § 300.700(d).

XX. INSURANCE

73. Prior to commencing the on-Site Work under this UAO, Respondent shall secure, and shall maintain in force for the duration of this UAO and for two (2) years after the completion of all activities required by this UAO, commercial general liability with limits of liability of \$1 million per occurrence, automobile liability insurance with limits of liability of \$1 million per accident, and umbrella liability insurance with limits of liability of \$5 million in excess of the required commercial general liability and automobile liability limits, naming EPA as an additional insured. Prior to commencement of the Work under this UAO, and annually thereafter on the anniversary of the Effective Date of this UAO, Respondent shall provide EPA with certificates of such insurance and a copy of each insurance policy. In addition, for the duration of the UAO, Respondent shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing Work on behalf of Respondent pursuant in furtherance of this UAO. If Respondent demonstrates by evidence satisfactory to EPA that its contractors and subcontractors maintain insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Respondent need provide only that portion of the insurance described above which is not maintained by the contractors and subcontractors.
74. For the duration of this UAO, Respondent shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of employer's liability insurance and worker's compensation insurance for all persons performing the Work on behalf of Respondent, in furtherance of this UAO.

75. Prior to commencing the Work under this UAO, Respondent shall certify to EPA that its contractors and subcontractors have obtained the required insurance.

XXI. COST ESTIMATES AND FINANCIAL ASSURANCE

76. Cost Estimates. Within thirty (30) days after the Effective Date of this UAO, Respondent shall submit to EPA a detailed written initial estimate, in current dollars, of the cost of hiring a third party to perform the Work described in Section VIII (Work to be Performed) (the “Cost Estimate”). A third party is a party who: (i) is neither a parent nor a subsidiary of Respondent and (ii) does not share a common parent or subsidiary with Respondent. The initial Cost Estimate must account for the total costs of the work activities described in Section VIII (Work to be Performed) for the entire period of this UAO, including any necessary long-term costs, such as operation and maintenance costs, monitoring costs, and institutional controls. The Cost Estimate must not incorporate any salvage value that may be realized from the sale of wastes, facility structures or equipment, land or other assets associated with the Site.
77. Concurrent with the submission of any Work Plan(s) for additional work required under Section XXIV (Additional Work), Respondent shall submit revised detailed written estimate(s), in current dollars, of the cost of hiring a third party to perform the Work.
78. Respondent must annually adjust the Cost Estimate(s) for inflation within thirty (30) days after the close of Respondent’s fiscal year until the Work required by this UAO is completed. In addition, Respondent must adjust the Cost Estimate if EPA determines that any additional work is required, pursuant to Section XXIV (Additional Work), or if any other conditions increase the cost of the Work to be performed under this UAO.
79. Respondent shall submit each Cost Estimate to EPA for review, pursuant to Section IX (EPA Approval of Deliverables).
80. Assurances of Financial Responsibility for Completing the Work. In order to ensure completion of the Work, Respondent shall secure financial assurance pursuant to the environmental programs in Paragraph 4 of this UAO, initially in the amount of the Cost Estimate (the “Estimated Cost of the Work”), within 30 days of EPA approval of the Cost Estimate. The financial assurance must be one or more of the mechanisms listed below, in a form substantially identical to the relevant sample documents available from EPA or under the “Financial Assurance - Orders” category on the Cleanup Enforcement Model Language and Sample Documents Database at <https://cfpub.epa.gov/compliance/models/>, and satisfactory to EPA.
- a. A trust fund: (1) established to ensure that funds will be available as and when needed for performance of the Work; (2) administered by a trustee that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency; and (3) governed by an agreement that

requires the trustee to make payments from the fund only when EPA Region IX advises the trustee in writing that: (i) payments are necessary to fulfill Respondent's obligations under the UAO; or (ii) funds held in trust are in excess of the funds that are necessary to complete the performance of Work in accordance with this UAO;

- b. A surety bond, issued by a surety company among those listed as acceptable sureties on federal bonds as set forth in Circular 570 of the U.S. Department of the Treasury, guaranteeing payment or performance in accordance with Paragraph 84 (Access to Financial Assurance); or
 - c. An irrevocable letter of credit, issued by an entity that has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency, guaranteeing payment in accordance with Paragraph 84 (Access to Financial Assurance).
81. Standby Trust. If Respondent seeks to establish financial assurance by using a surety bond or a letter of credit, Respondent shall at the same time establish and thereafter maintain a standby trust fund, which must meet the requirements specified in Paragraph 80.a, and into which payments from the other financial assurance mechanism can be deposited if EPA so requires in accordance with the terms and conditions of the financial assurance mechanism and Paragraph 84 (Access to Financial Assurance). An originally signed duplicate of the standby trust agreement must be submitted, with the other financial mechanism, to EPA in accordance with Paragraph 82. Until the standby trust fund is funded pursuant to Paragraph 84 (Access to Financial Assurance), neither payments into the standby trust fund nor annual valuations are required.
82. Within thirty (30) days of EPA Approval of the Cost Estimate, Respondent shall submit to EPA proposed financial assurance mechanisms in draft form in accordance with Paragraph 80 (Assurances of Financial Responsibility for Completing the Work) for EPA's review. Within sixty (60) days after the Effective Date, or thirty (30) days after EPA's approval of the form and substance of Respondent's financial assurance, whichever is later, Respondent shall secure all executed and/or otherwise finalized mechanisms or other documents consistent with the EPA-approved form of financial assurance and shall submit such mechanisms and documents to:

Marie Ortesi
Mission Support Division (MSD-4)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105
(415) 972-3710
Ortesi.Mari@epa.gov

With a copy to:

Laura Friedli
Office of Regional Counsel (ORC-3)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105
(415) 972-3325
Friedli.Laura@epa.gov

83. Respondent shall diligently monitor the adequacy of the financial assurance. If Respondent becomes aware of any information indicating that the financial assurance provided under this Section is inadequate or otherwise no longer satisfies the requirements of this Section, Respondent shall notify EPA of such information within thirty (30) days. If EPA determines that the financial assurance provided under this Section is inadequate or otherwise no longer satisfies the requirements of this Section, EPA will notify Respondent of such determination. Respondent shall, within thirty (30) days after notifying EPA or receiving notice from EPA under this Paragraph, secure and submit to EPA for approval a proposal for a revised or alternative financial assurance mechanism that satisfies the requirements of this Section. Respondent shall follow the procedures of Paragraph 85 (Modification of Amount, Form, or Terms of Financial Assurance) in seeking approval of, and submitting documentation for, the revised or alternative financial assurance mechanism. Respondent's inability to secure financial assurance in accordance with this Section does not excuse performance of any other obligation under this UAO.
84. Access to Financial Assurance.
- a. If EPA determines that Respondent (1) has ceased implementation of any portion of the Work, (2) is seriously or repeatedly deficient or late in its performance of the Work, or (3) is implementing the Work in a manner that may cause an endangerment to human health or the environment, EPA may issue a written notice ("Performance Failure Notice") to both Respondent and the financial assurance provider regarding Respondent's failure to perform. Any Performance Failure Notice issued by EPA will specify the grounds upon which such notice was issued and will provide Respondent a period of ten (10) days within which to remedy the circumstances giving rise to EPA's issuance of such notice. If, after expiration of the ten (10)-day period specified in this Paragraph, Respondent has not remedied to EPA's satisfaction the circumstances giving rise to EPA's issuance of the relevant Performance Failure Notice, then, in accordance with any applicable financial assurance mechanism, EPA may at any time thereafter direct the financial assurance provider to immediately: (i) deposit any funds assured pursuant to this Section into the standby trust fund;

or (ii) arrange for performance of the Work in accordance with this UAO.

- b. If EPA is notified by the provider of a financial assurance mechanism that it intends to cancel the mechanism, and Respondent fails to provide an alternative financial assurance mechanism in accordance with this Section at least thirty (30) days prior to the cancellation date, EPA may, prior to cancellation, direct the financial assurance provider to deposit any funds guaranteed under such mechanism into the standby trust fund for use consistent with this Section.

85. Modification of Amount, Form, or Terms of Financial Assurance. Respondent may submit, on any anniversary of the Effective Date or following Respondent's request for, and EPA's approval of, another date, a request to reduce the amount, or change the form or terms, of the financial assurance mechanism. Any such request must be submitted to the EPA individual(s) referenced in Paragraph 82, and must include an estimate of the cost of the remaining Work, an explanation of the bases for the cost calculation, a description of the proposed changes, if any, to the form or terms of the financial assurance, and any newly proposed financial assurance documentation in accordance with the requirements of Paragraphs 80 (Assurances of Financial Responsibility for Completing the Work) and 81 (Standby Trust). EPA will notify Respondent of its decision to approve or disapprove a requested reduction or change. Respondent may reduce the amount or change the form or terms of the financial assurance mechanism only in accordance with EPA's approval. Within thirty (30) days after receipt of EPA's approval of the requested modifications pursuant to this Paragraph, Respondent shall submit to the EPA individual(s) referenced in Paragraph 82 all executed and/or otherwise finalized documentation relating to the amended, reduced, or alternative financial assurance mechanism. Upon EPA's approval, the Estimated Cost of the Work shall be deemed to be the estimate of the cost of the remaining Work in the approved proposal.
86. Release, Cancellation, or Discontinuation of Financial Assurance. Respondent may release, cancel, or discontinue any financial assurance provided under this Section only: (a) after receipt of documentation issued by EPA certifying completion of the Work; or (b) in accordance with EPA's written approval of such release, cancellation, or discontinuation.

XXII. INDEMNIFICATION

87. Respondent shall indemnify, save and hold harmless the United States, its officials, agents, contractors, employees, and representatives from any and all claims or causes of action: (a) arising from, or on account of, acts or omissions of Respondent, Respondent's directors, officers, employees, agents, successors, assigns, heirs, trustees, receivers, contractors, or consultants in carrying out actions pursuant to this UAO; and (b) for damages or reimbursement arising from or on account of any contract,

agreement, or arrangement between Respondent and any persons for performance of the Work on or relating to the Site, including claims on account of construction delays.

XXIII. DELAY IN PERFORMANCE

88. Respondent shall notify EPA of any delay or anticipated delay in performing any requirement of this UAO. Such notification shall be made by telephone and email to the EPA Project Coordinators within forty-eight (48) hours after Respondent first knew or should have known that a delay might occur. Respondent shall adopt all reasonable measures to avoid or minimize any such delay. Within seven (7) days after notifying EPA by telephone and email, Respondent shall provide to EPA written notification fully describing the nature of the delay, the anticipated duration of the delay, any justification for the delay, all actions taken or to be taken to prevent or minimize the delay or the effect of the delay, a schedule for implementation of any measures to be taken to mitigate the effect of the delay, and any reason why Respondent should not be held strictly accountable for failing to comply with any relevant requirements of this UAO. Increased costs or expenses associated with implementation of the activities called for in this UAO is not a justification for any delay in performance.
89. Any delay in performance of this UAO that, in EPA's judgment, is not properly justified by Respondent under the terms of Paragraph 88 shall be considered a violation of this UAO. Any delay in performance of this UAO shall not affect Respondent's obligations to fully perform all obligations under the terms and conditions of this UAO.

XXIV. ADDITIONAL WORK

90. EPA may determine, or Respondent may propose, that certain tasks are necessary in addition to or in lieu of the tasks included in any EPA-approved Work Plan when such additional work is necessary to meet the objectives set forth in this UAO. EPA may determine that Respondent shall perform any additional work and EPA will specify, in writing, the basis for its determination that any additional work is necessary. Within five (5) days after the receipt of such determination, Respondent shall have the opportunity to meet or confer with EPA to discuss any additional work. Respondent shall submit for EPA approval a Work Plan for any additional work, which Work Plan shall conform to the applicable requirements of Section VIII (Work to be Performed). Such Work Plan shall be submitted within fifteen (15) days of Respondent's receipt of EPA's determination that any additional work is necessary, or according to an alternative schedule established by EPA. On approval of a Work Plan for any additional work, Respondent shall implement the Work Plan for any additional work in accordance with the schedule and provisions contained therein. The Work Plan for any additional work shall be incorporated by reference into this UAO.

XXV. TERMINATION AND SATISFACTION

91. When EPA determines, after EPA’s review of the final report, that all Work has been fully performed in accordance with this UAO, with the exception of any continuing obligations required by this UAO, including Respondent’s obligations to comply with Sections XIV (Sampling, Access and Data Availability); XVI (Record Retention); XVIII (Reservation of Rights); and XXII (Indemnification) of this UAO, EPA will provide notice to Respondent. If EPA determines that any Work has not been completed in accordance with this UAO, EPA will notify Respondent, provide a list of the deficiencies, and require that Respondent modify the Work Plan, if appropriate, in order to correct such deficiencies in the Work within thirty (30) days after receipt of the EPA notice. The modified Work Plan shall include a schedule for correcting such deficiencies. Within five (5) days after receipt of written approval of the modified Work Plan, Respondent shall commence the implementation of the modified and approved Work Plan and, upon completion of the Work pursuant to the modified and approved Work Plan, shall submit a modified Final Report in accordance with the EPA notice. Failure by Respondent to implement the approved modified Work Plan shall be a violation of this UAO.

XXVI. SEVERABILITY

92. If a court issues an order that invalidates any provision of this UAO or finds that Respondent has sufficient cause not to comply with one or more provisions of this UAO, Respondent shall remain bound to comply with all provisions of this UAO not invalidated or determined to be subject to a sufficient cause defense by the court’s order.

XXVII. EFFECTIVE DATE

93. This UAO is deemed effective within five (5) days of receipt (the “Effective Date”), unless (i) a conference is requested, or notice is given that written materials will be submitted in lieu of a conference as provided in Section XXVIII (Opportunity to Confer) and (ii) EPA and Respondent mutually agree to modify the Effective Date.

XXVIII. OPPORTUNITY TO CONFER

94. Within two (2) days of receipt of this UAO, Respondent may, in writing, (a) request a conference with EPA to discuss this UAO, including its applicability, the factual findings and the determinations upon which it is based, the appropriateness of any actions Respondent is ordered to take, or any other relevant and material issues or contentions that Respondent may have regarding this UAO, or (b) notify EPA that it intends to submit written comments or a statement of position in lieu of requesting a conference.
95. At any conference held pursuant to Respondent’s request, Respondent may appear in person, or be represented by an attorney or other representative. If Respondent desires such a conference, Respondent shall contact Laura Friedli, EPA Attorney Advisor, at (415) 972-3325.

96. The purpose and scope of any such conference held pursuant to this UAO shall be limited to issues involving the implementation of the Work required by this UAO and the extent to which Respondent intends to comply with this UAO. If such a conference is held, Respondent may present any evidence, arguments or comments regarding this UAO, its applicability, any factual determinations on which the UAO is based, the appropriateness of any action that Respondent is ordered to take, or any other relevant and material issue. Any such evidence, arguments or comments should be reduced to writing and submitted to EPA within three (3) days following the conference. This conference is not an evidentiary hearing and does not constitute a proceeding to challenge this UAO. It does not give Respondent a right to seek review of this UAO, or to seek resolution of potential liability, and no official record of the conference will be made. If no conference is requested, any such evidence, arguments or comments must be submitted in writing within three (3) days following the Effective Date of this UAO. Any such writing should be directed to Laura Friedli, at the following address:

Environmental Protection Agency
75 Hawthorne Street, ORC-3
San Francisco, CA 94105
(415) 972-3325
Friedli.Laura@epa.gov

97. Respondent is hereby placed on notice that EPA will take any action that may be necessary in the opinion of EPA for the protection of public health and welfare and the environment.

XXIX. NOTICE OF INTENT TO COMPLY

98. Respondent shall, on or before the Effective Date of this UAO, provide written notice to EPA of Respondent's irrevocable intent to comply with this UAO. Respondent's written notice shall describe, using facts that exist on or prior to the Effective Date, any "sufficient cause" defense asserted by Respondent under Sections 106(b) and 107(c)(3) of CERCLA, 42 U.S.C. §§ 9606(b) and 9607(c)(3). The absence of a response by EPA to the notice required by this Paragraph shall not be deemed to be acceptance of Respondent's assertions. Failure of Respondent to provide such notice of intent to comply within this time period shall, as of the Effective Date, be treated as a violation of this UAO by Respondent. Failure to respond, or failure to agree to comply with this UAO, shall be deemed a refusal to comply with this UAO.

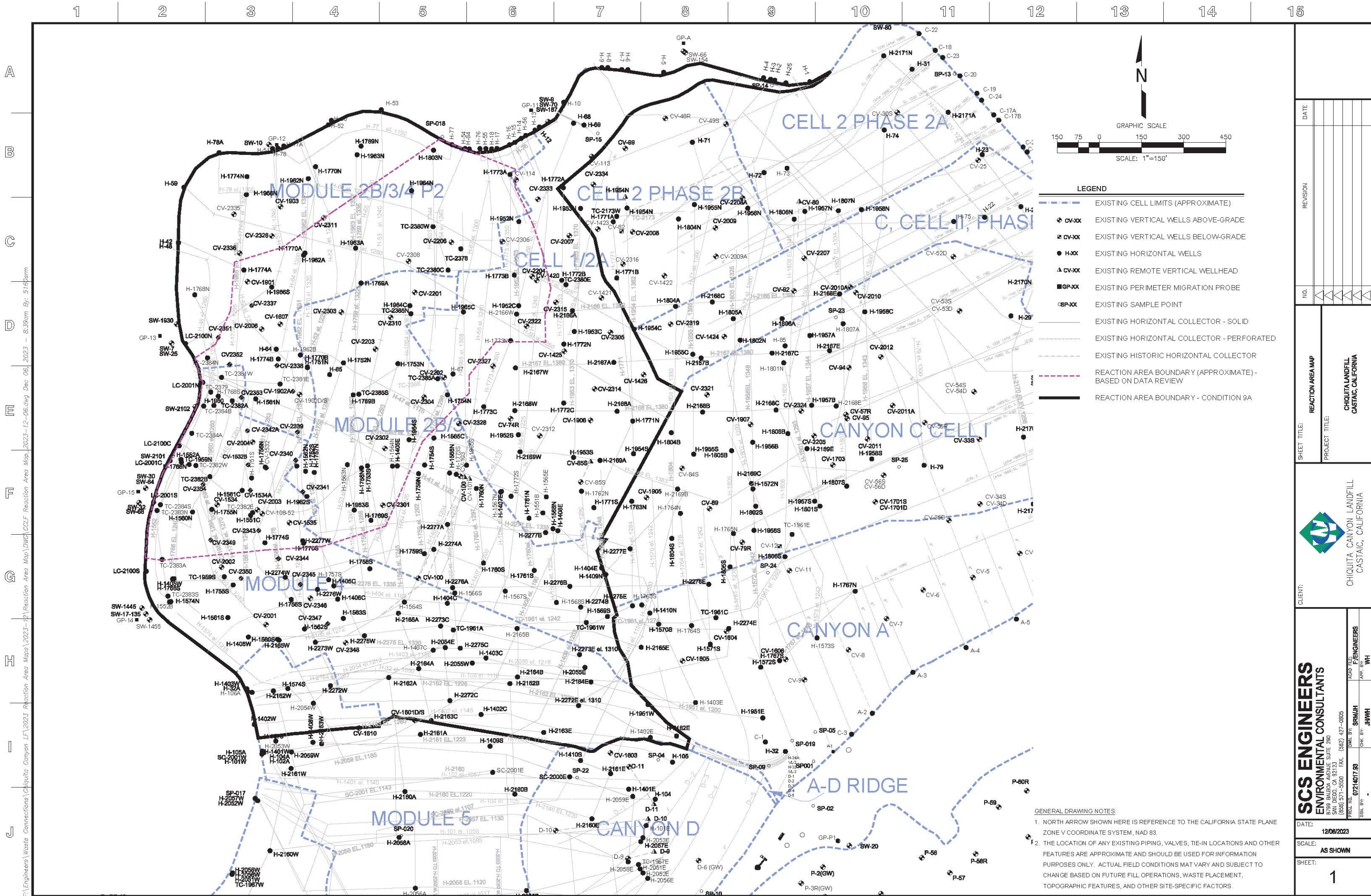
It is ORDERED this 21 day February, 2024

By: /s/
Amy C. Miller-Bowen

Enforcement and Compliance Assurance Division Director
U.S. Environmental Protection Agency, Region 9

By: _____/s/_____
Michael Montgomery
Superfund and Emergency Management Division Director
U.S. Environmental Protection Agency, Region 9

Attachment A – Map of Landfill



GENERAL DRAWING NOTES:

1. NORTH ARROW SHOWN HERE IS REFERENCE TO THE CALIFORNIA STATE PLANE ZONE V COORDINATE SYSTEM, NAD 83.

2. THE LOCATION OF ANY EXISTING PIPING, VALVES, TIE-IN LOCATIONS AND OTHER FEATURES ARE APPROXIMATE AND SHOULD BE USED FOR INFORMATION PURPOSES ONLY. ACTUAL FIELD CONDITIONS MAY VARY AND SUBJECT TO CHANGE BASED ON FUTURE FILL OPERATIONS, WASTE PLACEMENT, TOPOGRAPHIC FEATURES, AND OTHER SITE-SPECIFIC FACTORS.

DATE			
REVISION			
NO.			
SHEET TITLE: REACTION AREA MAP		PROJECT TITLE: CHIQUITA LANDFILL CASTAIC, CALIFORNIA	
CLIENT: SCS ENGINEERS ENVIRONMENTAL CONSULTANTS		APPROVED BY: JWH	
DATE: 12/08/2023		SCALE: AS SHOWN	
SHEET: 1			

EXHIBIT 10



LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
SOLID WASTE MANAGEMENT PROGRAM
ACTING AS THE LOCAL ENFORCEMENT AGENCY (LEA)
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706

IN THE MATTER OF:

CHIQUITA CANYON SANITARY LANDFILL

29201 HENRY MAYO DRIVE

CASTAIC, CA 91384

APN: 3271-002-011, 3271-002-013, 3271-002-019,

3271-002-036, 3271-002-039, 3271-005-034

SWIS# 19-AA-0052

OWNER/OPERATOR

CHIQUITA CANYON, LLC (RESPONDENT)

29201 HENRY MAYO DRIVE

CASTAIC, CA 91384

BY CERTIFIED MAIL AND ELECTRONIC COPY

CERTIFIED MAIL: 91 7199 9991 7037 9753 6218

COMPLIANCE ORDER

PUBLIC RESOURCES CODE SECTIONS

43209, 44106, 45000, 45005, 45011, 45014,
45017, 45023; TITLE 27 OF THE CALIFORNIA
CODE OF REGULATIONS (27 CCR),
SECTIONS, 20750, AND 20921; AND TITLE 14
OF THE CALIFORNIA CODE OF
REGULATIONS (14 CCR), SECTIONS 18304
AND 18304.1, 18304.3, 18365

DATE: June 6, 2024

TO: CHIQUITA CANYON, LLC

YOU ARE HEREBY ORDERED TO:

**TAKE ALL ACTIONS AND ABIDE BY ALL OTHER ORDERS CONTAINED HEREIN
AT THE CHIQUITA CANYON LANDFILL EFFECTIVE IMMEDIATELY.**

1.0 PLEASE TAKE NOTICE:

1.1 The Los Angeles County Department of Public Health, Solid Waste Management
Program, acting as the Local Enforcement Agency (LEA), is authorized by Division 30 of the

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
SOLID WASTE MANAGEMENT PROGRAM
ACTING AS THE LOCAL ENFORCEMENT AGENCY (LEA)
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706

Public Resources Code (PRC), §§ 43209 and 45000, and Title 14 of the California Code of Regulations (14 CCR), to enforce applicable solid waste regulations within the County of Los Angeles; and,

1.2 Division 30 Part 5 of the PRC and 14 CCR §§ 18304 and 18304.1 authorize the LEA to issue enforcement orders for violations of the PRC and regulations adopted pursuant to Division 30 of the PRC; and

1.3 Chiquita Canyon Sanitary Landfill (Site) is a permitted sanitary landfill located on parcel APNs 3271-002-011, -013, -019, -036, -039, and 3271-005-034 with an address of 29201 Henry Mayo Drive, Castaic, California, 91384, in the County of Los Angeles, and identified by Solid Waste Information System (SWIS) No. 19-AA-0052; and

1.4 Respondent, Chiquita Canyon, LLC, (CCL), is the operator and Responsible Party (RP) for noncompliance with state minimum standards. Specifically, 27 CCR, Sections 20921 and 20750 have been noted monthly on LEA inspection reports to date beginning September 1, 2023, and November 28, 2023, respectively, and are described in the paragraphs below.

2.0 STATMENT OF FACTS PERTAINING TO 27 CCR SECTION 20750:

2.1 On August 10, 2023, the LEA requested the California Department of Resources, Recycling and Recovery (CalRecycle) to provide technical expertise and assistance in determining root cause and mitigation strategies for multiple issues identified at the Site by the LEA and other regulatory agencies, such as elevated well temperatures, increased landfill gas (LFG) emissions (odor), and unusual landfill settlement.¹

¹ CalRecycle provides comments to the LEA as assistance to support the program carrying out its responsibilities on permitted disposal sites. The final determination as to the comments provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in 14 CCR, Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the PRC.

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
SOLID WASTE MANAGEMENT PROGRAM
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2.2 CalRecycle issued a letter dated October 16, 2023 (October 16, 2023 CalRecycle Letter) to the LEA containing its review of the conditions that are causing the issues at the Site. CalRecycle conducted a comprehensive review of 18 months of Site records, and LFG data in the impacted area and around the general vicinity of the impacted area. The review focused on the Site's carbon monoxide concentrations, recent LFG temperatures, LFG control system operation, and other operational factors. The review determined that the Site sustained conditions over the past 18 months that include, but are not limited, to:

- Cover integrity issues;
- Increased temperatures and pressures in the LFG control systems and waste mass;
- Unusual landfill settlement;
- A heating/smoldering event that is expanding in size and intensity.

2.3 CalRecycle concluded that "conditions at CCL are causing additional pressure, odors, elevated leachate temperatures, and damage to the gas extraction system." To reduce the odors and better define the reaction, CalRecycle recommended 15 mitigation actions as part of the review.

2.4 On October 17, 2023, the LEA issued a letter (October 17, 2023 LEA Letter) requesting that CCL provide a written response and timeline to address the recent conditions sustained by CCL in the prior 18 months and the 15 recommended corrective and mitigation actions from the October 16, 2023 CalRecycle Letter by October 20, 2023.

2.5 CCL responded on October 20, 2023 (October 20, 2023 CCL Response) as instructed by the LEA. CCL addressed the 15 recommended mitigation actions, many of which according to CCL, were included in the South Coast Air Quality Management District's (SCAQMD) Stipulated Order for Abatement (SOFA).

2.6 The LEA requested CalRecycle's technical review of the October 20, 2023 CCL Response. As part of the review, CalRecycle visited the Site on November 2, 2023. Staff from the LEA, SCAQMD, Los Angeles Regional Water Quality Control Board (LARWQCB), Department of Toxic Substances Control (DTSC), and the United States Environmental Protection Agency (USEPA) toured the Site with CCL staff.



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2.7 On November 14, 2023, CalRecycle issued a letter (November 14, 2023 CalRecycle Letter) to the LEA based on the November 2, 2023 Site visit and the additional information provided in the October 20, 2023 CCL Response. CalRecycle's letter provided a cause analysis, comments to CCL's response to recommended mitigation actions (2, 8, 9 and 13) and further recommendations. Regarding recommended mitigation action 2, CalRecycle concluded that the current intermediate cover should not be viewed as adequate to minimize odors.

2.8 On November 21, 2023, the LEA issued a letter (November 21, 2023 LEA Letter) requiring that CCL perform four mitigation measures (Mitigation Measure 1A, 1B, 2A, 2B, 3 and 4) recommended in the November 14, 2023 CalRecycle Letter and October 16, 2023 CalRecycle Letter. The LEA directed that CCL provide a written response by Wednesday, December 6, 2023, and submit the required plan, data, and report by the due dates indicated in the letter.

2.9 The four mitigation measures listed in the November 21, 2023 LEA Letter that are required to correct the violation of 27 CCR § 20750 are described below.

Mitigation Measure 1 A & 1B – Soil Reaction Break/Barrier

2.10 CCL must provide a plan to construct a soil reaction break/barrier at a predesignated area(s) if the reaction reaches a determined action line. The plan is due to the LEA for approval no later than two weeks after installing temperature monitoring devices.

A. Develop a soil reaction break/barrier plan and propose a set of criteria that would require CCL to install a soil reaction break/barrier between the reaction and operational areas of the landfill. (Mitigation Measure 1A)

B. To obtain necessary data to determine the action line, CCL needs to collect data regarding intensity, depth, speed and direction of the reaction. It is imperative that CCL installs temperature monitoring devices by January 8, 2024. (Mitigation Measure 1B)

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Mitigation Measure 2 A & 2B - Cover

2.11 Because of the ongoing reaction, the cover that is currently in place is not adequate and not performing to the standards to maintain the site in reasonable repair.

A. Place and compact a minimum cover of 24 inches of 1×10^{-6} low permeability soil in and around the reaction settlement area and any well showing signs of a reaction by December 14, 2023. (Mitigation Measure 2A)

B. Develop a written plan that includes documentation and tracking of the fissures, settlement and tension cracks in the soil cover for LEA review and approval by December 6, 2023. The written plan needs to include a photo log of the fissure location including length and severity. Upon LEA approval, CCL must submit a weekly report to the LEA by each Tuesday. (Mitigation Measure 2B)

Mitigation Measure 3 - Slope Stability Analysis

2.12 Given the prior slope instability on the western slope near the leachate outbreak, CCL shall perform a slope stability analysis in the same area for LEA review, as saturated waste has very low shear strength. Submit a workplan with a timeline for LEA review and approval by December 14, 2023.

Mitigation Measure 4 – Manufacturer Maximum Design Specifications

2.13 CCL needs to collect temperatures in and around the reaction area to meet the manufacturer's temperature design specification/recommendations to ensure that the French drain does not fail due to elevated temperature of the leachate soon after installation, leaving leachate seepage without control at the site. This additional step is necessary because of the ongoing reaction and to ensure that the public does not come into contact with leachate.

2.14 On November 28, 2023, the LEA conducted a periodic inspection that noted a violation of 27 CCR § 20750-Site Maintenance and referred to the November 21, 2023 LEA Letter's four mitigation measures as a means to assist with correcting the violation. The LEA periodic inspection reports dated November 28, December 19, 2023, January 17, February 7,

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March 26, and April 30, 2024 have also noted the violation of 27 CCR § 20750. The violation noted on the report is described below.

Pursuant to 27 CCR § 20750, the operator shall implement a preventative maintenance program to monitor and promptly repair or correct defective conditions with respect to requirements of the CIWMB [California Integrated Waste Management Board, currently CalRecycle] standards, and conditions established by the EA [Enforcement Agency (LEA)]. All other aspects of the disposal site shall be kept in a state of reasonable repair.

Due to leachate outbreaks and stability issues with leachate saturated slope and waste, the issues with high temperatures, LFG collection, excessive leachate production, and unusual and large-scale settlement, the LEA required CCL to complete the following actions listed in the November 21, 2023 LEA Letter, as recommended by CalRecycle after the site inspection on November 2, 2023 and records review.

CCL's compliance status pertaining to 27 CCR § 20750 is subcategorized by mitigation measure and discussed below.

Mitigation Measure 1 A – Soil Reaction Break/Barrier Plan

2.15 On December 6, 2023, the LEA received a letter from CCL (December 6, 2023 CCL Response) in response to the November 21, 2023 LEA Letter. CCL responded to Mitigation Measure 1A by stating they would prepare a soil reaction break/barrier plan and propose a set of criteria that would require CCL to install the break/barrier by the LEA-provided deadline. CCL also stated that it does not believe that such a break/barrier is necessary or feasible, however, CCL did not provide any data to support CCL's belief.

2.16 On April 5, 2024, the LEA issued a letter to CCL (April 5, 2024 LEA Letter) stating the TMP and LFG collection well data, specifically carbon monoxide (CO) and hydrogen (H₂) are imperative for determining an action line, in which, if the reaction reaches a predesignated criteria then it would trigger implementation of an approved Soil Reaction

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Break/Barrier Plan. Directives 1 and 2 pertain to the installation of Mitigation Measure 1B and are discussed in the corresponding section. Directives 3 through 6 apply to the Soil Reaction Break/Barrier Plan (Mitigation Measure 1A) and are described below.

Directive 3: Provide waste photographs, boring logs and temperature logs to the LEA by April 12, 2024, for all LFG collection wells installed since June 2023.

Directive 4: Submit LFG data for all gas collection wells in the reaction area and wells 200 feet outside of the reaction area to the LEA by April 12, 2024.

Directive 5: Submit CO and H₂ readings for all gas collection wells in the reaction area and wells 200 feet outside of the reaction area to establish a baseline using Method ASTM D1946 in summa cans by May 6, 2024.

Directive 6: Submit monthly CO and H₂ data from a set of gas wells selected by the LEA after the baseline sampling is completed and recorded on a site map. Submit the lab data for all LFG data. Once a set of wells are selected, monthly LFG data shall be collected and submitted to the LEA, including a discussion of the LFG data and graphic showing CO and H₂ trends over time.

2.17 The April 5, 2024 LEA Letter provided a new deadline to submit the Soil Reaction Break/Barrier Plan, at least 10 days after gathering all the necessary data, rather than two weeks after the installation of the TMPs as per the November 21, 2023 LEA Letter. Lastly, the letter also stated that as an alternative option, CCL may submit a study to the LEA to assure the reaction is no longer a concern to public health, safety and the environment, if CCL chose to do so.

2.18 On April 12, 2024, the LEA received a response from CCL (April 12, 2024 CCL Response) to Directive 3 and 4 of the April 5, 2024 LEA Letter, and a Soil Reaction Break/Barrier Plan dated March 27, 2024 (March 27, 2024 Plan). The April 12, 2024 CCL Response is pending LEA review.

2.19 The LEA determined that the March 27, 2024 Plan was deficient and did not adequately address Mitigation Measure 1A requirements as described in the November 21, 2023 LEA Letter and the April 5, 2023 LEA Letter, and it was therefore rejected by the LEA in a

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letter dated May 3, 2024 (May 3, 2024 LEA Letter).

2.20 Prior to issuance of the May 3, 2024 LEA Letter, the LEA held a virtual meeting with CCL and CalRecycle on April 23, 2024, to discuss the need for a revised plan from CCL to adequately address the construction of a soil reaction break/barrier. The *CCL Barrier Discussion* presentation and *Isolation Break Criteria Example* document presented by CalRecycle at the meeting were provided to CCL via email on the same day.

2.21 As per the May 3, 2024 LEA Letter, CCL is required to submit a revised Soil Reaction Break/Barrier Plan to the LEA for review and approval within 10 days after gathering necessary data from the TMPs and LFG collection wells (refer to the April 5, 2024 LEA Letter). The data from the TMPs and LFG collection wells should be used to draft the revised plan and address the following:

1. Installation of an air/soil break that separates the waste with either an inert material or air.

2. Investigate how each cell or phase was constructed and examine if soil breaks between cells/phases can be exploited. The investigation should include a review of where haul roads were constructed to determine if the inert roads can also be used as fuel breaks. Information from the investigation should be used to develop where containment breaks should be placed.

3. Propose a set of criteria for the primary and secondary engagement lines and the type of reaction breaks/barriers and/or mitigations. These criteria shall be based on temperature, CO, and possibly settlement rate. The primary engagement lines should be designed to prevent the reaction from spreading into the main fill which is close to the reaction. The secondary line should prevent the reaction from entering the eastern and southern fill areas at the toe of the slope.

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4. Construction of reaction breaks in the main 160-acre fill area for the reaction of the engagement lines. The reaction break plans should include timelines and method of construction. The timelines and engagement lines should match.

5. Include the construction of reaction breaks/barrier between Canyon C, A, D, and Cell 5 in the event the reaction reaches the secondary engagement lines.

6. Use best available technology, such as grout injection, to slow or contain reaction movement to the south and east.

7. Description of the criteria that will mandate the temporary suspension of placing new waste.

CCL may submit an alternative plan to the LEA for review, only if such plan is adequately supported by substantive data and studies and provides assurances to the LEA that the reaction is no longer a threat to public health, safety and the environment.

2.22 On May 8, 2024, the LEA received the CO and H₂ data (May 8, 2024 Data) in response to Directive 5 of the April 5, 2024 LEA Letter which required CCL to submit CO and H₂ readings for all gas collection wells in the reaction area and wells 200 feet outside the reaction area by May 6, 2024.

2.23 On May 28, 2024, the LEA issued a response to CCL (May 28, 2024 LEA Letter) stating that the May 8, 2024 Data submittal is inadequate due to missing information. CCL was directed to resubmit the data as a standalone report with the gas data presented in a table, a summary of the sampling, including a map showing the reaction area as it is currently defined, description of the gas sampling performed, Quality Assurance/Quality Control (QA/QC) data (e.g., field and laboratory QA/QC samples and data including any flags), and proposed holding times, etc., with the signature of qualified person or licensed engineer by June 6, 2024.

Mitigation Measure 1B – Temperature Monitoring Probes

2.24 In the December 6, 2023 CCL Response to the November 21, 2023 LEA Letter, CCL

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agreed to install TMPs with a request for further clarification from the LEA on this requirement.

2.25 In order to collect data regarding intensity, depth, speed and direction of the reaction, the LEA required CCL to install TMPs. The November 21, 2023 LEA Letter provided recommended locations for the installation of 21 TMPs by January 8, 2024.

2.26 On December 6, 2023, the LEA, CalRecycle and CCL staff met to discuss TMPs per CCL's December 1, 2023 email request. CCL requested further clarification regarding probe locations, probe depths, and probe type.

2.27 On December 20, 2023, the LEA received the Landfill Reaction Area Temperature Monitoring Plan (December 20, 2023 Plan) from CCL for the installation of 20 TMPs and notification that the deadline of January 8, 2024 was not attainable. CCL proposed a new deadline of March 2024 to complete the installation based on availability of the materials, equipment, and the contractor.

2.28 On December 22, 2023, the LEA issued a letter (December 22, 2023 LEA Letter) accepting with conditions the December 20, 2023 Plan with conditions. Conditions included the submittal of design specifications and a typical design detail drawing of the TMPs, with specified probe depths, by February 15, 2024.

2.29 On January 2, 2024, the LEA received a letter from CCL (January 2, 2024 CCL Letter) with design specifications and design detail drawings for the TMPs. CCL agreed to meet the February 15, 2024 deadline, barring weather, material deliveries, health and safety, and permitting delays. CCL confirmed they would provide the LEA with weekly updates on the status of material deliveries and installation schedule.

2.30 On January 10, 2024 a virtual meeting was held between the CCL, the LEA and CalRecycle for a technical discussion. The LEA directed CCL to submit revised design specifications and design detail drawings for the TMPs to include the required depth intervals.

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2.31 On January 17, 2024, the LEA received a letter from CCL (January 17, 2024 CCL Letter) with a revised design specification and design detail drawings and depth intervals for the TMPs that were discussed during the January 10, 2024 meeting.

2.32 On January 19, 2024, CCL, the LEA, and CalRecycle met and discussed the telemetry system that will be used to record temperature data.

2.33 On January 29, 2024, the LEA issued a letter (January 29, 2024 LEA Letter) accepting the revised design specification and design detailed drawings for the TMPs. The LEA approved the latest schedule to install the TMPs by February 29, 2024 based on the January 11, 2024 weekly update from CCL regarding the material deliveries and revised installation schedule. In addition, as per the meeting on January 19, 2024, the LEA specified due date of February 8, 2024 for CCL to submit the specifications of the telemetry system that will be used to record temperature data.

2.34 On February 26, 2024, the LEA issued a letter to CCL (February 26, 2024 LEA Letter) regarding delays that CCL reported in the weekly status updates received through February 22, 2024. CCL stated that due to delays caused by rain events and for safety reasons, the completion time for drilling for TMP installation was estimated to be an additional 6-7 weeks. The LEA directed CCL to provide a written response by February 29, 2024 (current due date for completion of the TMP installation) that includes an updated construction schedule that details an accurate timeline for the installation of the TMPs, weekly goals for the installation, and what efforts and resources (such as additional equipment and workforce) are being implemented to expedite the work and meet the proposed timelines.

2.35 On February 29, 2024, the LEA received a response from CCL (February 29, 2024 CCL Letter) providing justification for delays and a new schedule for the installation of the TMPs. Due to weather conditions or related safety concerns, the anticipated completion date was extended from February 29, 2024 to April 4, 2024, weather permitting.

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2.36 On March 4, 2024, the LEA, CalRecycle and CCL staff met virtually to discuss issues with TMP installation to planned depths. The LEA and CalRecycle advised that CCL should install to the depth allowable and focus on getting the TMPs installed so that CCL can begin gathering data. The LEA also pointed out a typographical error and the lack of an official time extension request in the February 29, 2024 CCL Letter.

2.37 On March 4, 2024, the LEA received a revised response letter (March 4, 2024 CCL Letter) officially requesting modification to the timeline for TMP installation and correcting the typographical error noted in para. 2.36.

2.38 March 20, 2024, the LEA issued an approval (March 20, 2024 LEA Approval) to the modified schedule (March 4, 2024 CCL Letter) and April 4, 2024 completion date for the installation of TMPs, and directed CCL to continue to provide weekly updates on the progress of the installation of TMPs including any delays due to rain events or other special occurrence that may affect the modified schedule.

2.39 On March 20, 2024, the LEA issued a letter to CCL (March 20, 2024 LEA Letter) in response to a weekly update from CCL regarding the TMP installation received on March 14, 2024. The letter addressed the issues brought up by CCL that the well bores were saturated to the point that all five probes installed from March 11, 2024 through March 14, 2024 did not reach the proposed depth. The LEA determined that the adjustment to the remaining TMPs is necessary and required CCL to submit a report for the probe installation to the LEA by March 28, 2024 that would include: 1) an updated map showing the settlement area overlayed with the completed drilling locations, completed and proposed depths and remaining/planned drilling locations (if applicable), 2) drilling logs and 3) temperature logs of temperatures taken during drilling.

2.40 On March 28, 2024, LEA received the CCL report (March 28, 2024 Report) that stated the issues with achieving the proposed depths and a confirmation that sixteen (16) probes had been installed and were operational.

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2.41 On April 5, 2024, the LEA issued a letter (April 5, 2024 LEA Letter) directing CCL to: 1) relocate the planned installation for well TP-16 to an area outside of the reaction where drilling to the proposed depth may be feasible, and 2) submit a final construction report within 5 days of completion of the installation of all TMPs.

2.42 On April 10, 2024 virtual meeting was held between CCL, LEA and CalRecycle to discuss the progress of TMPs installation, the relocation of TMP TP-16 and TP-04, and the need for a formal extension request with justification for not meeting the April 4, 2024 deadline to complete installation of TMPs.

2.43 On April 12, 2024, LEA received the CCL's response (April 12, 2024 CCL Response) that addressed the two directives related to TMPs in the April 5, 2024 LEA Letter as well as items discussed during the April 10, 2024 meeting. CCL confirmed that it would submit weekly memorandum with temperature readings and analysis of those readings along with a summary and temperature graph of all TMPs to plot the trends of each TMP once the final construction report was completed.

2.44 On April 16, 2024, LEA received a letter from CCL (April 16, 2024 CCL Letter) to memorialize the April 10, 2024 virtual meeting and to request a time extension for the installation of TMPs to April 26, 2024 with justification that drilling operations for TMP installation were delayed due to saturated soil conditions from frequent rain events over the past two months and safety related concerns.

2.45 On April 24, 2024, LEA issued a letter to CCL (April 24, 2024 LEA Letter) accepting CCL's proposed timelines for TMP installation.

2.46 On May 3, 2024, the LEA received the Final Construction Report, 2024 Temperature Monitoring Probe Installation (May 3, 2024 CQA Report) as per Directive 2 of the April 5, 2024 LEA Letter.

2.47 On May 29, 2024, the LEA issued a response letter to the CQA Report (May 29, 2024 LEA Response) directing CCL to resubmit a CQA to the LEA by June 6, 2024 with a site

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map of the TMP's location, completion depth at each well, the reaction area as it is defined as of May 1, 2024, and a method (web-portal) for CCL to provide real-time access to temperature data to the LEA and CalRecycle. The temperature data included in the revised CQA Report was required to include the maximum weekly temperature recorded at each TMP, instead of or in addition to average weekly temperatures. Finally, the LEA advised that the revised CQA Report should include a signature and stamp of a licensed engineer to show all work can be clearly attributed to the licensee(s) in responsible charge of the work.

2.48 The May 29, 2024 LEA Response also addressed the weekly TMP reports and directed CCL to revise the weekly TMP reports with the weekly temperature readings to include graphs that show the maximum temperature recorded at each TMP instead of weekly average, as the criteria to implement a containment strategy must be based on maximum temperature readings and not an average temperature. The weekly TMP reports were also required to include the following additional details: a reaction map with the maximum observed temperature at each well with depth, a narrative describing any anomalies, outliers, data gaps, or malfunctions. The narrative must describe any temperature increases of 20°F or greater within 48 hours as stated in the April 5, 2024 LEA Letter and include an increase of 10°F in a week. The LEA advised that the weekly TMP reports should be a standalone document, and on the last weekly report for the month, CCL is directed to include a map that shows each TMP with color-coded observations based on the maximum observed temperature. CCL was required to submit revised weekly TMP reports beginning the week of June 2, 2024.

2.49 Additionally, the May 29, 2024 LEA Response specifically addressed the Weekly Cover Report dated May 14, 2024 that showed the reaction is extending south into areas outside the previously defined reaction area. To accurately track the reaction's progress, CCL was directed to install three specifically located temperature probes by June 12, 2024. CCL was reminded that while the settlement rate indicator is low, the reaction has advanced which



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requires the development of a plan to implement a containment strategy (Mitigation Measure 1A Soil Reaction Break/Barrier Plan).

2.50 A meeting was held on May 31, 2024 to discuss the directive in the May 29, 2024 LEA Response to add three TMPs. CCL stated that the settlement was misinterpreted in the Weekly Cover Report due to construction taking place in the area that showed settlement. Furthermore, CCL stated that there are TMPs near the subject area, planned LFG well installation in that area, and data that supports the reaction area is not expanding. LEA instructed CCL to reply by June 12, 2024, with installation plan, an alternate proposal or justification for no action based on information shared in meeting.

Mitigation Measure 2A – Geosynthetic Cover

2.51 In the December 6, 2023 CCL Response to the November 21, 2023 LEA Letter, CCL noted several concerns regarding the placement of soil and stated that an alternative proposal would be submitted to the LEA by December 8, 2023.

2.52 On December 8, 2023, the LEA received a Memorandum from CCL (December 8, 2023 CCL Memorandum) responding to the November 21, 2023 LEA Letter regarding the Mitigation Measure 2A requirement. The December 8, 2023 CCL Memorandum provided a description and timeline for two specific proposed alternatives to the additional cover as well as for the 24-inches of low permeability soil cover in and around the Reaction Settlement Area and any well showing signs of reaction as required by Mitigation Measure 2A: 1) Low Permeability Soil Cover, 2) Evaporative Soil Cover or 3) 12-mil Dura-Skrim Geosynthetic Cover (12-mil Cover).

2.53 On December 14, 2023, the LEA issued a response (December 14, 2023 LEA Letter) to the December 8, 2023 CCL Memorandum. The LEA advised CCL that although the placement of low permeability soil would be the most effective option to address the inadequacy of the existing cover over the reaction area, as it would prevent surface emissions of LFG while

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reducing oxygen infiltration. Because this option may take 12 weeks to implement which is the longest timeframe out of the three alternatives provided, it was no longer considered. Next, the proposed alternative to use an evaporative soil cover option using high permeability soil was deemed to be unacceptable as it would allow air, water, and LFG to migrate through the cover. CCL's proposed installation of the 12-mil Cover was the alternative that had the quickest installation timeline, within 5 weeks, and was an adequate option as a temporary measure to address cover conditions until the low permeability soil cover is added. Since the 12-mil Cover was not a long-term solution, CCL was required to install a more durable geosynthetic cover, 24-mil to 30-mil with welded seams, that will offer better performance and reduced maintenance. In short, the LEA recommended that CCL install the proposed 12-mil Cover now while it acquires low-permeability soil or opt to install a thicker and more durable geosynthetic cover between 24-mil to 30-mil with welded seams in lieu of the low permeability soil cover. A proposal for this option must be submitted to the LEA for review and approval.

2.54 On December 19, 2023 the LEA received a workplan from CCL (December 19, 2023 Plan) to install 30-mil high density polyethylene (HDPE) geosynthetic cover over the reaction settlement area.

2.55 On December 20, 2023, the LEA issued an approval (December 20, 2023 LEA Letter) on the condition that CCL submit the design specifications of the proposed geosynthetic cover pressure relief valves discussed in the December 19, 2023 Plan within 10 days.

2.56 On December 29, 2023, the LEA received a letter from CCL (December 29, 2023 CCL Letter) with the required information on the pressure relief valves.

2.57 On January 19, 2024, a meeting was held between CCL, LEA and CalRecycle to communicate that the pressure relief valves would not be approved by the LEA. Other methods to prevent potential LFG accumulation underneath the geosynthetic cover were discussed.

2.58 On January 23, 2024, the LEA received a letter from CCL (January 23, 2024

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CCL Letter) which stated that CCL no longer intended to install the pressure relief valves from the December 19, 2023 Plan. In addition, CCL provided an updated installation schedule for the 30-mil cover in the following order: 1) northerly portion of the western slope of the reaction area, 2) central portion of the western slope of the reaction area, 3) top deck of the reaction area and 4) north slope of the reaction area. Although CCL did not provide a specific date, the letter stated that installation of the cover was anticipated to take 8 weeks with an additional week for reporting. Lastly, CCL informed the LEA that it anticipated installing well boot seals on all wells located outside of the areas that will be covered with geosynthetic cover by February 16, 2024, and installing the remaining well boot seals as the geosynthetic cover is installed.

2.59 On January 26, 2024, the LEA issued a conditional approval (January 26, 2024 LEA Letter) in response to the January 23, 2024 CCL Letter. Per the conditions, in lieu of the pressure relief valves, CCL was to provide a system and procedure to ensure that LFG does not accumulate underneath the geosynthetic cover and to prioritize LFG extraction from the reaction area over other areas of the landfill, if necessary, by February 2, 2024. In addition, CCL was directed to submit weekly updates to the LEA on the geosynthetic cover installation (Weekly Geosynthetic Cover Updates) commencing the week of January 28, 2024 and complete the geosynthetic cover installation by March 25, 2024 (8 weeks from the start of cover installations as provided by the January 23, 2024 CCL Letter).

2.60 On February 2, 2024, the LEA received a response from CCL (February 2, 2024 CCL Letter) that adequately addressed all of the conditions listed in the January 26, 2024 LEA Letter as stated in the LEA response letter dated March 4, 2024 (March 4, 2024 LEA Letter).

2.61 To address ongoing delays documented in CCL's Weekly Geosynthetic Cover Updates received through February 23, 2024, the LEA issued the February 26, 2024 LEA Letter. CCL had reported delays caused by rain events and related safety issues without providing an update on the need for a revised installation schedule for the 30-mil geosynthetic cover. LEA

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instructed CCL to provide a written response by February 29, 2024 with an updated construction schedule that details an accurate timeline for the installation of the geosynthetic cover, weekly goals for the installation, and what efforts and resources (such as additional equipment and workforce) are being implemented to expedite the work and meet the proposed timeline.

2.62 The February 29, 2024 CCL Letter provided justification for delays and a new schedule for the installation of the geosynthetic cover. Due to weather conditions and related safety concerns, and an increase of the reaction area from 23.9 acres to 30 acres due to site conditions, the anticipated completion date was extended from March 25, 2024 to April 26, 2024, weather permitting. The submittal date for the completion report for the geosynthetic cover installation was consequently extended to May 3, 2024.

2.63 On March 4, 2024, LEA, CalRecycle and CCL staff met virtually and pointed out a typographical error with the compliance schedule and the lack of an official time extension request in the February 29, 2024 CCL Letter.

2.64 On March 4, 2024 CCL corrected the typographical error referred to in para. 2.63 and officially requested modification to the timeline for geosynthetic cover installation.

2.65 On March 20, 2024, the LEA issued an approval (March 20, 2024 LEA Letter) to the modified schedule and of the April 26, 2024 completion date for the installation of the 30-mil geosynthetic cover, and directed CCL to continue to provide weekly updates on the progress of the installation of the geosynthetic cover including any delays due to rain events or other special occurrence that may affect the modified schedule.

2.66 On April 19, 2024 the LEA received a memorandum from CCL (April 19, 2024 CCL Memorandum) that provided an updated geosynthetic coverage acreage, from 30 acres to 43.9 acres, and revised schedule for installation of the geosynthetic cover with, From April 26, 2024 to July 12, 2024. According to the memorandum, April 26, 2024 deadline could not be met due to

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delays related to concerns with wet weather, high winds, slope stability, and safety. The July 12, 2024 completion date did not include the replacement of the 12-mil Cover that is currently over the western slope with the 30-mil geosynthetic cover due to high leachate levels.

2.67 On May 10, 2024, the LEA issued a letter to CCL (May 10, 2024 LEA Letter) directing CCL to resubmit a revised schedule by May 14, 2024, that prioritizes the installation of the 30-mil geosynthetic cover in the reaction area (30 acres per the March 4, 2024 CCL Letter) over additional areas that CCL elected to also cover, and include a completion date for installation of the cover over the 30 acres, and a plan to manage the leachate at the western slope to allow for timely installation of the 30-mil geosynthetic cover.

2.68 On May 14, 2024, the LEA received two memorandums from CCL. One memorandum provided additional information on the need for the extended deadline of July 12, 2024, to complete the installation of the 30 acres of geosynthetic cover over the reaction area (May 14, 2024 CCL Updated Schedule). The other memorandum detailed the construction of a toe drain system to manage the leachate and allow for the installation of geosynthetic cover over the portion of the western slope currently covered by the 12-mil Cover. (May 14, 2024 CCL Plan).

2.69 On May 29, 2024, the LEA issued a letter to CCL (May 29, 2024 LEA Letter) stating that the May 14, 2024 CCL Updated Schedule is adequate, and required CCL to continue to provide weekly updates on the progress of the installation of the geosynthetic cover that include specific reasons for any further delays that may be due to rain events or other special occurrence that may affect the extended implementation of the new schedule. Also, the LEA determined the May 14, 2024 CCL Plan to be adequate contingent on the condition that CCL confirms waste temperatures are below the manufacturer's recommended maximum temperature limit of the proposed materials used.

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Mitigation Measure 2B - Cover Tracking

2.70 The December 6, 2023 CCL Response to the November 21, 2023 LEA Letter had no comment on Mitigation Measure 2B requirements and agreed to submit the required plan by the due date.

2.71 On December 6, 2023, the LEA received the Soil Cover Tracking Written Plan (December 6, 2023 Cover Tracking Plan) to monitor for fissures and cracks in the soil cover, collect and compile notes and pictures, and submit Weekly Cover Reports to the LEA. To track and document settlement, CCL proposed to use drones to document settlement on a biweekly basis.

2.72 On December 14, 2023, the LEA issued a letter (December 14, 2023 LEA Letter) requiring CCL to revise the December 6, 2023 Cover Tracking Plan to include response to issues that may arise with the geosynthetic cover, such as tears and where fill is needed to support the liner or maintain drainage, the necessary actions taken, and a photo log that has before and after pictures of the cover issues.

2.73 LEA received the Revised Plan dated December 21, 2023 (December 21, 2023 Revised Plan) that included documentation and tracking of issues related to the geosynthetic cover in addition to soil cover as well as a photo log of observations with before and after pictures.

2.74 On January 3, 2024, the LEA issued an approval (January 3, 2024 LEA Letter) to the December 21, 2023 Revised Plan and directed CCL submit Weekly Cover Reports starting January 9, 2024.

2.75 The LEA letter dated March 22, 2024 (March 22, 2024 LEA Letter), responded to the Slope Stability Analysis Report (Mitigation Measure 3) and addressed the Weekly Cover Reports. The LEA directed CCL to revise the Weekly Cover Reports to include a log with a summary and a map to track the documented fissures and tension cracks and to identify trends, to evaluate the documented series of fissures and tension cracks reported in recent Weekly Cover

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Reports from February and March 2024, and to include methods used to track the instability in the reaction area that is obscured by the geosynthetic cover.

2.76 On April 10, 2024, a virtual meeting was held between CCL, LEA and CalRecycle (April 10, 2024 Meeting) to discuss the status of Mitigation Measures 1-3 and the need for a second revision of the December 6, 2023 Cover Tracking Plan to address Mitigation Measure 2B. The LEA directed CCL to include in future weekly reports a section to document any instability events such as observations that led to CCL directing crews to cease work on the western slope mid-day March 20, 2024, because of concerns related to slope stability and pending the slope stability analysis report as per the March 22, 2022 Weekly Cover Report.

2.77 CCL submitted the second Revised Cover Tracking Plan dated April 16, 2024 (April 16, 2024 Revised Plan) that proposed to submit a map to identify and evaluate trends in the reported fissures and tension cracks. CCL proposed to perform daily visual inspections and bi-weekly drone flyovers, and other actions to track the instability of the reaction area obscured by the geosynthetic cover. In addition, CCL would include a profile of the western slope consisting of cross sections taken during the beginning and end of the month in the report.

2.78 On May 2, 2024, the LEA approved the second Revised Cover Tracking Plan (May 2, 2024 LEA Letter) and directed CCL to submit monthly reports starting May 14, 2024. The LEA also reminded CCL to include a section on stability issues as discussed during the April 10, 2024 Meeting.

2.79 The LEA issued a letter to CCL on May 29, 2024 (May 29, 2024 LEA Letter) to address, among other items, the Weekly Cover Reports dated May 10 and May 14, 2024, in which CCL made inaccurate statements that misrepresented the reason why the liner crews were removed from the western slope. The specific CCL statements were that "Landfill personnel were directed to cease normal activities on the western slope on or around March 20, 2024, because of the LEA's concerns regarding the potential slope stability and related safety

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concerns.” The LEA noted that CCL elected to remove crews without notifying the LEA for at least 48 hours, when the LEA received the March 22, 2024 Weekly Cover Report. CCL was directed to amend each the May 10 and 14, 2024 reports to reflect that CCL elected to move the liner crews because the crews noticed an additional bulge of waste at the toe of the slope. In addition, CCL was required to include slope stability concerns to the Weekly Cover Reports beginning June 4, 2024.

Mitigation Measure 3 – Slope Analysis

2.80 The December 6, 2023 CCL Response to the November 21, 2023 LEA Letter had no comment on the Mitigation Measure 3 requirement and agreed to submit a work plan with timeline by the due date.

2.81 CCL submitted the Slope Stability Analysis Workplan to the LEA on December 14, 2023 (December 2023 Slope Stability Analysis Plan).

2.82 On December 20, 2023, the LEA issued a letter accepting the December 2023 Slope Stability Analysis Plan with conditions. According to a timeline submitted by CCL, a Slope Stability Analysis Report would be submitted to the LEA by February 22, 2024.

2.83 The Slope Stability Analysis Report was received by the LEA on February 22, 2024 (February 2024 Slope Stability Analysis Report).

2.84 The March 22, 2024 LEA Letter in response to the February 2024 Slope Stability Analysis Report required CCL to perform additional analyses based on the current actual observed conditions of the waste and gas extraction wells. For example, the analysis in the February 2024 Slope Stability Analysis Report used peak shear strength instead of reduced shear strength. CCL was also directed to include a plan to monitor and record the temperature of the liner at the bottom of the landfill to verify and document that that there are no anticipated impacts to its the long-term performance given the potential exposure to high subsurface temperatures associated with the ongoing reaction. The plan regarding the liner was referred to the LARWQCB.

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2.85 On May 8, 2024, the LEA received a draft of the revised Slope Stability Analysis Report dated May 2024 (May 2024 Slope Stability Analysis Report). The report is currently under review.

Mitigation Measure 4 – Manufacturer Specifications

2.86 The December 6, 2023 CCL Response to the November 21, 2023 LEA Letter had no comment regarding Mitigation Measure 4 and agreed to comply with this mitigation measure.

2.87 The May 29, 2024 LEA Letter in response to the May 14, 2024 Plan to install a toe drain at the western slope directed CCL to confirm the waste temperatures are below the manufacturer's recommended maximum temperature limit of the proposed pipe materials. The letter guided CCL to use a forward-looking infrared camera to ensure the HDPE or other material can perform as designed within the recommended temperature limits.

3.0 STATEMENT OF FACTS PERTAINING TO VIOLATION 27 CCR § 20921:

3.1 Pursuant to 27 CCR Section 20921, in order to provide for the protection of public health and safety and the environment, the operator shall ensure that the concentration of methane gas migrating from the disposal site must not exceed 5% by volume in air at the disposal site permitted facility boundary or an alternative boundary approved in accordance with 27 CCR § 20925.

3.2 Beginning with the focused inspection dated September 1, 2023, periodic inspection reports dated September 19, October 25, November 28, December 19, 2023, January 17, February 7, March 26, and April 30, 2024, continue to note the violation for exceedance of methane as described below.

3.3 On September 1, 2023, the LEA measured the methane level at perimeter monitoring well GP-13 at above 5% by volume in air (bv), resulting in a violation of 27 CCR Section § 20921. CCL was directed via email on September 9, 2023, to comply with 27 CCR § 20937 which requires submittal of a remediation plan for approval and implementation within 60 days of noted exceedance and as documented on the report dated September 1, 2023. CCL submitted a



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remediation plan to address the methane exceedance at GP-13 on September 8, 2023 (September 8, 2023 Remediation Plan).

3.4 On September 15, 2023, CCL submitted a second remediation plan to include methane exceedance measured by the CCL at GP-15 (September 15, 2023 Remediation Plan). On September 19, 2023, the LEA measured methane levels at perimeter monitoring wells GP-13 and GP-15 at above 5% bv resulting in a violation of 27 CCR § 20921.

3.5 LEA electronic communication with CCL called for CCL to submit subsequent revised plans dated October 6, 2023 (October 6, 2023 Remediation Plan) and November 22, 2023 (November 22, 2023 Remediation Plan) addressing the exceedance at both probes GP-13 and GP-15. The LEA issued a rejection letter on February 6, 2024 (February 6, 2024 LEA Letter) directing CCL to respond to specific comments in a revised plan by February 23, 2024.

3.6 On February 27, 2024, the LEA received the latest version of the remediation plan (February 2024 Remediation Plan) that proposed to install an additional 107 LFG extraction wells by July 31, 2024.

3.7 The LEA approved the February 2024 Remediation Plan by letter May 8, 2024 (May 8, 2024 LEA Letter) requiring the LFG well installation to be completed by July 31, 2024, as proposed by CCL. Upon installation of the LFG extraction wells, CCL is required to continue to monitor the methane levels in all perimeter monitoring wells on a weekly basis and provide the results to the LEA for a monitoring period of 120 days. If the LEA's monitoring shows that the concentration of methane is and remains below the regulatory limit for three (3) consecutive monitoring events and the weekly results submitted by CCL provide supporting evidence that the landfill gas is controlled not to exceed 5% bv in air at the Site's perimeter boundary, then the Site will be deemed compliant with 27 CCR § 20921. If compliance with 27 CCR § 20921 is not achieved within the 120-day monitoring period, then a new remediation plan must be submitted to the LEA for review and approval within 30 calendar days.

3.8 The February 2024 Remediation Plan was also approved by CalRecycle on April 15, 2024 (April 15, 2024 CalRecycle Letter) as required by 27 CCR § 20937.

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4.0 PLACEMENT OF CCL ON THE INVENTORY:

4.1 The LEA issued inspection reports of CCL dated September 1, September 19, October 25, November 28, December 19, 2023, and January 17, 2024. Violations of 27 CCR, Sections 20921 (Gas Monitoring and Control) and 20750 (Site Maintenance) have been noted monthly on LEA inspection reports to date beginning September 1, 2023, and November 28, 2023, respectively.

4.2 On February 8, 2024, CalRecycle notified CCL in a letter sent via certified mail, and received by CCL on February 10, 2024, that if the violations were not corrected within 90 days of receipt of the letter that pursuant to PRC § 44104, the site would be placed on the Inventory of Solid Waste Facilities Which Violate State Minimum Standards (Inventory).

4.3 After confirming with the LEA that violations of the noted standards remained uncorrected and were continuing, on May 16, 2024, pursuant to 14 CCR § 18364, an Inclusion letter was sent by CalRecycle, notifying CCL that CCL was placed on the "Inventory of Facilities Violating State Minimum Standards" list (Inventory List). Inclusion on the Inventory List requires the LEA to establish and issue a compliance schedule to the facility within 15 business days from the date of the inclusion letter. (14 CCR § 18365(a).)

4.4 The purpose of the compliance schedule is to ensure that diligent progress is made by the operator to bring the facility into compliance pursuant to PRC § 44106. (14 CCR § 18304.3.)

4.5 The compliance schedule may be incorporated into a Notice and Order. (14 CCR §§ 18304.3 and 18361(a).)

4.6 The Compliance Schedule must require that all tasks and deadlines be completed within the timeframes specified in 14 CCR § 18365(b).

5.0 VIOLATIONS:

5.1 CCL is in violation of 27 CCR § 20750 (Site Maintenance) and 27 CCR § 20921 (Gas Monitoring and Control).

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6.0 ORDER FOR COMPLIANCE SCHEDULE:

6.1 On June 4, 2024, the LEA met with CCL to discuss the issuance of the Compliance Order. The Compliance Schedule was reviewed with CCL and an extension was asked for the Compliance Deadline for Milestone 1A-2, 1B-1 and 2A-1. The LEA granted the extensions and has updated the deadlines to the dates requested by CCL.

6.2 Pursuant to PRC §§ 43209, 44106, 45000, 45005, 45011, 45017, and 45023, 27 CCR §§ 20750 and 20921, and 14 CCR §§ 18304, 18304.1, 18304.3(b), and 18365(a), Respondent CCL is hereby ordered to comply with the following compliance schedule to eliminate the existing violations:

Compliance Schedule		
27 CCR Section 20750 – Site Maintenance <i>The operator shall promptly repair or correct defective conditions with respect to state minimum standards. All other aspects of the site shall be kept in a state of reasonable repair. THE FINAL DATE TO ACHIEVE FULL COMPLIANCE WITH 27 CCR § 20750 IN ACCORDANCE WITH THE COMPLIANCE SCHEDULE IS AUGUST 2, 2024.</i>		
Milestone	Action Plan/Directive	Compliance Deadline
1A - 1	Submit a revised Air/Soil Break Plan to the LEA for review and approval. The revised Air/Soil Break Plan must fully address the LEA directives including data from TMPs and LFG collection wells (refer to the May 3, 2024, LEA Letter for details) to inform the required items mentioned below: a. Investigate how each cell or phase was constructed and examine if air/soil breaks between cells/phases can be exploited. The investigation should include a review of where haul roads were constructed to determine if the inert roads can also be used as fuel breaks. Information from the investigation should be used to develop where containment breaks should be placed. b. Propose a set of criteria for the primary and secondary engagement lines and the type of reaction breaks/barriers and/or mitigations. These criteria shall	July 8, 2024

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	<p>be based on temperature, CO, and possibly settlement rate. The primary engagement lines need to prevent the reaction from spreading in the main fill close to the reaction.</p> <p>The secondary engagement lines need to prevent the reaction from entering the eastern and southern fill areas at the toe of the slope.</p> <p>c. Investigate and propose construction of air/soil reaction breaks in the main 160-acre fill area for the reaction of the engagement lines with either an inert material or air.</p> <p>d. Include the construction of air/soil reaction breaks/barrier between Canyon C, A, D, and Cell 5 in the event the reaction reaches the secondary engagement lines.</p> <p>e. Include timelines and method of construction. The timelines and engagement lines must match.</p> <p>f. Use best available technology, such as grout injection, to slow or contain reaction movement to the south and east.</p> <p>g. Description of the criteria that will mandate the temporary suspension of placing new waste.</p> <p><i>CCL may submit an alternative plan to the LEA for review, only if such plan is adequately supported by substantive data and studies and provides assurances to the LEA that the reaction is no longer a threat to public health, safety and the environment.</i></p> <p>Note: If the air/soil break plan submitted by CCL is rejected by the LEA after the final compliance date for this violation, then a penalty will be assessed from the date LEA issues a rejection until the air/soil break plan is approved by the LEA. (No penalty will be assessed during the period of LEA review.)</p>	
1A - 2	<p>Submit a report with CO and H2 readings for all gas collection wells in the reaction area and wells 200 feet outside the reaction area, including the following:</p>	June 11, 2024

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	<p>a. The gas data tabulated with the following information: date collected or measured, wellhead temperature, analyte names and concentrations, including but not limited to permanent gases and H₂ analyzed using thermal conductivity detection/ gas chromatography (TCD/GC) ASTM D1946-14 and CO analyzed using flame ionization detection/total combustion analysis (FID/TCA), EPA Method ALT-144</p> <p>b. Sampling summary, map showing the reaction area as it is currently defined, gas sampling plan, Quality Assurance/Quality Control data, and proposed holding times, and whether holding times were exceeded, etc.</p> <p>c. Report as a standalone document that is signed by a licensed engineer or qualified responsible person.</p>	
1A - 3	Submit the laboratory test results for <u>all</u> monthly LFG sampling (including CO and H₂) from a set of LFG wells selected by the LEA after the baseline sampling for CO and H₂ is completed and provided to the LEA as described above. The LFG data that is collected must be submitted to the LEA in a standalone report signed by a licensed engineer or qualified responsible person and include a discussion of the sampling, LFG data, and a graphic showing CO and H₂ trends over time.	Monthly by the 15th of the following month, from the date that CCL receives the selected LFG wells from the LEA
1B - 1	<p>Submit a revised Completion Report for the installation of the TMPs that include the following:</p> <p>a. Site map that includes the location of the TMP's location, the completion depth at each well, and as-builts. The map must also include the reaction area as it is defined as of May 1, 2024.</p> <p>b. Provide real-time access to temperature data to the LEA and CalRecycle and specify the method of access (e.g., web portal).</p> <p>c. Temperature data that includes the maximum temperature recorded at each TMP.</p>	June 11, 2024

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	d. Signature and stamp of a licensed engineer or qualified responsible party to show all work can be clearly attributed to the licensee(s) in responsible charge of the work.	
1B - 2	<p>Continue to submit the Weekly TMP Reports. Revise the reports so they are standalone documents that include the following:</p> <p>a. Graphs that show the maximum temperature recorded at each TMP. CCL may choose to continue to also include the average temperature in the weekly reports.</p> <p>b. Map delineating the reaction area with the maximum observed temperature at each TMP with depth.</p> <p>c. Narrative describing any anomalies, outliers, data gaps, issues or malfunctions. The narrative must describe any temperature increases of 20°F or greater within 48 hours or 10°F in a week.</p>	June 7, 2024, and weekly each Friday thereafter
1B - 3	<p>Provide a temperature contour map that shows each TMP with color-coded observations based on the maximum observed temperature collected during the month. Example was provided in the May 29, 2024 LEA Response.</p>	Monthly by the 15th of the month beginning June 2024.
1B - 4	<p>Install three temperature probes around the area that is extending south into areas outside of the previously defined reaction area as shown in the Weekly Cover Report dated May 14, 2024. Map showing locations of wells around the extended reaction area was provided in the May 29, 2024 LEA Response.</p> <p>Provide a final completion report that includes a map and as-builts that is signed by a registered engineer or qualified responsible person.</p>	July 11, 2024
2A - 1	<p>Install the approved 30-mil HDPE geosynthetic cover over the 30-acre reaction settlement area as defined in the Weekly Cover Reports dated up through May 28, 2024, and around any wells showing signs of reaction, i.e., any wells with temperature over 160°F or CO concentrations over 1,500 ppmv.</p>	August 2, 2024

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2A - 2	<p>Continue to provide Weekly Updates on the Installation of the 30-mil Geosynthetic Cover including a map showing approximate limits of the installed geosynthetic cover. Updates shall include any delays due to rain events or other special occurrences.</p> <p>Revise the map to show the required 30-mil geosynthetic coverage area, delineate any areas showing settlement and any wells showing signs of reaction.</p>	<p>Ongoing on Fridays with revised map beginning June 14, 2024.</p> <p><i>(Note: Weekly reporting may be reduced in frequency or discontinued only after the required geosynthetic cover is installed and with LEA written approval.)</i></p>
2B	<p>Continue to submit the Weekly Geosynthetic Cover Reports as in the approved April 16, 2024 Revised Written Plan, include the required directives in the May 29, 2024 LEA Letter.</p>	<p>Ongoing</p> <p><i>(Note: Weekly reporting may be reduced in frequency or discontinued only with LEA written approval.)</i></p>
3 - 1	<p>Ensure slope stability issues are included in the Weekly Geosynthetic Cover Reports as directed in the May 3, LEA Letter and May 29, 2024 LEA Response.</p>	<p>Ongoing</p> <p><i>(Note: Weekly reporting may be reduced in frequency or discontinued only with LEA written approval.)</i></p>
3 - 2	<p>Submit a West and North Slope Stability Analysis Final Report that fully addresses LEA's comments.</p>	<p>Two weeks from the date of the LEA comment letter</p>
<p>27 CCR Section 20921 – Gas Monitoring and Control <i>The concentration of methane gas migrating from the disposal site must not exceed 5% by volume in air at the disposal site permitted facility boundary or an alternative boundary approved in accordance with § 20925.</i> THE FINAL DATE TO ACHIEVE FULL COMPLIANCE WITH 27 CCR § 20921 IN ACCORDANCE WITH THE COMPLIANCE SCHEDULE IS NOVEMBER 28, 2024.</p>		

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4 - 1	<p>Install and operate an additional 107 LFG extraction wells as per approved February 26, 2024 Remediation Plan for LFG Exceedance. Notify the LEA upon completion.</p> <p>Provide a final completion report that includes a map and as-builts that is signed by a registered engineer or qualified responsible person.</p>	July 31, 2024
4 - 2	<p>Continue to submit a weekly status update on the installation of the LFG extraction wells as per the May 8, 2024 LEA Letter.</p>	<p>Ongoing</p> <p><i>(Ongoing until completion of installation of all LFG extraction wells listed in the February 26, 2024 Remediation Plan.)</i></p>
4 - 3	<p>Continue to submit weekly results of methane readings at perimeter monitoring wells GP-13 and GP-15.</p>	<p>Ongoing until compliance with 27 CCR 20921 has been demonstrated as set forth in Milestone 4-4</p> <p><i>(Note: Weekly reporting may be reduced in frequency or discontinued only with LEA written approval.)</i></p>
4 - 4	<p>Demonstrate compliance with 27 CCR Section 20921 within the 120-day compliance period that begins after the completion of the planned LFG extraction well construction referred to in the February 2024 Remediation Plan.</p> <p>In order to demonstrate compliance, the concentration of methane must be at or below regulatory limit for three (3) consecutive monitoring events conducted by the LEA, and the weekly results submitted by CCL must provide supporting evidence that the LFG is controlled not to exceed 5% by volume in air at the site's perimeter boundary.</p>	<p>120 days after completion of the LFG extraction well installation and no later than November 28, 2024 (Compliance Period)</p> <p><i>(Note: November 28, 2024 is based on the</i></p>

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		<i>anticipated completion date for installation of the LFG extraction wells.)</i>
5	Submit a consolidated monthly report with individual maps overlayed with the following data in an easily understood format <ul style="list-style-type: none"> - Defined reaction area; - Expansion of reaction area if any; - Weekly TMP data; - Settlement with heat maps; and - LFG data including, but not limited to CO and H2 data 	Monthly by the 15th of the month, from the date that CCL receives the selected LFG wells from the LEA - Refer to Milestone 1A-3 <i>(Note: Monthly reporting may be reduced in frequency or discontinued only with LEA written approval.)</i>

7.0 APPLICABLE TO ALL MILESTONES:

7.1 CCL must obtain all required and necessary Federal, State, and local permits prior to commencement of any work at the site.

7.2 Notwithstanding anything to the contrary herein, if any of the above milestones and compliance deadlines cannot be met in good faith, CCL may submit a written extension request to the LEA setting forth good cause justification.

7.3 Pursuant to PRC § 45011, failure to comply with the final compliance date for each violation, unless otherwise excused in writing by the LEA, will result in the LEA issuing an administrative penalty order for penalties payable by CCL to the LEA, of up to \$5,000 per day for each day that CCL is in violation of the final compliance schedule for a particular violation, calculated from the day after the violation compliance date, until the date compliance is achieved and verified by the LEA.

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**8.0 NOTICE OF FURTHER PENALTIES AND ENFORCEMENT THAT MAY RESULT FROM
FAILURE TO COMPLY WITH THE LEA'S ORDER:**

8.1 The LEA may assess administrative civil penalties not to exceed five thousand dollars (\$5,000) for each violation, for each day that the violation continues, if compliance is not achieved in accordance with the compliance schedule set forth in this Order. (PRC §§ 45010.1 and 45011.)

8.2 The LEA may suspend or revoke the solid waste facility permit if the facility does not meet the requirements contained in the compliance schedule issued by the LEA until the violation(s) of state minimum standards which caused the facility to be included in the Inventory are remedied. (PRC §§ 44305 and 44306, and 14 CCR §§ 18307 and 18368(b).)

8.3 The LEA may file a petition in the Superior Court for injunctive relief to enforce any part of this Order. (PRC §45014.)

8.4 Upon failure to comply with the Order, the LEA may bring an action in the Superior Court to impose upon CCL civil penalties of not more than ten thousand dollars (\$10,000) for each day a CCL is in violation of the Order. (PRC §§ 45023 and 45024.)

8.5 The LEA and/or CalRecycle shall not be liable for injuries or damages to persons or property resulting from acts or omissions by CCL or related parties in carrying out activities pursuant to this order, nor shall the LEA and/or CalRecycle be held as a party to any contract entered into by CCL or its agent(s) in carrying out activities pursuant to this Order.

8.6 Nothing in this Order shall constitute or be construed as a satisfaction or release from liability for any conditions or claims arising as a result of past, current, or future operations. Notwithstanding compliance with the terms of this Order, CCL may be required to take further actions as necessary to protect public health and safety or the environment.

8.7 This Order does not relieve CCL from complying with all other local, state, and federal requirements or prevent the LEA and/or CalRecycle from taking any and all other actions allowed by law.

8.8 This Order is supported by the accompanying declarations by Eric Morofuji and Mark Como.



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8.9 This Order may only be amended in writing by an appropriate representative of the LEA.

9.0 RIGHT TO APPEAL

9.1 CCL has the right to appeal this Order (PRC §§ 44307 and 44310) by submitting a written request for a hearing, together with a statement of issues on which appeal is based, within 15 days. Request for Hearing is provided with this Order. The appeal must be sent via U.S. Mail to Los Angeles County Public Health, Solid Waste Management Program/Local Enforcement Agency (LEA), 5050 Commerce Drive, Baldwin Park, Ca 91706, Attention: Karen Gork or via electronic mail to kgork@ph.lacounty.gov.

9.2 An appeal does not stay the effect of any provision of this Order. However, you may petition the Director of CalRecycle, in writing, to stay the effect of this Order, or portion thereof, pending the completion of administrative appeals. (PRC § 45017.) A petition submitted must be in writing and shall state the extraordinary circumstances that justify the stay. The petition shall also state the grounds, if any, on which a finding may be made that the immediate effect of the order or determination will preclude or interfere with the provision of an essential public service so that the public health and safety or the environment will be adversely affected.

10.0 CERTIFICATION

10.1 This Compliance Order is issued as of the date set forth below.

Signed: Liza Frias Date: June 6, 2024

Liza Frias, Director, Environmental Health
Los Angeles County LEA

Attachments:

Declarations
September 1, 2023 LEA Focused Inspection Report



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September 19, 2023 LEA Periodic Inspection Report

October 25, 2023 LEA Periodic Inspection Report

November 28, 2023 LEA Periodic Inspection Report

December 19, 2023 LEA Periodic Inspection Report

January 17, 2024 LEA Periodic Inspection Report

February 7, 2024 LEA Periodic Inspection Report

March 26, 2024 LEA Periodic Inspection Report

April 30, 2024 LEA Periodic Inspection Report

May 14, 2024 LEA Focused Inspection

October 16, 2023 CalRecycle Letter

October 17, 2023 LEA Letter

October 20, 2023 CCL Response

November 14, 2023 CalRecycle Letter

November 21, 2023 LEA Letter

December 6, 2023 CCL Response

April 5, 2024 LEA Letter

April 12, 2024 CCL Response

March 27, 2024 Plan

May 3, 2024 LEA Letter

May 8, 2024 Data

May 28, 2024 LEA Letter

December 20, 2023 Plan

December 22, 2023 LEA Letter

January 2, 2024 CCL Letter

January 17, 2024 CCL Letter



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January 29, 2024 LEA Letter

February 26, 2024 LEA Letter

February 29, 2024 CCL Letter

March 4, 2024 CCL Letter

March 20, 2024 LEA Approval

March 20, 2024 LEA Letter

March 28, 2024 Report.

April 16, 2024 CCL Letter

April 24, 2024 LEA Letter

May 3, 2024 CQA Report

May 29, 2024 LEA Response

December 8, 2023 CCL Memorandum

December 14, 2023 LEA Letter

December 19, 2023 CCL Plan

December 20, 2023 LEA Letter

December 29, 2023 CCL Letter

January 23, 2024 CCL Letter

January 26, 2024 LEA Letter

February 2, 2024 (CCL Letter)

April 19, 2024 CCL Memorandum

May 10, 2024 LEA Letter

May 14, 2024 CCL Updated Schedule

May 14, 2024 CCL Plan

May 29, 2024 LEA Letter

December 6, 2023 Cover Tracking Plan



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December 21, 2023 Revised Plan

January 3, 2024 LEA Letter

March 22, 2024 LEA Letter

April 16, 2024 Revised Plan

May 2, 2024 LEA Letter

CCL Barrier Discussion presentation

Isolation Break Criteria Example document

December 2023 Slope Stability Analysis Plan

February 2024 Slope Stability Analysis Report

February 26, 2024 60-Day Remediation Plan for GP-13 and GP-15

April 15, 2024 CalRecycle Response to 60-Day Remediation Plan

May 8, 2024 LEA Letter Response to 60-Day Remediation Plan

Request for Hearing Form

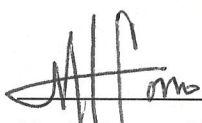
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Declaration

I, Mark Como, declare under penalty of perjury under the laws of the State of California that the following information is true and correct:

1. I am duly employed as an Environmental Health Specialist III in the Solid Waste Management Program for the Environmental Health Division of the Los Angeles County Department of Public Health. In this capacity, I act as an agent of the Local Enforcement Agency (LEA).
2. I am registered with the State of California as a Registered Environmental Health Specialist (REHS).
3. The information and allegations contained above are known to me to be correct based on my personal knowledge and inspections conducted at Chiquita Canyon Landfill located in the City of Castaic California.

Executed at: 5050 Commerce Drive, Baldwin Park, California 91706 on June 06, 2024.



Mark Como, EHS III
LEA



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Declaration

I, Eric Morofuji, declare under penalty of perjury under the laws of the State of California that the following information is true and correct:

1. I am duly employed as an Environmental Health Specialist III in the Solid Waste Management Program for the Environmental Health Division of the Los Angeles County Department of Public Health. In this capacity, I act as an agent of the Local Enforcement Agency (LEA).
2. I am registered with the State of California as a Registered Environmental Health Specialist (REHS).
3. The information and allegations contained above are known to me to be correct based on my personal knowledge and inspections conducted at Chiquita Canyon Landfill located in the City of Castaic California.

Executed at: 5050 Commerce Drive, Baldwin Park, California 91706 on June 6, 2024.

A handwritten signature in blue ink, appearing to read "Eric Morofuji", written over a horizontal line.

Eric Morofuji, EHS III

LEA

Enclosure B – LEA Compliance Order



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IN THE MATTER OF:

CHIQUITA CANYON SANITARY LANDFILL

29201 HENRY MAYO DRIVE

CASTAIC, CA 91384

APN: 3271-002-011, 3271-002-013, 3271-002-019,
3271-002-036, 3271-002-039, 3271-005-034

SWIS# 19-AA-0052

OWNER/OPERATOR

CHIQUITA CANYON, LLC (RESPONDENT)

29201 HENRY MAYO DRIVE

CASTAIC, CA 91384

BY CERTIFIED MAIL AND ELECTRONIC COPY

CERTIFIED MAIL: 91 7199 9991 7037 9753 6201

**COMPLIANCE ORDER PERTAINING TO 27
CALIFORNIA CODE OF REGULATIONS (CCR)
§ 20750**

PUBLIC RESOURCES CODE SECTIONS
43209, 44106, 45000, 45005, 45011, 45014,
45017, 45023; TITLE 27 OF THE CALIFORNIA
CODE OF REGULATIONS (27 CCR), SECTION
20750; AND TITLE 14 OF THE CALIFORNIA
CODE OF REGULATIONS (14 CCR),
SECTIONS 18304 AND 18304.1, 18304.3, 18365

DATE: May 1, 2025

TO: CHIQUITA CANYON, LLC

YOU ARE HEREBY ORDERED TO:

**TAKE ALL ACTIONS AND ABIDE BY ALL OTHER ORDERS CONTAINED HEREIN
AT THE CHIQUITA CANYON SANITARY LANDFILL EFFECTIVE IMMEDIATELY.**

1.0 PLEASE TAKE NOTICE:

1.1 The Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), is authorized by Division 30 of the Public Resources Code (PRC), §§ 43209 and 45000, and Title 14 of the California Code of

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Regulations (14 CCR), to enforce applicable solid waste regulations within the County of Los Angeles; and,

1.2 Division 30 Part 5 of the PRC and 14 CCR §§ 18304 and 18304.1 authorize the LEA to issue enforcement orders for violations of the PRC and regulations adopted pursuant to Division 30 of the PRC; and

1.3 Chiquita Canyon Sanitary Landfill (Site) is a permitted sanitary landfill located on Assessor's Parcel Numbers (APNs) 3271-002-011, -013, -019, -036, -039, and 3271-005-034 with an address of 29201 Henry Mayo Drive, Castaic, California, 91384, in the County of Los Angeles, and identified by Solid Waste Information System (SWIS) No. 19-AA-0052; and

1.4 Respondent, Chiquita Canyon, LLC, (CCL), is the operator and Responsible Party (RP) for noncompliance with state minimum standards. This Compliance Order is limited to CCL's violation of Title 27 of the California Code of Regulations (27 CCR) § 20750 (Site Maintenance), as described in the paragraphs below.¹

2.0 STATEMENT OF FACTS PERTAINING TO 27 CCR SECTION 20750:

2.1 Since August 10, 2023, the LEA has sought technical assistance from California Department of Resources, Recycling and Recovery (CalRecycle) regarding mitigation strategies for multiple issues identified at the Site by the LEA and other regulatory agencies. These issues include elevated well temperatures, increased landfill gas (LFG) emissions (odor), and unusual landfill settlement.² A letter dated October 16, 2023 from CalRecycle (October 16, 2023 CalRecycle Letter) to the LEA provided CalRecycle's review of 18 months of Site records. The

¹ In addition to 27 CCR § 20750 (Site Maintenance), CCL is also presently in violation of 27 CCR § 20921 (Gas Monitoring and Control). This violation was included in the LEA's June 6, 2024 Compliance Order. Any further LEA enforcement concerning violation of 27 CCR § 20921 will be addressed separately.

² CalRecycle provides comments to the LEA as assistance to support the program carrying out its responsibilities on permitted disposal sites. The final determination as to the comments provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in 14 CCR, Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the PRC.

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review determined that the Site sustained conditions over the prior 18 months that included, but were not limited to:

- Cover integrity issues;
- Increased temperatures and pressures in the landfill gas (LFG) control systems and waste mass;
- Unusual landfill settlement;
- A heating/smoldering event that is expanding in size and intensity.

2.2 Beginning with a letter dated October 17, 2023, issued to CCL, the LEA requested CCL undertake various mitigation actions at the Site to reduce odors and better define the reaction, many of which according to CCL, were included in the South Coast Air Quality Management District (SCAQMD) Stipulated Order of Abatement. On November 14, 2023, CalRecycle provided a letter (November 14, 2023 CalRecycle Letter) to the LEA based on the November 2, 2023 joint site visit with the LEA, SCAQMD, Los Angeles Region Water Quality Control Board (RWQCB), Department of Toxic Substances Control Board (DTSC), and the United States Environmental Protection Agency (USEPA). The November 14, 2023 CalRecycle Letter provided further recommendations and concluded that the current immediate cover should not be viewed as adequate to minimize odors.

2.3 On November 21, 2023 the LEA issued a more detailed letter, requiring CCL to implement specific mitigation measures and submit the necessary plans, data, and reports by outlined deadlines.

2.4 On May 15, 2024, pursuant to 14 CCR § 18364, an Inclusion Letter was sent by CalRecycle, notifying CCL that CCL was placed on the "Inventory of Facilities Violating State Minimum Standards" (Inventory) maintained by CalRecycle pursuant to PRC § 44104. This was due to CCL's violations of 27 CCR §§ 20921 (Gas Monitoring and Control) and 20750 (Site Maintenance) for three or more consecutive months as documented by the LEA inspection reports, and CCL's failure to correct the violations within 90 days of receiving a notification letter from CalRecycle dated February 8, 2024.

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2.5 As required by 14 CCR § 18365(a), within 15 business days from the date of the Inclusion Letter, the LEA issued a compliance schedule to CCL, in the form of a Compliance Order dated June 6, 2024 (June 6, 2024 Order), to ensure that diligent progress is made by the operator to bring the facility into compliance pursuant to PRC § 44106. (14 CCR §§ 18304.3 and 18361(a).) The history and statement of facts leading up to the LEA's issuance of the June 6, 2024 Order is set forth in detail in the June 6, 2024 Order, attached hereto, and incorporated herein by reference.

2.6 On July 8, 2024, CCL submitted the Soil Reaction Break/Barrier Plan (SRBBP) to the LEA for review to comply with Milestone 1-A1 of the June 6, 2024 Order. On September 24, 2024, the LEA issued comments, based on CalRecycle's technical review of the SRBBP, directing CCL to submit a revised plan by October 24, 2024. The LEA and CalRecycle met with CCL on October 28, 2024 and November 8, 2024, and discussed injection of inert material to contain the Subsurface Elevated Temperature (SET) Event at the Site.³ CCL requested, and was granted, an extension to submit the revised SRBBP by November 26, 2024. The LEA requested CalRecycle's technical expertise to assist in reviewing the revised SRBBP received by the LEA on November 26, 2024.

2.7 On December 24, 2024, the LEA requested additional information from CCL for CalRecycle to complete its technical review of the revised SRBBP. On January 24, 2025, CCL submitted a portion of the requested information. The LEA, in consultation with CalRecycle, reviewed the SRBBP and CCL's additional information.

2.8 Based on CalRecycle's technical review, most SET Events are typically caused by excessive oxygen entering the waste mass near or on a side slope. SET Events can start locally at a gas extraction well, area of cap erosion, or other features that allow oxygen to enter the waste mass. If not adequately addressed, the SET Event may become a smolder and spread to the entire landfill facility if it is not isolated and contained. (March 28, 2025 CalRecycle Letter, p. 3.) SET Events can (1) impact the integrity of bottom, top deck, and side slope geosynthetic liner systems; (2) impact the efficacy of gas and leachate control infrastructure made from high-density

³ A discussion of the definition and causes of SET events is found at p. 3-5 of the attached CalRecycle letter dated March 28, 2025.

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polyethylene (HDPE) and/or polyvinyl chloride (PVC) materials (e.g., pipes, lines, and gas wells, due to softening and/or melting), (3) impact the quality of gas composition for renewable energy and operation of flare systems, (4) change in chemical profile of leachate from non- hazardous waste liquid to hazardous waste liquid due to increased benzene concentration, (5) slope instability, and (6) cause excessive and/or rapid settlement of the landfill surface. (March 28, 2025 CalRecycle Letter, p. 3-4.)

2.9 LEA's June 6, 2024 Order and subsequent directives required CCL to install a 30-mil geosynthetic cover over 40 acres and temperature monitoring probes (TMPs). In addition, CCL was required to provide critical data such as carbon monoxide (CO) and hydrogen (H₂) readings for LFG wells, temperature readings from TMPs, color-coded temperature contour maps showing the maximum temperature recorded during the reporting period, and reports for soil and geosynthetic cover documenting settlement and stability issues. Contrary to CCL's stated belief that the reaction has not expanded, new temperature data from the recently installed TMPs, which were approved per LEA's letter issued on September 24, 2024 (September 24 2024 LEA Letter), indicates that the reaction is expanding. This new TMP data, along with documented conditions and other critical data provided by CCL in response to LEA's June 6, 2024 Order, was analyzed in the attached Technical Memorandum from Dr. Timothy Stark dated February 26, 2025 (February 26, 2025 Stark Memo), and the March 28, 2025 CalRecycle Letter. The following conclusions were made:

- The submitted barrier plan will not contain or control the reaction. There is no proposed barrier to prevent the reaction from consuming the entire facility.
- While the removal of leachate and pressurized gas is critical, this is not a satisfactory containment method.
- Independent SET Events are developing due to the current gas collection and control system (GCCS) operations.
- Given the extent of the SET Event, a 40 to 60-mil thick tan or green HDPE-EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile needs to be

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installed over the approximately 100 acres outside the current geomembrane cover. It must be welded to the existing 30-mil thick white HDPE geomembrane or placed in a suitable anchor trench.

- Leachate Tank Farm nine must be relocated off the top deck to an area not impacted by the SET Event now or in the future because CCL is undergoing settlement under the tanks.
- Expansion of the SET Event into Cell 8A must be prevented by connecting the previously constructed soil barrier to the west and eastern edges of Cell 8A. This soil barrier should provide a thermal block and remove any waste connection from Cells 6 to 8A. It is critical to prevent this expansion to 8A for two primary reasons: 1) If a soil buttress must be constructed to stabilize the slope from the SET Event, this is the only area large enough to build a buttress, and 2) It allows the landfill to maintain a disposal area for self-generating waste in Cell 8A.
- Additional Temperature Monitoring Probes (TMPs) must be installed.

2.10 On April 1, 2025, the LEA issued a letter rejecting the revised SRBBP because it did not propose a physical barrier, as directed in the June 6, 2024 Compliance Order, but instead relied on gas and leachate removal for containment and did not include thermodynamic analysis to demonstrate the effectiveness of these measures. In addition, temperature trends in multiple TMPs indicate ongoing reaction activity.

2.11 Given the evidence of ongoing reaction activity, the new temperature data provided by CCL on February 20, 2025, and no thermodynamic analysis, the LEA does not believe that gas and leachate removal alone is appropriate to contain the reaction. Furthermore, CalRecycle is not aware of any published studies supporting gas and leachate removal as a standalone containment strategy for an SET Event. CCL's evaluation also confirmed that no internal barrier exists to prevent the reaction from spreading throughout the facility. For further discussion of these findings, refer to the attached March 28, 2025 CalRecycle Letter, and the February 26, 2025 Stark Memo.

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3.0 VIOLATIONS:

3.1 CCL is in violation of 27 CCR § 20750 (Site Maintenance), which provides, "The operator shall implement a preventative maintenance program to monitor and promptly repair or correct deteriorated or defective conditions with respect to requirements of the CIWMB standards, and conditions established by the EA. All other aspects of the disposal site shall be kept in a state of reasonable repair." This violation was addressed in the LEA's June 6, 2024 Compliance Order, which ordered CCL to implement multiple milestones with regard to 27 CCR § 20750. This Compliance Order supersedes the Milestone 1A-1 of the June 6, 2024 Compliance Order as it pertains to 27 CCR § 20750.⁴

4.0 ORDER:

Pursuant to PRC §§ 43209, 44106, 45000, 45005, 45011, 27 CCR § 20750, and 14 CCR §§ 18304, 18304.1, 18304.3(b), and 18365, to address the ongoing SET Event, abate the violation of 27 CCR § 20750 and minimize further impacts, CCL is hereby ordered to implement the mitigation measures listed below. CCL must demonstrate that the reaction is contained and under control (not expanding). CCL must implement and maintain best management practices for the mitigation measures, including cover maintenance, TMPs operation and maintenance, and the protection of critical infrastructure.

4.1 Extend Covered Area: Install an LEA approved geomembrane cover over all areas of the Site that are not currently covered by a geomembrane and to which the reaction area has expanded or has the potential to expand. The LEA-approved cover shall demonstrate effectiveness equal to or greater than that of a 40- to 60-mil thick tan or green HDPE-EVOH textured geomembrane underlain by a minimum 6 oz/sy nonwoven

⁴ As noted in footnote 1 above, in addition to 27 CCR § 20750 (Site Maintenance), CCL is also presently in violation of 27 CCR § 20921 (Gas Monitoring and Control). This violation was included in the LEA's June 6, 2024 Compliance Order. Any further LEA enforcement concerning violation of 27 CCR § 20921 will be addressed separately.

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geotextile, welded to the existing 30-mil thick white HDPE geomembrane or placed in a suitable anchor trench.

A construction and quality assurance/quality control (QA/QC) plan with completion schedule must be submitted to the LEA for approval by **June 2, 2025**. Installation of the geomembrane cover shall be completed pursuant to the completion schedule in the LEA-approved workplan.

Provide **Weekly Updates** throughout the installation of the geomembrane cover on Fridays beginning the week after installation commences. These updates must include a map showing the required geomembrane coverage area and the approximate extent of the installed geomembrane cover, notes on any delays (such as those due to rain events or other special occurrences), delineation of any areas showing settlement, and any wells showing signs of reaction.

(Note: Weekly reporting may be reduced in frequency or discontinued only after the required geomembrane cover is installed and with LEA written approval.)

4.2 Relocate Leachate Tank Farm 9: CCL must submit a workplan to relocate Leachate Tank Farm 9 off the top deck to a stable area unaffected by current and future SET Events. A workplan with the proposed relocation and completion schedule must be submitted to the LEA for approval by **June 2, 2025**. Relocation of the Leachate Tank Farm 9 shall be completed pursuant to the completion schedule in the LEA-approved workplan.

4.3 Prevent Expansion of SET Event into Cell 8A: CCL must implement measures to prevent the reaction from spreading into Cell 8A. The previously constructed soil barrier must be verified or extended to connect the western and eastern edges of Cell 8A. If extended, these measures shall include, but are not limited to, the installation of a vertical barrier of inert materials. This barrier should serve as a thermal block and eliminate any

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waste connection between Cells 6 and 8A. An as-built for the soil barrier or a workplan to extend the barrier must be submitted to the LEA for approval by **July 15, 2025**. Construction of the vertical barrier of inert materials shall be completed pursuant to the completion schedule in the LEA-approved workplan.

4.4 Install Additional TMPs: Five new TMPs must be installed at locations specified in Attachment A of the March 28, 2025 CalRecycle Letter. TMPs must be installed at the following depths: 15 feet, 30 feet, 45 feet, and 75 feet. Beyond 75 feet, additional TMP depths must be determined using the equation $[(\text{Max Boring Depth} - 75 \text{ feet})/4]$ rounded up to the nearest tenth or fifth as described in the March 19, 2025 LEA Letter. Provide a final completion report that includes a map by **August 4, 2025**.

5.0 APPLICABLE TO ALL DIRECTIVES:

5.1 CCL must obtain all required and necessary Federal, State, and local permits prior to commencement of any work at the site. CCL needs to continue to work with the appropriate state and local agencies to resolve the odor nuisance and other serious conditions at the Site by implementing their required mitigation measures. ⁵

5.2 Ensure plans and reports provided to the LEA, including but not limited to those related to the installation of a geomembrane cover, a vertical barrier of inert materials, and TMPs, comply with the Professional Engineers Act, California Business and Professions Code (B&P) §§ 6700 – 6799. These submittals must include the name and license number of the engineer in responsible charge (B&P § 6735) and must be signed and stamped as required by 16 CCR § 411.1. Engineering decisions that could affect public health and safety must be made by an

⁵ California's environmental laws are enforced by State and Local agencies, each responsible for enforcing the laws governing a specific media, such as air, water, hazardous waste, solid waste, and pesticide laws. Therefore, regulations governing solid waste disposal in the State of California enforced by the LEA do not address air or water quality aspects of the environment that are regulated by other State or Local agencies (27 CCR § 20005(b); PRC § 43021.)

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engineer in responsible charge of the work that has sufficient knowledge of the project to draft or review and approve the submittals. (16 CCR § 404.1.)⁶

5.3 Notwithstanding anything to the contrary herein, if any of the above directives and compliance deadlines cannot be met in good faith, CCL may submit a written extension or modification request to the LEA setting forth good cause justification.

6.0 NOTICE OF FURTHER PENALTIES AND ENFORCEMENT THAT MAY RESULT FROM FAILURE TO COMPLY WITH THE LEA'S ORDER:

6.1 The LEA may impose administrative civil penalties not to exceed five thousand dollars (\$5,000) for each violation, for each day CCL is in violation of this Order. (PRC §§ 45010.1 and 45011.)

6.2 The LEA may suspend or revoke the solid waste facility permit if the facility does not meet the requirements contained in the compliance schedule issued by the LEA until the violation(s) of state minimum standards which caused the facility to be included in the Inventory are remedied. (PRC §§ 44305 and 44306, and 14 CCR §§ 18307 and 18368(b).)

6.3 The LEA may file a petition in the Superior Court for an injunction to enforce compliance with this Order. (PRC §45014; 14 CCR § 18304.1.)

6.4 Upon failure to comply with the Order, the LEA may file a petition in the Superior Court to impose upon CCL civil penalties of not more than ten thousand dollars (\$10,000) for each day CCL intentionally or negligently violates this Order. (PRC §§ 45023 and 45024.)

⁶ Per the Professional Engineers Act, California Business & Professions Code (B&P) §§ 6700 – 6799, an engineering report shall be prepared by, or under the responsible charge of a licensed civil engineer and shall include his or her name and license number. (B&P § 6735.) It must also be signed and stamped as required. (16 CCR § 411.1.) Engineering decisions that could create a hazard to life, health, property or public welfare must be made by the engineer in responsible charge. (16 CCR § 404.1.) While not directly related to this Order, the LEA notes that recent TMP reports, for example, the March 27, 2025 TMP reports for February 13, 2025 to March 26, 2025, include engineering opinions from CCL and SCS Engineers asserting that "This data further supports the previous conclusions of cooler temperatures near the liner and the liner's integrity being uncompromised by elevated temperatures." (See attached.) CCL may choose to not provide such information on the TMP reports, but if CCL and SCS Engineers continue to provide engineering opinions, they shall provide the name and license number of the engineer responsible for said opinion on the report.

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6.5 The LEA and/or CalRecycle shall not be liable for injuries or damages to persons or property resulting from acts or omissions by CCL or related parties in carrying out activities pursuant to this order, nor shall the LEA and/or CalRecycle be held as a party to any contract entered into by CCL or its agent(s) in carrying out activities pursuant to this Order.

6.6 Nothing in this Order shall constitute or be construed as satisfaction or release from liability for any conditions or claims arising as a result of past, current, or future operations. Notwithstanding compliance with the terms of this Order, CCL may be required to take further actions as necessary to protect public health and safety or the environment.

6.7 This Order does not relieve CCL from complying with all other local, state, and federal requirements or prevent the LEA and/or CalRecycle from taking any and all other actions allowed by law.

6.8 This Order is supported by the accompanying declaration by Karen Gork.

6.9 This Order may only be amended in writing by an appropriate representative of the LEA.

6.10 The LEA reserves the right to modify the directives outlined in this Order as new data becomes available.

7.0 RIGHT TO APPEAL

7.1 CCL has the right to appeal this Order (PRC §§ 44307 and 44310) by submitting a written request for a hearing, together with a statement of issues on which appeal is based, within 15 days. Request for Hearing is provided with this Order. The appeal must be sent via U.S. Mail to Los Angeles County Public Health, Solid Waste Management Program/Local Enforcement Agency (LEA), 5050 Commerce Drive, Baldwin Park, Ca 91706, Attention: Karen Gork or via electronic mail to kgork@ph.lacounty.gov.

7.2 An appeal does not stay the effect of any provision of this Order. However, you may petition the Director of CalRecycle, in writing, to stay the effect of this Order, or portion thereof, pending the completion of administrative appeals. (PRC § 45017.) A petition submitted must be in writing and shall state the extraordinary circumstances that justify the stay. The petition shall also state the grounds, if any, on which a finding may be made that the immediate effect of the

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order or determination will preclude or interfere with the provision of an essential public service so that the public health and safety or the environment will be adversely affected.

8.0 CERTIFICATION

8.1 This Compliance Order Pertaining to 27 CCR § 20750 is issued as of the date set forth below.

Signed: Liza Frias Date: May 1, 2025
Liza Frias, Director, Environmental Health
Los Angeles County LEA

Attachments:

Declaration
October 16, 2023 CalRecycle Letter
October 17, 2023 LEA Letter
November 14, 2023 CalRecycle Letter
November 21, 2023 LEA Letter
May 15, 2024 CalRecycle Inclusion Letter
February 8, 2024 CalRecycle Notification Letter
June 6, 2024 LEA Compliance Order without attachments
September 24, 2024 LEA Letter
Technical Memorandum from Dr. Timothy Stark dated February 26, 2025
April 1, 2025 LEA Letter
CalRecycle Letter dated March 28, 2025
March 19, 2025 LEA Letter
March 27, 2025 email from Steve Cassulo, Waste Connections District Manager, to Ken Habaradas at LEA re: Chiquita Canyon Landfill – TMP Temperature Submittal
Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for February 13, 2025 to March 26, 2025, SCS Engineers, dated March 27, 2025
Request for Hearing Form



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Declaration

I, Karen Gork, declare under penalty of perjury under the laws of the State of California that the following information is true and correct:

1. I am duly employed as a Chief Environmental Health Specialist (CEHS) in the Solid Waste Management Program for the Environmental Health Division of the Los Angeles County Department of Public Health. In this capacity, I act as an agent of the Local Enforcement Agency (LEA).
2. I am registered with the State of California as a Registered Environmental Health Specialist (REHS).
3. The information and allegations in the accompanying Notice and Order are known to me to be correct based on information and belief. This was obtained through review of facility records, including correspondence, inspection reports, plans, and any relevant guidance from CalRecycle.

Executed at: 5050 Commerce Drive, Baldwin Park, California 91706 on May 1, 2025.

A handwritten signature in blue ink that reads "Karen Gork". The signature is fluid and cursive, with a period at the end.

CEHS, LEA



October 16, 2023

Ms. Karen Gork, MPH, REHS
Chief Environmental Health Specialist
Solid Waste Management Inspection and Enforcement Program
Los Angeles County Department of Public Health – Environmental Health
5050 Commerce Drive
Baldwin Park, California 91706

Subject: Review of the Odor Incident at Chiquita Canyon Landfill (19-AA-0052)

Dear Ms. Gork:

CalRecycle staff are providing this letter in response to your request for technical assistance in reviewing the cause of the odor incident at the Chiquita Canyon Landfill (CCL). These emissions are causing significant impacts on people living and working near the landfill, as documented by South Coast Air Quality Management District (SCAQMD) investigations. As discussed later in this letter, you and your staff should work closely with SCAQMD and the Los Angeles Regional Water Quality Control Board (RWQCB) to address the issues at the site in a manner that will effectively reduce the impacts on the communities in the near term, leading to full resolution of the underlying problems in the long term.

The following comments are provided to the Local Enforcement Agency (LEA) as assistance to support the program in carrying out its responsibilities on permitted disposal sites. The final determination as to the comments to be provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in Title 14, California Code of Regulations (14 CCR), Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the Public Resources Code.

For this technical request, I have reviewed the following documents submitted by the LEA:

- 2023 First Semi-Annual New Source Performance Standards (NSPS) and National Emissions Standards for Hazardous Air Pollutants (NESHAP) Report, Chiquita Canyon Landfill;
- 2022 First Semi-Annual NSPS and NESHAP Report, Chiquita Canyon Landfill;

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- 2022 Second Semi-Annual NSPS and NESHAP Report, Chiquita Canyon Landfill;
- 2021 First Semi-Annual NSPS and Startup, Shutdown, and Malfunction (SSM) Report, Chiquita Canyon Landfill;
- 2021 Second Semi-Annual NSPS and SSM Report, Chiquita Canyon Landfill;
- 2020 First Semi-Annual NSPS and SSM Report, Chiquita Canyon Landfill;
- 2020 Second Semi-Annual NSPS and SSM Report, Chiquita Canyon Landfill;
- 2019 First Semi-Annual NSPS and SSM Report, Chiquita Canyon Landfill;
- 2019 Second Semi-Annual NSPS and SSM Report, Chiquita Canyon Landfill;
- 2018 First Semi-Annual NSPS and SSM Report, Chiquita Canyon Landfill;
- 2018 Second Semi-Annual NSPS and SSM Report, Chiquita Canyon Landfill;
- 2017 First Semi-Annual NSPS and SSM Report, Chiquita Canyon Landfill;
- 2017 Second Semi-Annual NSPS and SSM Report, Chiquita Canyon Landfill;
- 2016 First Semi-Annual NSPS and SSM Report, Chiquita Canyon Landfill;
- 2016 Second NSPS and SSM Report, Chiquita Canyon Landfill;
- South Coast Air Quality Management District (SCAQMD) Stipulated Order for Abatement for Chiquita Canyon Landfill, Case No. 6177-4;
- 2022 SCAQMD Annual Rule 1150.1 Compliance Plan Report, Chiquita Canyon Landfill, Castaic, California;
- 2021 SCAQMD Annual Rule 1150.1 Compliance Plan Report, Chiquita Canyon Landfill, Castaic, California;
- 2020 SCAQMD Annual Rule 1150.1 Compliance Plan Report, Chiquita Canyon Landfill, Castaic, California;
- 2019 SCAQMD Annual Rule 1150.1 Compliance Plan Report, Chiquita Canyon Landfill, Castaic, California;
- 2017 SCAQMD Annual Rule 1150.1 Compliance Plan Report, Chiquita Canyon Landfill, Castaic, California
- 2016 SCAQMD Annual Rule 1150.1 Compliance Plan Report, Chiquita Canyon Landfill, Castaic, California;
- Chiquita Canyon Landfill Well Data Feb 2022 - July 2023.xlsx;
- Various Well Temperature and Well Exceedance Data, Chiquita Canyon Landfill, Castaic, California;
- 2023 Chiquita Canyon LF Reaction Area Map.pdf;
- Chiquita Site Photos;
- Various laboratory analyses for carbon monoxide by EPA Method Alt-14, fixed gasses by ASTM-D1946-90, Total Sulfur Compounds by SCAQMD 307.91, toxic organic compounds by EPA Method TO-15 from October 2022 to July 2023;
- Monthly Report for Regular Variance (Case No. 6177-3), Chiquita Canyon;
- Landfill (Facility ID 119219), Castaic, California; and
- Various reports found on the Chiquita Canyon website
<https://chiquitacanyon.com/reports/landfill-reports/>.

Background

The CCL is located at 29201 Henry Mayo Drive, Castaic, California, in northern Los Angeles County. The facility is a Class III non-hazardous municipal solid waste (MSW) landfill. The 639-acre landfill site began accepting waste in 1972. The landfill can receive up to 12,000 tons of MSW per day. The average daily tonnage in 2021 was reported to be 6,412 tons. The CCL only accepts non-hazardous solid waste for disposal, including municipal solid waste, green waste for composting or recycling, construction and demolition debris, and e-waste for recycling. The facility is prohibited from accepting hazardous waste that is ignitable, corrosive, reactive, or toxic. The landfill also does not accept biohazardous waste, household hazardous waste, radioactive materials, incinerator ash, sludge, automobile shredder waste, or liquid waste.

Recently, the CCL has experienced a significant increase in the number of odor complaints. In 2022, the CCL received only seven odor complaints directly; three were filed with the South Coast Air Quality Management District (SCAQMD). From January 1, 2023, to July 31, 2023, 869 odors were reported to the SCAQMD.

Regulatory Air Monitoring

The CCL has an extensive gas collection system operated under SCAQMD Permit No. G43917. The landfill gas (LFG) flares operate under SCAQMD Permit No. G73696 and the Permit to Construct Application No. 624296, while the LFG condensate collection and storage system operates under SCAQMD Permit No. G66132. The landfill site is permitted under the SCAQMD Title V permit (Facility ID No. 119219).

The LFG to Energy Facility (LFGTE) accepts LFG but is owned and operated by Ameresco Chiquita Canyon Energy LLC (Ameresco). The Ameresco facility operates under its own SCAQMD Title V permit.

The CCL is subject to the old and revised New Source Performance Standards (NSPS). The CCL submits semi-annual reports to the SCAQMD and the United States Environmental Protection Agency (USEPA) in compliance with 40 Code of Federal Regulations (CFR) Subpart WWW. In 2021, USEPA revised NSPS regulations and removed the oxygen limit for interior wells and the associated additional corrective action/enhanced monitoring requirements for oxygen under Subpart XXX/AAAA. However, the CCL continues to follow the oxygen limits under Subpart XXX because this rule is still referenced in the CCL's Title V Permit.

To evaluate the odor incident, the following sections of each NSPS semi-annual report were analyzed to understand the data trends and root cause:

- Prior Higher Operating Value Requests;
- Pressure requirements;

- Temperature and Oxygen Requirements;
- Corrective Action Analysis;
- Enhanced Monitoring;
- Surface Emission Monitoring;
- Cover Integrity;
- Additional Surface Emissions Monitoring;
- Well Expansion;
- Source Test – CO Emission Rate; and
- 24-Hour Temperature.

Higher Operating Values

The CCL has submitted several HOV requests to the SCAQMD for higher oxygen and temperature limits. On August 28, 2007, the CCL requested wells B-7, B-8, B-9, B-10, B-11, B-13, CV-22, D-6, D-7, D-8, D-9, D-10, D-11, P-1, P-2, P-3, P-4, P-5, P-12, P-13, P-14, P-22, P-23, P-24, P-56, P-78, and P-79 in the old unlined portion of the landfill be allowed to operate these wells at an oxygen limit of 10% to 15%.

On May 5, 2011, the CCL requested wells CV-90, H-39, CV-57D, CV-84D, CV-84S, and CV-85D be allowed to exceed the temperature limit of 131 Fahrenheit (°F) and operate at a temperature limit of 145°F.

On January 9, 2014 the SCAQMD approved these wells for higher temperature values and approved higher oxygen levels (i.e., 10 to 15%) in wells B-7, B-8, B-9, B-10, B-11, B-13, CV-22, D-6, D-7, D-8, D-9, D-10, D-11, P-1, P-2, P-3, P-4, P-5, P-12, P-13, P-14, P-22, P-23, P-24, P-56, P-78. On December 6, 2016, the SCAQMD approved additional higher temperature values of 131°F for wells CV-76, H-52A, CV-100, CV-103, CV-104, CV-105, CV-50D, CV-50S, CV-51D, CV-51S, CV-52D, CV-52S, CV-53D, CV-53S, CV-54D, CV-54S, CV-55R, CV-56D, CV-57R, CV-74R, CV-79R, CV-107-56, CV-109-55, CV-1418, CV-1419, CV-1424, CV-1425, CV-1426, CV-1532, CV-1533, CV-108-52.

Possibly to account for where the odors are most likely being generated, the CCL used areas that settled one foot or more between June 19, 2023, and July 21, 2023. Figure 1 shows the reaction settlement area at the CCL.

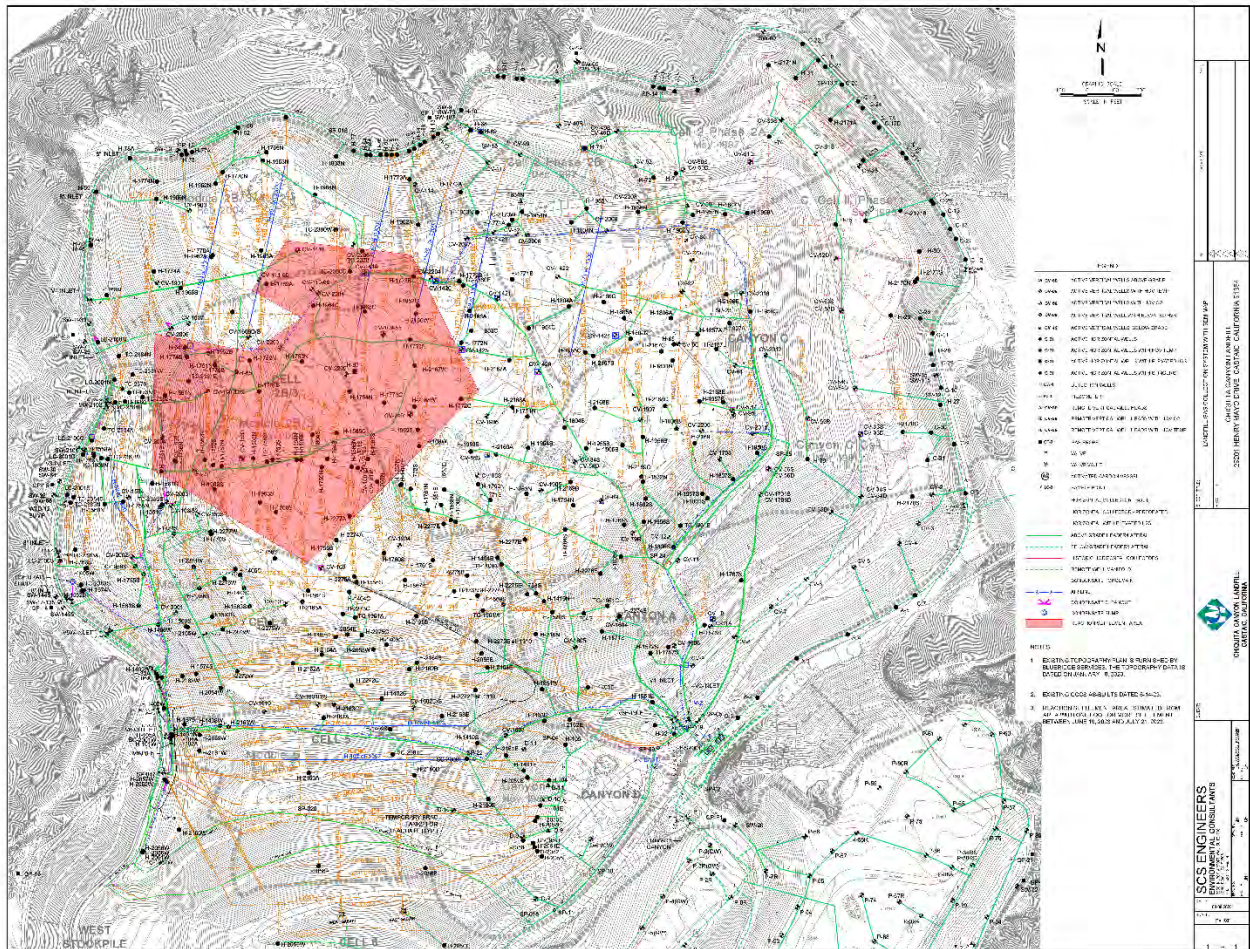


Figure 1. Reaction Settlement Area at the Chiquita Canyon Landfill. The red area was estimated using one foot or more settlement between June 19, 2023, and July 21, 2023.

Discussion

Determining if a landfill is experiencing a subsurface heating incident (i.e., gas temperatures above 145°F) involves the evaluation of the waste stream, LFG control system, landfill gas temperature and composition, carbon monoxide (CO) levels, physical evidence, odors, and accepted waste engineering practices. Heating incidents can occur from pre-combustion, combustion, post-combustion, and reactive wastes. Generally, to confirm a subsurface smoldering event (SSE), one must have visual confirmation or other physical conditions present. A smoldering event in municipal solid waste (MSW) can be confirmed by:

- Smoke emanating from the gas extraction well, sink hole, or landfill fissure;
- Combustion residue (i.e., carbon soot) in extraction wells, headers, or screens at the flare inlet;
- Black carbon tar-like substance along a fissure or crack in the area of concern;
- Unique MSW combustion odor;

- Substantial settlement over a short period (i.e., post-combustion indicator); and
- Landfill gas temperatures more than 176°F and/or levels of CO more than 1,500 parts per million by volume (ppmv) with one of the above indicators.

Several factors at a facility may affect the abovementioned parameters, including waste composition, moisture content, temperature, oxygen, compaction, landfill operations, leachate recirculation, LFG operations, cover properties, barometric pressures, waste cell construction, and other environmental issues.

A facility may also unknowingly accept reactive waste that may cause a fire or elevated temperature. Aluminum dross, incinerator ash, metal oxides, shredded tires, automobile shredder waste, sawdust, compost, pyrite, coal, or charcoal all have been shown to negatively impact the biological process with heat or directly cause a fire.

Excess oxygen can be introduced into the waste cell if a landfill's gas extraction system is not adjusted correctly or the cover and waste are not properly compacted. While high oxygen levels in a gas well do not directly correlate to a high temperature or an SSE, the more oxygen available in a gas well, the higher the risk of biological decomposition switching from anaerobic to aerobic and the greater the risk of subsurface fire.

These factors can lead to landfill temperatures above 165°F, including aerobic decomposition, pre-combustion, post-combustion, self-heating, partially extinguished surface fires, exothermic chemical reactions, spontaneous combustion, and smoldering combustion. MSW landfills have experienced elevated temperatures due to possible exothermic chemical reactions of industrial wastes, including aluminum production wastes, incinerator ash, and tires.

The most common types of landfill fires occur at the surface, where fuel and oxygen are abundant. These fires can burn between the surface and up to five feet below the ground level. Other subsurface fire events are initiated and develop deeper in the landfill and can extend past 50 feet or more below the ground level depending on geological and site conditions.

An operator can either increase or decrease the potential for a smoldering or heating event with how the waste is compacted and covered and how the landfill gas is controlled. A typical subsurface fire starts from overdrawn a gas collection system that allows oxygen to enter the waste prism. These fires start around or near a surface feature that allows oxygen to enter the waste mass and oxidize the organic matter. Most subsurface fires in gas collection systems are detected by elevated temperatures at the wellhead or by detecting CO or soot in the gas collection system. These fires are more likely to burn slowly without visible flame or large quantities of smoke and are characterized by rapid oxidation of organic waste. At times, combustion/oxidation will go undetected until a sinkhole (i.e., differential settlement) or smoke appears. Usually, an individual will not see actual flame or dark black smoke during smoldering events unless the subsurface fire is excavated or exposed to the atmosphere.

Carbon Monoxide

Smoldering combustion has been shown to produce CO concentrations of 1 to 10 percent (10,000 ppmv to 100,000 ppmv). In contrast, flaming combustion generally produces less than 0.02 percent (200 ppmv) CO. Other landfill fire literature uses CO concentrations as low as a few parts per million to 100 ppmv as a possible positive indicator of a landfill fire (Waste Age 1984; Environment Agency 2004; Industry Code of Practice 2008). Based on other landfill fire evaluations and case studies, other processes may produce CO at these concentrations. Therefore, one should use a higher CO concentration greater than 1,500 ppmv as the threshold value to prevent false assumptions.

After examining multiple CO results and data plots of CO versus methane (CH₄) from subsurface events, I concluded CO levels greater than or equal to 1,500 ppmv can still indicate an SSE if other indicators are observed. Typically, CO from active smoldering events ranges from 1,000 to 10,000 ppmv and has been documented to exceed 28,000 ppmv as the smoldering event breaks through the surface. Like landfill temperatures, CO readings should be examined, and trend plots should be developed over time. Like temperature, CO from a smoldering event will also reside in the waste prism LFG stream for an extended time. While elevated temperatures can remain over 18 to 24 months and longer, CO concentrations will begin to drop within 1 to 6 months as the smoldering event diminishes. Since the waste is not homogeneous and other waste management practices (e.g., compaction, leachate recirculation, types of waste, daily cover, waste cell size, access roads, gas extraction collection, and rates, etc.) may vary across the landfill, proximate monitoring points may indicate different readings. The entire suspected area and monitoring points should be examined continuously.

Temperature

It is also essential to understand that waste temperatures control the quality and quantity of LFG generated and are a factor in determining if an SSE is present. The NSPS requires each owner or operator to conduct enhanced monitoring and must include the results of all monitoring activities conducted during the period [§63.1961(a)(5) and (6)]. Enhanced monitoring is required at each well with a temperature greater than 145°F. Per §63.1958(c)(1) of the NSPS, once the landfill gas temperature measured at either the wellhead or at any point in the well is greater than or equal to 170°F and the carbon monoxide concentration measured is greater than or equal to 1,000 ppmv, the owner or operator must report the date, time, well identifier, temperature, and carbon monoxide reading via email to the Administrator within 24 hours.

Typically, I consider temperatures over 170°F an indicator of a heating event in MSW and not as confirmation of a fire. Around temperatures of 176°F, anaerobic biological decomposition ceases, and methane production drops significantly, approaching zero. Depending on site conditions and the time it takes to reach the upper threshold of 176°F, one should investigate the heating incident further. Figure 2 shows this trend at

the CCL.

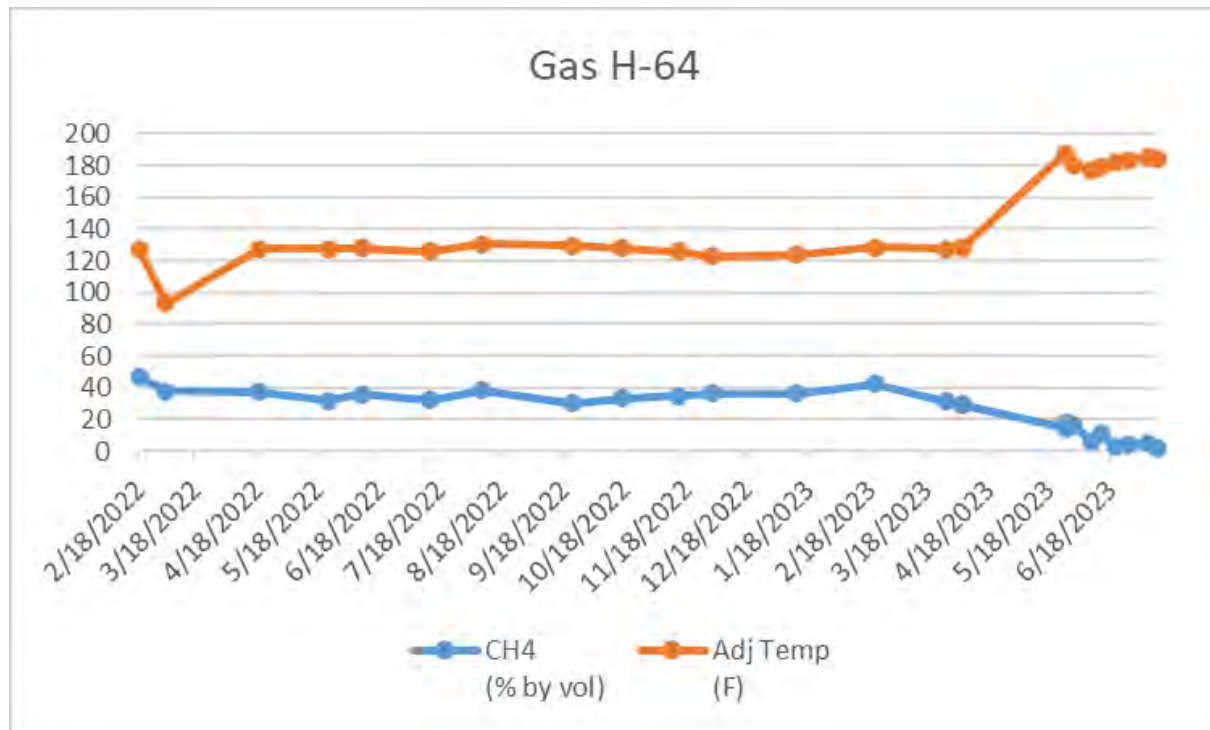


Figure 2. Gas Control Well H-64 – percent methane concentrations versus temperatures at Chiquita Canyon Landfill from February 2022 to July 2023.

If the temperature exceeds 200°F, significant damage can occur to the PVC well casings. PVC softens at 200°F and will begin to deform or become completely constricted as the temperature increases. The temperature at which PVC begins to degrade will vary depending on the specific grade and formulation used. Most video inspections can note if the well is damaged, pinched, collapsed, or blocked.

At 212°F, water and leachate will begin to boil. The transition from liquid to gas phase will cause an increase in volume (e.g., 1,700 times) and a resulting increase in pressure in the landfill. Additional leachate, gas, and odor have been observed in other landfills in the US when the temperature exceeds 212°F (e.g., Countywide Landfill in Ohio, Bridgeton Landfill in Missouri, Middle Point Landfill in Tennessee, and Bristol Landfill in Virginia).

Based on my experience, if temperatures exceed 350°F in an MSW and are reproducible, this temperature will confirm an SSE is occurring. Should landfill temperatures be below 350°F and above 212°F, then multiple parameters such as CO readings, physical evidence, or landfill gas ratios of CH₄ to CO₂ plots should be used to confirm SSE.

Volatile Organic Compounds (VOCs)

Smoldering combustion at waste facilities has also increased the concentration in some VOCs (e.g., benzene and methyl-ethyl ketone) one to two orders in magnitude. In general, gas concentrations of some VOCs emissions from Subtitle D landfills double with every 18°F temperature increase (ATSDR 2001). Benzene and methyl ethyl ketone are the two compounds that have consistently been found at elevated levels during landfill fire investigations. The presence of these compounds can be used to examine the likelihood of an SSE in conjunction with other parameters. According to the USEPA, benzene has also been shown to be the largest emission compound when household waste is burned.

Landfill Gas Control Systems Operation

All the smoldering events I evaluated have pre-indicators in the landfill gas control data. While the changes in the data might not initially be significant, cautionary trends can be observed when analysis is performed over a substantial period. The operator should closely monitor data for increasing oxygen and temperatures over time. The landfill operator should adjust their gas collection and control system both per the NSPS/Title V and their standard operating procedure when gas data indicates:

- Extraction system temperatures above 145°F;
- Excessive oxygen in gas collection wells greater than 5 percent; and/or
- Excessive nitrogen in gas collection wells greater than 20 percent.

The landfill operator should make additional adjustments to the landfill gas collection system and begin a heating/SSE evaluation when gas well data indicates the following trends:

- Extraction system temperatures exceeding 160°F;
- Upward temperature trend in gas collection wells greater than 5°F in less than one week;
- Dramatic downward trends in methane concentrations in less than one week;
- Methane concentrations dropping 20 percent within one month; and/or
- Excessive balance gas [e.g., primarily nitrogen (N₂)] in the gas collection wells within one month.

The operator should take additional proactive steps when any of the following conditions occur:

- Extraction system temperatures exceeding 170°F;
- The melting, collapsing, or pinching of gas collection wells or leachate collection systems;
- Methane concentrations dropping below 30 percent in a short period;
- Orders of magnitude increases in benzene and/or methyl ethyl ketone

- concentrations;
- Spike in nuisance odors;
- Change in gas composition;
- Increase in gas pressure and flow;
- Unusual rate of settlement; and/or
- Increase leachate volume and leachate outbreaks.

Findings

In this assessment, we examined parts of the old and new NSPS regulations to determine the efficiency and effectiveness of the gas collection system. Four key areas include landfill gas pressure, temperature, oxygen, and system integrity. The NSPS states that the owner shall operate the collection system with negative pressure at each wellhead except for (1) a fire or increased well temperature, (2) the use of a geomembrane or synthetic cover, and (3) a decommissioned well. New and old NSPS states that each interior wellhead in the collection system should operate with a temperature less than 131°F degrees (Subpart WWW and XXX) and 145°F (Subpart AAAA) with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent (Subpart WWW only). I also examined SCAQMD Annual Rule 1150.1 Compliance Plan Reports and other CCL reports and data. To start the assessment, I sorted the CCL Well Data Excel file by the highest temperature to understand the current condition of the incident. I also reviewed other parts of the semi-annual reports to help determine if the heating/smoldering event is contracting, expanding, or holding constant over time.

Heating/Smoldering Event

From all the available information, the heating/smoldering event at CCL is occurring in MSW and not in reactive waste such as aluminum dross, incinerator ash, metal oxides, or other non-MSW that would cause a chemical reaction. The data reviewed did not reveal any documented slope instability that would cause gas wells to be blocked, damaged, plugged, or pinched. As of July 21, 2023, the Reaction Settlement Area is experiencing increasing temperature and CO levels and is expanding in size. The highest temperatures in the gas well field were recorded in July 2023. A trend analysis of the reported CO sampling results showed CO is increasing in nine wells, remaining stable in three wells, and decreasing in five wells. Figures 3, 4, and 5 show the CO concentration trend analysis in three monitoring wells required to undergo enhanced monitoring per the NSPS.

The heating/smoldering event appears to spread to gas wells CV-2003 and TC2382E. Well H-1561C was previously impacted but is showing a decrease in temperature over time. Also, wells H-1803N and CV-55R appear affected by elevated temperatures and CO readings. Well TC-2385A is new and not shown on the Reaction Settlement Area map, but it is also experiencing high temperatures.

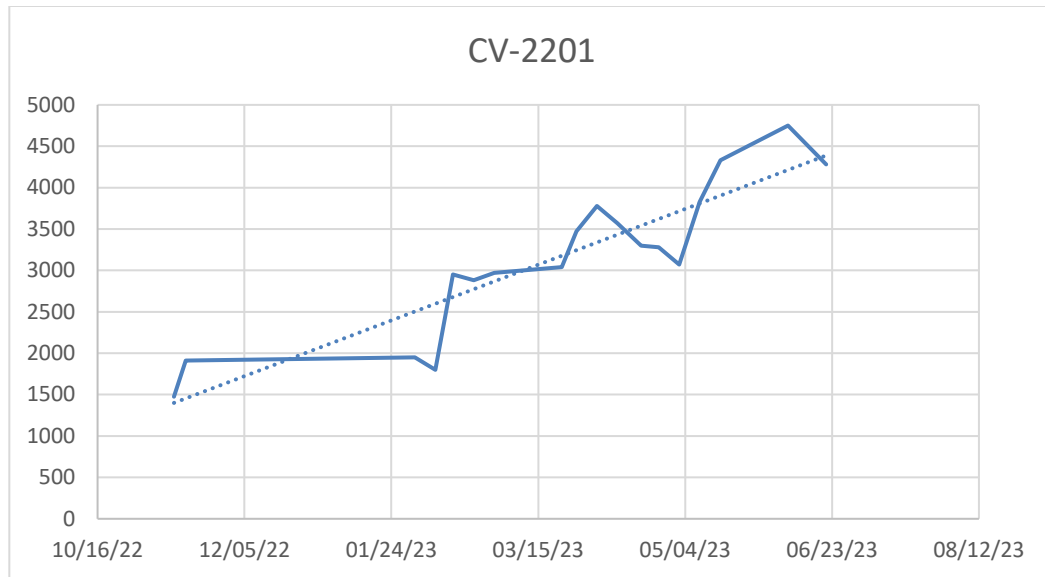


Figure 3. Enhanced Monitoring for Well CV-2201 with a positive CO trendline at the Chiquita Canyon Landfill.

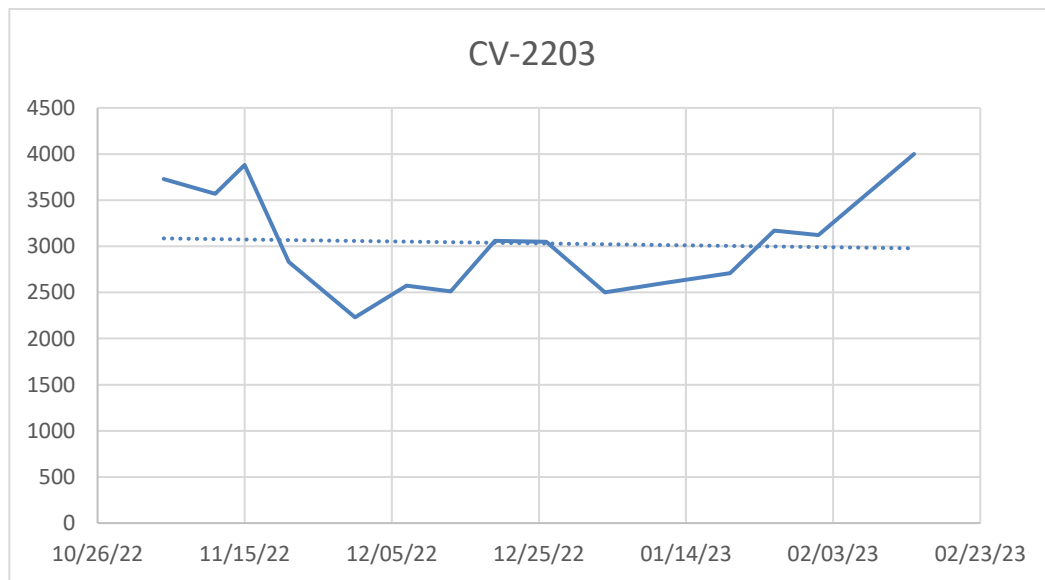


Figure 4. Enhanced Monitoring for Well CV-2203 with a neutral CO trendline at the Chiquita Canyon Landfill.

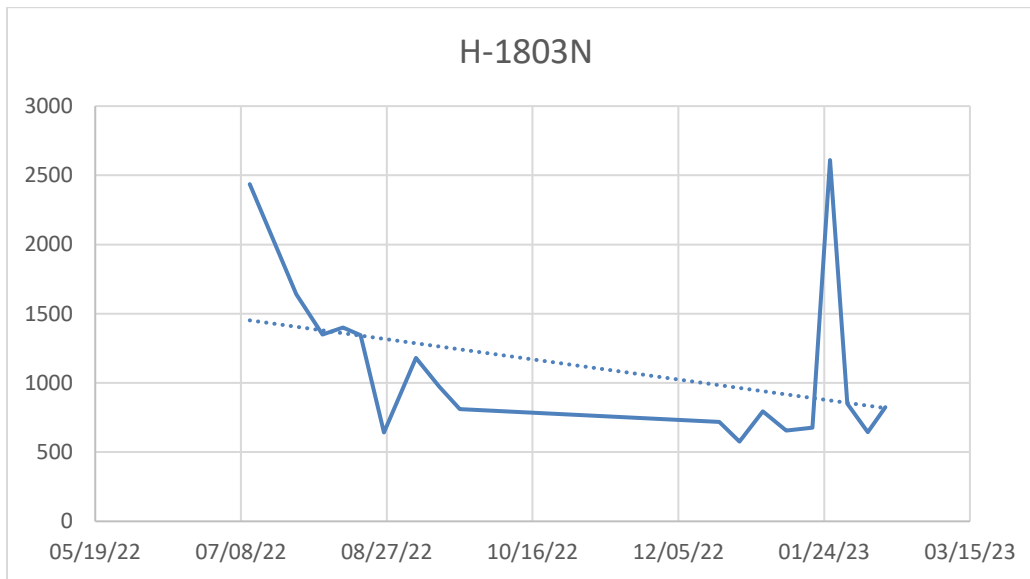


Figure 5. Enhanced monitoring for Well H1803 with a negative CO trendline at the Chiquita Canyon Landfill.

Point of Origin

Based on the available LFG data from February 1, 2022, to July 31, 2023, the pre-combustion/SSE incident may have started at gas control well CV-109-55 and spread to CV-1419 and then CV-1418. However, using the SCAQMD Annual Rule 1150.1 Compliance Plan Reports from 2016, 2017, 2019, 2020, 2021, and 2022, the CCL temporarily decommissioned or decommissioned several wells due to the concern for a potential subsurface oxidation. In 2017, only one well was decommissioned due to the pinched casing and high oxygen levels. No data was available for 2018, but in 2019, 31 wells were temporarily decommissioned or abandoned due to high oxygen levels and the concern for potential subsurface oxidation. In 2020, 69 wells were temporarily decommissioned or decommissioned due to high oxygen levels or poor gas generation and the concern for potential subsurface oxidation. In 2021, the number of wells temporarily decommissioned or decommissioned was 83; in 2022, it was 34. Also, in 2022, two unique events were noted in Appendix B of the report labeled "Flare Station Periods Offline for More Than One Hour." Two offline events occurred on April 6, 2022, and April 26, 2022, noting that the combustion air blower in FL-100 accumulated too much dirt and debris, causing a highly restricted airflow, resulting in FL-100 shut down due to low combustion airflow. Further information and photos should be collected on these two events to ensure this was not soot or particles resulting from a smoldering event.

Additional field gas data from January 2019 to January 2022 will be necessary to trace this incident further or to determine if multiple incidences have occurred. Table 1 provides the temperature data where the most significant temperature change occurred in February 2022.

Table 1. Possible location of initial pre-combustion/SSE incident location at Chiquita Canyon Landfill, 2022.

Well	Date/Temp	Date/Temp	Change in Temperature
CV-109-55	2/1 - 164°F	2/23 - 169°F	5°F
CV-1419	2/17 - 151°F	2/23 - 186°F	35°F
CV-1418	2/23 @ 10:51 am 101°F	2/23 @ 11:06 am 140°F	39°F

Temperatures

While one of the highest reported gas well temperatures occurred on July 18, 2023, in CV-1418 at 197°F, the SCAQMD reported the highest temperature to date was 201°F on September 26, 2023, at well CV-2393.

While gas wellhead temperatures can be a reliable data point, temperatures in the well can be up to 100 °F lower than those measured deeper. Gas wellhead temperature can be diluted given the depth of the screen and volume of gas being extracted. For example, a gas well in Hawaii reported a temperature at the wellhead to be 128°F. However, the measured temperature at 80 feet below ground surface was 233°F. This 105°F swing in gas wellhead temperature can indicate other reactions are occurring.

Per NSPS §63.1958(c)(1) requirements, the CCL reported seventeen wells that were over 170°F or had CO measurements over 1,000 ppmv in the first semi-annual report of 2023. This regulation requires the operator to collect CO samples in the gas well and collect a temperature profile in the well. Several gas wells had higher temperatures in the well than at the wellhead. At CV-2201, the wellhead temperature was recorded at 135°F while the down well was 187°F. The 52°F temperature difference is a significant result. Temperature and carbon monoxide must be applied when determining which wells to perform a down well temperature survey every 10 feet. Two CCL wells were below the enhanced monitoring requirement temperature of 145°F at the wellhead but over the 170°F threshold in the down well temperatures. Table 2 provides the results of the wellhead temperature vs. actual below-ground temperatures at the CCL for July 2023.

Table 2. Enhanced monitoring down well temperatures (F) at Chiquita Canyon Landfill, July 2023 (Source: 2023 First Semi-Annual NSPS and NESHAP Report).

Enhanced Monitoring Down Well Temperatures (°F)			
Well	Wellhead Temp (°F)	Highest Temp (°F) in Well @ Depth	Comments from 2023 First Semi-Annual NSPS and NESHAP Report
CV-55R	148	166	Damage well casing at 20ft.
CV-1418	Not Collected		Tape got stuck and destroyed at 130ft. Total depth possibly not accurate.
CV-1419	Not Collected		4 meters suspect well is plugged/pinched.
CV-1532	153	153	Possible well casing damage. Unable to proceed past 20ft.
CV-1902D	141.5	188*	(*Note: temp difference of 46.5°F)
CV-2003	154	179	
CV-2004	166	175	
CV-2201	135	187*	(*Note: temp difference of 52°F)
CV-2202	Not Collected		Unable to monitor down well temp with sounder due to safety.
CV-2204	Not Collected		Unable to monitor down well temp with sounder due to safety.
H-1561C	146	153	Well likely damaged at 16ft. Casing leaning over.
H-1561N	168	180	Likely casing damage at 10ft.
H-1774A	173	172	
H-64	183	177	
H-67	173	158	
TC-2381W	129	128	New trench collector on West slope.
TC-2382E	173	172	New trench collector on West slope.

The number of temperatures exceeding 170°F in the gas wells may also pose a risk to the liner system at the CCL. Assessing temperature impacts on the service life of geomembrane (GM) liners can be a critical pathway for heating incidents if temperatures are observed in the leachate collection system above 130°F. Temperature plays the most crucial role in GMs' physical and chemical properties.

Carbon Monoxide

During the 2023 first semi-annual NSPS report, the CCL collected 224 CO samples from the LFG wells per the enhanced monitoring requirement provision of the revised NSPS. The results indicate that 154 out of 224 (or 68 percent) of the samples exceed 1,500 ppmv. The highest CO readings were at well CV-1419 (6,550 ppmv CO) and well CV-1902D (6,240 ppmv CO). In comparison, only one well was required to have enhanced monitoring in the first semi-annual report of 2022.

Using the previously discussed criteria, a map of the heating/smoldering event as of

July 2023 is shown in Figure 6. Wells with CO above 1,500 ppm (indicated by a green circle) and temperatures over 170°F (indicated by a blue circle) were plotted on the CCL's Reaction Settlement Area Map. Circles that share a boundary indicate the well has high CO and temperature.

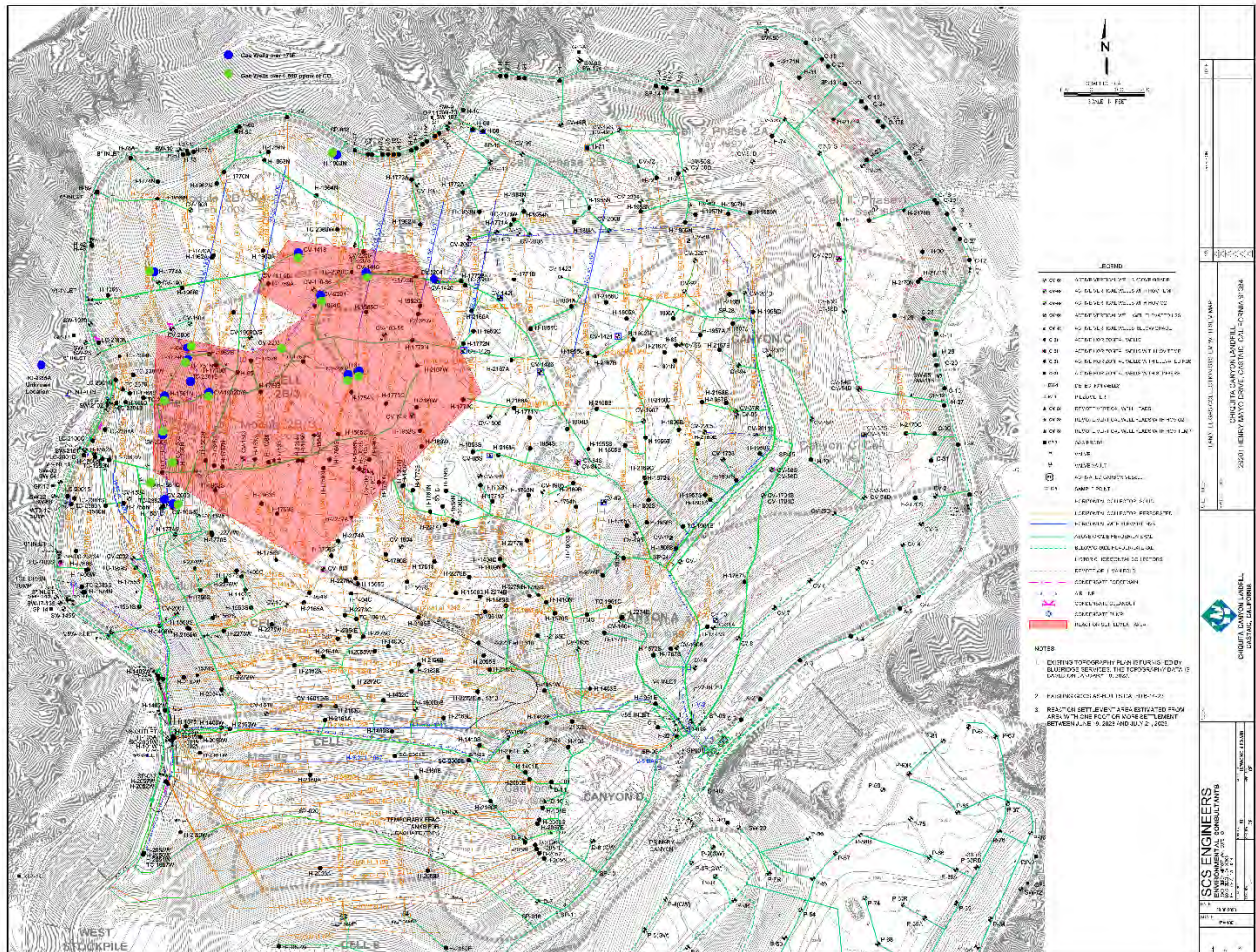


Figure 6. Gas Wellheads exceeding temperatures over 170°F and CO over 1,500 ppmv at the Chiquita Canyon Landfill, July 2023.

Landfill Gas Well Performance

While comparing landfill gas system performance from 2022 to the first half of 2023 is challenging, the Chiquita Canyon Landfill Well Data from February 2022 to July 2023 Excel file was used to develop a ratio of gas well data per day. The most significant result was that the number of positive pressure wells (initial static pressure) per day in 2023 doubled compared to 2022. If an extraction well has positive pressure, then gasses and odor are more likely to be released from the landfill in that area. To examine past performance, I picked six months in 2016 from the semi-annual report and found only one reported positive pressure event. Based on the odors and landfill gas performance data, the landfill gas control system is not effectively controlling LFG

emissions in areas where positive pressure is measured in wells. Additionally, the CCL landfill operations continue to overdraw oxygen above five percent, increasing the risk of an SSE. Table 3 summarizes the gas well performance for the amount of oxygen in each well, the number of wells with zero flow, and the number of wells with positive initial static pressure above 0.1 inches of water.

Table 3. Gas well performance at Chiquita Canyon Landfill, 2016, 2022, and 2023.

Gas Well Performance at CCL					
Gas Well Data	2022 Data	# per day	2023 Data	# per day	2016 Data
Wells with 0% Oxygen	4520	13.65	3175	17.63	Jan to June 2016
Oxygen from 0.1 to 5.0%	1630	4.92	4189	23.27	
Oxygen from 5.1 to 10.0%	218	0.65	111	0.61	
Oxygen from 10.1 to 15.0%	152	0.45	95	0.52	
Oxygen from 15.1 to 20.0%	212	0.64	100	0.55	
Oxygen from 20.1 to 22.2%	66	0.19	80	0.44	
0.0 Initial Flow (scfm)	2225	6.72	1493	8.29	
Positive Initial Pressure > 0.1 in H2O	252	0.76	287	1.59	1
Number of Monitoring Days	331		180		181

Odors

The odors at the CCL are from a heating/smoldering incident in the waste. The doubling of positive wells from 2022 to 2023 is a concern and shows the gas collection system is not correctly capturing the gas and odors. Some temperatures in the reaction zone of the landfill are most likely above 200°F, causing additional gas pressure and damage to the gas extraction wells.

Data Discrepancies

The well data covered a period from February 1, 2022, to July 31, 2023. Data for some wells appeared missing for several reporting periods; however, all these discrepancies were explained in the semi-annual reports. These wells were either decommissioned due to filling operations, abandoned, or not placed in service. The well data file did have other discrepancies. There were 100 lines in the spreadsheet that had date and time field entries but no landfill gas data. Table 4 provides an example of the data discrepancies.

Table 4. An example of data discrepancies in the Chiquita Canyon Landfill Well Data Excel file where the gas data is missing, but data and time are logged.

CV-2203	12/13/2022 09:07	1.00	84.30	0.00	14.70	151.20	151.20	-18.89	-18.89	68.40	67.00	-26.14	Comments:No Adjustments Made,High Temp,Barely Open,Surging Liquid in Well (Watered In),,,,
CV-2203	12/13/2022 09:11												
CV-2203	12/13/2022 09:11												6.1% H2
CV-2203	12/19/2022 10:01												6.4% H2
CV-2203	12/19/2022 10:04	1.30	85.10	0.00	13.60	151.50	151.40	-22.80	-22.13	65.80	68.20	-25.17	Comments:NSPS/EG CAI,High Temp,Decreased Flow/Vacuum,Surging Liquid in Well (Watered In),,,,
CV-2203	12/19/2022 10:26												
CV-2203	12/21/2022 10:10	1.10	85.90	0.00	13.00	149.90	149.90	-16.56	-17.31	45.00	41.80	-19.13	Comments:NSPS/EG CAI,High Temp,Increased Flow/Vacuum,Surging Liquid in Header,,,,

Conclusion and Recommendations

Based on my professional experience, education, training, site documentation, available CCL reports, and personal knowledge of solid waste engineering with smoldering and heating events, I have determined with a reasonable degree of professional and scientific certainty that the CCL has sustained the following conditions during the past eighteen months:

- Cover integrity issues;
- Increased temperatures and pressures in the landfill gas control systems and waste mass;
- Oxygen intrusion above 5 percent by volume;
- Landfill gas temperatures over 170°F;
- Landfill subsurface temperatures over 195°F;
- Decreased methane production;
- Elevated carbon monoxide concentrations above 1000 ppmv;
- Unusually landfill settlement;
- Damage gas wells; and
- Poor gas well performance in and around the Reaction Settlement Area; and
- The heating/smoldering event is expanding in size and intensity.

These conditions at the CCL are causing additional gas pressure, odors, elevated leachate temperatures, and damage to the gas extraction system. The landfill gas generated in and around the reaction settlement area has exceeded the designed gas generation flow rate and caused increased emissions and odors. Since there are short-term and long-term environmental control issues, CalRecycle recommends working with SCAQMD and the RWQCB to address the gas control, emission, odors, and leachate issues.

To reduce the odors and better define the reaction, the CCL may want to consider the following actions:

1. Repair cracks in the soil cover within 48 hours in and around the Reaction Settlement Area and any well showing signs of a reaction;
2. Place and compact a minimum cover of 24 inches of 1×10^{-6} low permeability soil in and around the Reaction Settlement Area and a radius of 30 feet of soil around any well with temperatures over 160°F or CO concentrations over 1,500 ppmv;
3. Install well boots seals on all wells in and adjacent to the Reaction Settlement Area and any wells with temperatures over 160°F or CO concentrations over 1,500 ppmv;
4. Replace all PVC wells that have been damaged, blocked, pinched, or that have gas temperatures over 145°F with steel wells;
5. Install additional steel wells in the Reaction Settlement Area and other areas where the gas extraction temperature exceeds 170°F to capture the additional gas generated by the incident;
6. Once additional gas extraction capacity is installed, remove all oxygen HOVs for interior gas wells and operate gas extraction wells with less than 3 percent oxygen where feasible. Use best management practices to keep oxygen below 5 percent in an interior well;
7. Measure the leachate temperature at the liner level and all sumps;
8. Sample the leachate for benzene and other volatile organic compounds. Past incidents similar to Chiquita Canyon in Bridgeton and Bristol have shown that heating event increases the levels of VOCs in the leachate;
9. Install temperature monitoring devices in and around the Reaction Settlement Area and other areas where gas temperatures exceed 170°F or CO over 1000 ppm. These devices should be installed within 25 ft of a vertical LFG extraction well. These temperature devices should be able to sustain temperatures up to 750°F and be installed in boreholes up to 150 feet deep. The temperature devices should be spaced at 20-foot intervals and based on previous designs from SCS Engineering projects in Bridgton, San Diego, and Bristol. Since the temperature profiles were not successfully collected at the required enhanced gas wells C-55R, CV-1418, CV-1419, CV-1532, CV-2202, CV-2204, H-1561C, H-1561N, below-ground temperature devices should be first installed at these wells;
10. The landfill owner should review available internal manifests or other documents as far back as possible to ensure no reactive material was accepted at this landfill;
11. The landfill owner should hire an odor expert to determine which chemicals are causing the odor. A past expert at Bridgeton Landfill in Missouri identified a set of chemicals causing the greatest odor. Once the chemicals are identified, additional toxicological assessment can be performed;
12. Design and install a temporary geomembrane cover over the Reaction Settlement Area and other areas where gas temperatures have exceeded 170°F or CO over 1000 ppm once additional gas extraction capacity is operational;
13. Consider installing remote telemetry technology to continuously collect and analyze landfill gas data at the collection wells. The real-time data and control platform can instantaneously measure and report wellhead temperatures, pressures, O₂, CO, and methane concentrations. Remote access to the real-time data should be provided to regulatory agencies;
14. Consider utilizing a drone or land rover equipment with GPS, methane, and gas

sensors to conduct daily instantaneous surface monitoring and provide real-time data throughout the Reaction Settlement Area and adjacent areas of concern. This technology can facilitate immediate operational changes, including flagging hot spots, surface cracks, and fissures.

15. To better understand and communicate to the community if the heating/smoldering event is expanding or increasing in intensity, the CCL should submit monthly figures and data showing the reaction area, CO level, and temperature data.

Please do not hesitate to contact me by telephone at (916) 341-6356 or by email at Todd.Thalhamer@Calrecycle.ca.gov if you have comments or questions.

Sincerely,



Todd Thalhamer, P.E.
Senior Waste Management Engineer
CalRecycle

Cc: Shikari Nakagawa-Ota, Los Angeles County Department of Public Health
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October 17, 2023



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VIA EMAIL ONLY

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Subject: **CHIQUITA CANYON LANDFILL (SWIS No. 19-AA-0052)
CALRECYCLE REVIEW OF THE ONGOING ODOR INCIDENT AT
CHIQUITA CANYON LANDFILL**

Dear Mr. Cassulo:

In response to significant increases in landfill gas production and emission, leachate, and odors at the Chiquita Canyon Landfill (CCL), the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), requested CalRecycle to provide its technical expertise and assistance in determining the cause of these multiple serious issues. Please find the enclosed October 16, 2023 correspondence from CalRecycle that contains its analysis of the conditions that are causing these issues at the CCL.

As part of this analysis, CalRecycle conducted a comprehensive review of multiple years of CCL records. It focused its analysis on CCL's carbon monoxide concentrations, recent landfill gas temperatures at CCL, CCL's landfill gas control system operation, and other operational factors. The CalRecycle analysis determined that the CCL has sustained the following conditions during the past 18 months:

- Cover integrity issues;
- Increased temperatures and pressures in the landfill gas control systems and waste mass;
- Oxygen intrusion above 5% by volume;
- Landfill gas temperatures over 170°F;
- Landfill subsurface temperatures over 195°F;
- Decreased methane production;
- Elevated carbon monoxide concentration above 1000 ppmv;
- Unusual landfill settlement;
- Damaged gas wells;
- Poor gas well performance in and around the Reaction Settlement Area; and
- A heating/smoldering event that is expanding in size and intensity.

Importantly, CalRecycle concluded that these “conditions at the CCL are causing additional gas pressure, odors, elevated leachate temperatures, and damage to the gas extraction system.” These are serious issues and have likely caused the many violations cited by the South Coast Air Quality Management District (SCAQMD) investigations this year. The CalRecycle analysis presents compelling evidence that the CCL needs to act promptly to address the current conditions for the protection of public health and the environment.

To address the multiple abnormal conditions being experienced at the CCL, CalRecycle has made the following recommendations to immediately address landfill gas control, emission, odor and leachate issues. CCL should implement the recommended mitigation measure and continue to work with the appropriate State and local agencies to resolve the odor nuisance and the serious conditions at the landfill.¹ If prompt steps are not taken, the condition is likely to worsen, and may threaten the integrity of the landfill, thereby compromising the landfill cover. (See, 27 California Code of Regulations (“CCR”) §§ 20680 and §20700).

Accordingly, the LEA now expects CCL to take the following corrective and mitigation actions:

1. Repair cracks in the soil cover within 48 hours in and around the Reaction Settlement Area and any well showing signs of a reaction;
2. Place and compact a minimum cover of 24 inches of 1 x10-6 low permeability soil in and around the Reaction Settlement Area and a radius of 30 feet of soil around any well with temperatures over 160°F or CO concentrations over 1,500 ppmv;

¹ California's environmental laws are enforced by state and local agencies, each responsible for enforcing the laws governing a specific media such as air, water, hazardous waste, solid waste, and pesticide laws. Therefore, regulations governing solid waste disposal in the State of California enforced by the LEA do not address air or water quality aspects of the environment that are regulated by other state or local agencies. (27 CCR § 20005(b); Public Resources Code § 43021).

3. Install well boots seals on all wells in and adjacent to the Reaction Settlement Area and any wells with temperatures over 160°F or CO concentrations over 1,500 ppmv;
4. Replace all PVC wells that have been damaged, blocked, pinched, or that have gas temperatures over 145°F with steel wells;
5. Install additional steel wells in the Reaction Settlement Area and other areas where the gas extraction temperature exceeds 170°F to capture the additional gas generated by the incident;
6. Once additional gas extraction capacity is installed, remove all oxygen HOVs for interior gas wells and operate gas extraction wells with less than 3 percent oxygen where feasible. Use best management practices to keep oxygen below 5 percent in an interior well;
7. Measure the leachate temperature at the liner level and all sumps;
8. Sample the leachate for benzene and other volatile organic compounds. Past incidents similar to Chiquita Canyon in Bridgeton and Bristol have shown that heating event increases the levels of VOCs in the leachate;
9. Install temperature monitoring devices in and around the Reaction Settlement Area and other areas where gas temperatures exceed 170°F or CO over 1000 ppm. These devices should be installed within 25 ft. of a vertical LFG extraction well. These temperature devices should be able to sustain temperatures up to 750°F and be installed in boreholes up to 150 feet deep. The temperature devices should be spaced at 20-foot intervals and based on previous designs from SCS Engineering projects in Bridgeton, San Diego, and Bristol. Since the temperature profiles were not successfully collected at the required enhanced gas wells C-55R, CV-1418, CV-1419, CV-1532, CV-2202, CV-2204, H-1561C, H-1561N, below-ground temperature devices should be first installed at these wells;
10. The landfill owner should review available internal manifests or other documents as far back as possible to ensure no reactive material was accepted at this landfill;
11. The landfill owner should hire an odor expert to determine which chemicals are causing the odor. A past expert at Bridgeton Landfill in Missouri identified a set of chemicals causing the greatest odor. Once the chemicals are identified, additional toxicological assessment can be performed;
12. Design and install a temporary geomembrane cover over the Reaction Settlement Area and other areas where gas temperatures have exceeded 170°F or CO over 1000 ppm once additional gas extraction capacity is operational;
13. Consider installing remote telemetry technology to continuously collect and analyze landfill gas data at the collection wells. The real-time data and control platform can instantaneously measure and report wellhead temperatures, pressures, O₂, CO, and methane concentrations. Remote access to the real-time data should be provided to regulatory agencies, i.e., SCAQMD;
14. Consider utilizing a drone or land rover equipment with GPS, methane, and gas sensors to conduct daily instantaneous surface monitoring and provide real-time data throughout the

Steve Cassulo, District Manager
Chiquita Canyon Landfill
October 17, 2023
Page 4 of 4

Reaction Settlement Area and adjacent areas of concern. This technology can facilitate immediate operational changes, including flagging hot spots, surface cracks, and fissures.

15. To better understand and communicate to the community if the heating/smoldering event is expanding or increasing in intensity, the CCL should submit monthly figures and data showing the reaction area, CO level, and temperature data.

The LEA requests that the CCL provide a written response and timeline to address the recent conditions sustained by the CCL in the prior 18 months and the 15 CalRecycle recommended corrective and mitigation actions by Friday, October 20, 2023. The LEA recognizes the CCL is experiencing a significant heating and smoldering event, which must be mitigated, controlled and corrected.

Thank you for your anticipated cooperation. Should you have any questions regarding the foregoing, please contact me.

Sincerely,



Karen Gork, Chief Environmental Health Specialist
Los Angeles County LEA

Enclosure

cc: (Via electronic correspondence only)

- 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
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- Blaine McPhillips, Senior Deputy County Counsel
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- Douglas Cross, Los Angeles Regional Water Quality Control Board (dcross@waterboards.ca.gov)

November 14, 2023

Ms. Karen Gork, MPH, REHS
Chief Environmental Health Specialist
Solid Waste Management Inspection and Enforcement Program
Los Angeles County Department of Public Health – Environmental Health
5050 Commerce Drive
Baldwin Park, California 91706

Subject: Review Chiquita Canyon Landfill (19-AA-0052) Response Letter

Dear Ms. Gork:

CalRecycle staff are providing this letter in response to your request for technical assistance in reviewing the Chiquita Canyon Landfill (CCL) response letter concerning the odor incident.

The following comments are provided to the Los Angeles Local Enforcement Agency (LEA) as assistance to support the program in carrying out its responsibilities on permitted disposal sites. The final determination as to the comments to be provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in Title 14, California Code of Regulations (14 CCR), Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the Public Resources Code.

For this response, I visited the site on November 2, 2023, and reviewed the following documents submitted to the LEA:

- Chiquita Canyon Landfill Response to CalRecycle Review of the Odor Issues at CCL, dated October 20, 2021;
- SCS Engineers Reaction Area Map, de-watering for CCL dated November 1, 2023;
- SCS Engineers Reaction Area Map, existing wells for CCL dated November 1, 2023;
- SCS Engineers De-watering System Layout or CCL dated September 15, 2023; and
- SCS Field Services Boring Log for the new wells installed July to October 2023.

Site Visit

A multi-agency site visit was conducted on November 2, 2023. Staff from the LEA, CalRecycle, South Coast Air Quality Management District (SCAQMD), Los Angeles

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Regional Water Quality Control Board (RWQCB), Department of Toxic Substances Control (DTSC), and the United States Environmental Protection Agency (USEPA) toured the site with CCL staff. During the visit, CCL staff discussed the remedial and odor control actions they had implemented. The CCL has installed 48 new gas control wells. Based on temperature readings during drilling, the new gas wells were constructed using either PVC-SHC 80, CVPC-SHC 80, or stainless steel. While installing the stainless-steel gas wells in some areas with the highest recorded temperatures, three well borings (i.e., CV-1534A, CV-1532B, and CV2338) resulted in the release of leachate under pressure. The CCL is also installing a French drain along the western slope to mitigate the leachate outbreak. To address off-site odors, the CCL staff has placed several agricultural-size fans at the west boundary of the landfill. During the site visit, I detected odors onsite and used real-time field equipment to monitor temperatures, volatile organic compounds (VOCs), oxygen, carbon monoxide, methane, and hydrogen sulfide.

A leachate outbreak in the north at map grid A-5/6 was observed by CalRecycle staff during the site visit. The area around gas well CV-2201 at map grid C-5 was also viewed. See Attachment A photo log for CV-2201. This area has settled 25 to 30 feet since 2022. The slope to the original grade outside the settlement area at gas wells CV-2305 and CV-2315, map grid C/D-6, was walked. At the toe of the slope, a second leachate outbreak and the construction of the French drain at map grid D/E/F-2 were observed. The CCL stated some over-saturated waste had slipped down the toe of the west slope.

During the visit, we discussed whether CCL staff or its consultant had observed industrial waste in the 48 new borings. The staff said the boring materials were typical municipal solid waste, but the observed waste from the reaction area was very wet with little cohesiveness. We also discussed slope instability at the toe of the western slope and whether the French drain would be designed to account for the low shear strength of the wet waste. Lastly, we discussed developing a containment strategy for the reaction area if it expands to the east and impacts the current disposal face. A containment strategy would include the installation of a reaction break made of soil at some predesignated area if the reaction reached the designated containment line.

Reaction

The two CCL reaction site maps from July 2023 and September 2023 show that the incident has expanded in all directions, most notably to the north and west. The approximate size of the incident now is between 30 and 35 acres.

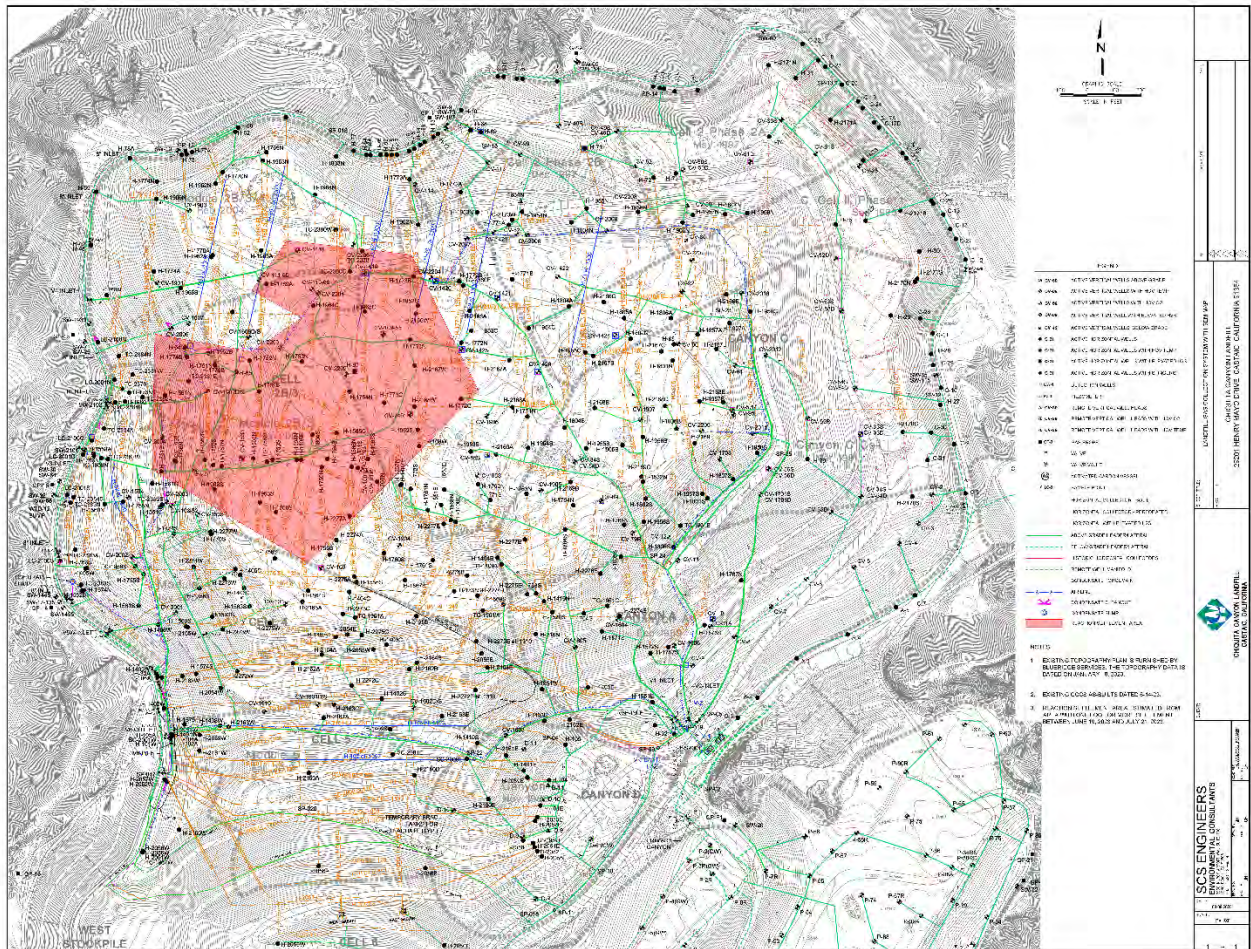


Figure 1. The reaction settlement area at the Chiquita Canyon Landfill. Red indicates one foot or more settlement between June 19, 2023, and July 21, 2023.

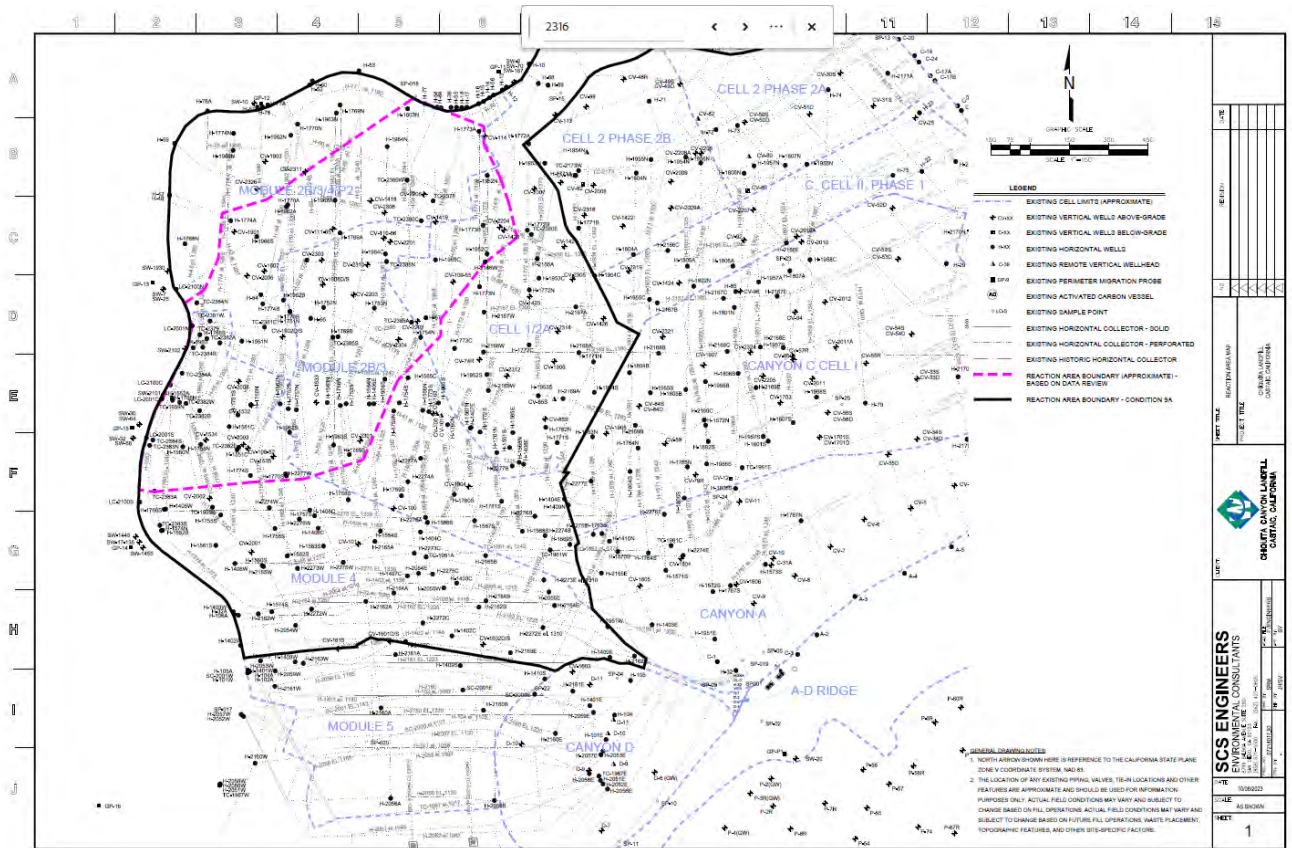


Figure 2. The reaction area is shown as pink dashed lines, September 15, 2023.

CCL Response and Discussions

Based on the site visit and the additional information provided in the CCL comment letter dated October 20, 2023, CalRecycle staff offer the following comments and recommendations.

I. Cause Analysis

Before 2014, the waste industry generally defined an elevated temperature landfill ("ETLF") event if a temperature greater than 131°F was observed at the wellhead, whether or not the site had accepted reactive industrial waste. Post 2014, a new definition for an ETLF was developed for Municipal Solid Waste (MSW) landfills to include temperatures above regulatory thresholds (i.e., 131 or 145 °F) due to abnormal chemical reactions within the waste mass that have not experienced a fire. Around 2015, multiple ETLF studies were carried out through the waste industry research foundation, Environmental Research and Education Foundation (EREF). The research group first proposed that ETLF events were a function of landfill depth. The hypothesis was that an ETLF was a function of the ideal gas law (i.e., $PV = nRT$) and that the waste at depth experienced higher temperatures because of pressure from the waste above. This hypothesis was disproved using temperature profiles from temperature monitoring

devices at ETLF and temperature data from California landfills with deep-fill designs. Their second hypothesis was that elevated temperatures were from a self-sustaining exothermic pyrolysis reaction; however, the EREF also showed that it did not cause elevated temperatures. The current industrial consensus is that ETLFs are due to abnormal chemical reactions from either an exothermic waste or an unknown reactive industrial waste. In my opinion, there are only three known causes of ETLF: (1) thermophilic bacteria, (2) reactive industrial waste, and (3) oxygen intrusion and resulting oxidation/smolder. Additionally, an ETLF can combine reactions such as aluminum dross, baghouse dust, salt cake, fly ash, or other metal oxide waste that can generate enough heat to ignite the surrounding MSW and cause pyrolysis or a smolder. Also, it is believed that hydrogen gas is only produced in landfill gas at concentrations above 2 percent with ETLFs with abnormal chemical reactions and not as a result of smoldering events. While it is true that the hydrogen gas concentration during the smolder phase is minimal since hydrogen gas is flammable and not a product of combustion if the four phases of smoldering are considered, one can see that a smolder can produce hydrogen gas well over 20 percent^{1 2} at the pre-combustion phase when gasification is occurring. A typical smolder event has a four-step process that consists of (1) pre-heating, (2) evaporation, (3) pyrolysis/gasification, and (4) oxidation/combustion. The pyrolysis/gasification phase is an endothermic reaction that is not self-sustaining and precedes the exothermic smoldering process (oxidation/combustion). The gasification phase will produce hydrogen gas, carbon monoxide, and short-chain hydrocarbons, while the oxidation/combustion phase will produce carbon dioxide, carbon monoxide, and water with substantial heat. It is also true the waste industry typically does not sample for hydrogen gas at the start of a suspected smolder event. The industry typically monitors for carbon monoxide and fixed gasses using field equipment.

Based on discussions with the landfill staff and a review of the 48 new boring logs, no reactive industrial waste was discovered in the reaction area. This result is expected since it would be remarkable that CCL accepted an unknown reactive industrial waste in an area over 35 acres in Cell 1/2A, Module 2B/3, Module 2B/3/4 P2, and Module 4.

II. CalRecycle's Recommendations 1 to 15 (Note: only 2, 8, 9, 13 are discussed further)

Regarding the previous set of recommendations presented to the LEA in our October 16, 2023, letter, we have the following changes and additions:

Recommendation #2: Place and compact a soil cover at least 24 inches in depth

Additional Comment: A flexible membrane liner ("FML") can prevent surface emissions

¹ Brown, Joshua K., "Hydrogen-Rich Syngas Derived from Smoldering Biomass and Hydrocarbon Wastes" (2022). Electronic Thesis and Dissertation Repository. 8496.

<https://ir.lib.uwo.ca/etd/8496>

² Jafar, Navid H. et al. "Progression of Elevated Temperatures in Municipal Solid Waste Landfills" (2017). American Society of Civil Engineers

of landfill gas while reducing oxygen infiltration. However, a soil cover can be implemented within weeks to reduce the exceptionally high concentrations of surface emissions and leachate seeps. Quickly implementing soil cover will reduce odors and impact the community. The FML can be installed at a later date to reduce odors further. The current intermediate cover should not be viewed as adequate to minimize odors.

Recommendation #8: Sample the leachate for benzene and other volatile organic compounds.

Additional Comment: It is recommended that all known liquids and soils/sludge from the reaction area be appropriately characterized. With temperatures documented over 200°F in the reaction area, all leachate and sludge should be tested in addition to the current leachate testing program. CCL should not assume the leachate at the sumps or on the liner is the same as the leachate from the reaction area. At least ten direct leachate samples from the highest temperature wells with pumps should be collected to ensure the leachate is not chemically different from the leachate as the outbreaks or at the leachate collection sumps. The samples should follow state and federal hazardous waste regulations for ignitable, corrosive, reactive, and toxic substances. The transporters and facilities receiving the leachate for processing and disposal must be aware of the chemical composition of the leachate and sludge. CCL should provide a list of facilities that have and are currently receiving the leachate from the reaction area. CalRecycle encourages LEA and CCL staff to work closely with staff from the SCAQMD and the Los Angeles Regional Water Quality Control Board (RWQCB).

Recommendation #9: Install temperature monitoring devices.

Additional Comment: While CalRecycle agrees that temperature monitoring devices should not be installed where leachate is under pressure, temperature devices in other locations are necessary to determine the intensity, depth, and direction of the reaction. Temperature devices are the primary method to track the reaction's progression accurately. Table 1 is provided as an initial recommendation for the location of temperature probes. The proposed temperature probe locations include sixteen assessments and six sentry temperature probes. This design would allow the CCL to track the reaction spatially and provide a decision matrix to develop a plan to contain the incident and prevent it from moving east and south.

Table 1. The proposed temperature probe locations using the SCS Engineering Reaction Area Map, dated 11/1/2023.

Area for Temperature Probes	Number and Location of Temperature Probes
Northern Flank, Map B3	One: In between CV-1908 and CV2326
Western Slope, Map C3 to H3	Three: Next to CV-2006, CV-2342A, CV-2002
Southern Flank, Map F3 to H5	Four: Next to CV-2344, CV-1610 (Sentry), 50 feet to the south of CV-2348
Eastern Flank, Map	Fourteen: Next to CV-2302, CV-2204, CV-100 (Sentry), H-2277A, CV-103, CV-74R, CV-1425, CV-1421, CV-2204, CV-1423 (Sentry), CV-2333, CV-99 (Sentry), CV-1906 (Sentry), CV-85S (Sentry)

Recommendation #13: Consider installing remote telemetry technology to continuously collect and analyze landfill gas data at the collection wells.

Additional Comment: CalRecycle agrees that wells with significant leachate issues, high temperatures, pressure, or material viability issues are unsuitable for telematic technology. CalRecycle recommends outfitting all temperature probes with remote telemetry technology to track the reaction.

Further Recommendations

Based on my site visit and discussions, CalRecycle staff recommend the LEA consider working with CCL and the other regulatory agencies toward implementing these additional actions:

1. CCL should develop a written plan that tracks the fissures, settlement, and tension cracks in the soil cover, marking the location and documenting the length and severity.
2. Given the prior slope instability on the western slope near the leachate outbreak, CCL should perform a slope stability analysis in this area, as saturated waste has very low shear strength.
3. CCL should collect temperatures in and around the reaction area to ensure all infrastructure improvements meet manufacturer maximum temperature design specifications and/or recommendations.
4. CCL should develop a reaction break plan and propose a set of criteria (e.g., what temperature at which temperature probes) that would require the CCL to install a soil barrier between the reaction and operational areas. The plan should propose the depth, width, and location of the containment trench (wall) based on temperature readings collected by the temperature probe network.

Attachment A contains several photos from the site visit on November 2, 2023. Please do not hesitate to contact me by telephone at (916) 341-6356 or by email at Todd.Thalhamer@Calrecycle.ca.gov if you have comments or questions.

Sincerely,



Todd Thalhamer, P.E.
Senior Waste Management Engineer
CalRecycle

Cc: Shikari Nakagawa-Ota, Los Angeles County Department of Public Health
(sota@ph.lacounty.gov)
Wes Mindermann, CalRecycle (wes.mindermann@calrecycle.ca.gov)
Jannelle Heinzler, CalRecycle (jannelle.heinzler@calrecycle.ca.gov)
Jeff Lindberg California Air Resources Board (jeff.lindberg@arb.ca.gov)
Vanessa Aguila, California Air Resources Board (vanessa.aguila@arb.ca.gov)
Jack Cheng, South Coast Air Quality Management Board (jcheng@aqmd.gov)
Larry Israel, South Coast Air Quality Management Board (lisrael@aqmd.gov)
Douglas Cross, Los Angeles Regional Water Quality Control Board,
(dcross@waterboards.ca.gov)
Katherine Butler, Department of Toxic Substances Control
(Katherine.Butler@dtsc.ca.gov)

Attachment A
Photo Log
CCL Site Visit, November 2, 2023



Photo 1. Location of northern leachate outbreak, CCL November 2, 2023.



Photo 2. Gas well CV-2201 at CCL, November 2, 2023.



Photo 3. Location of western leachate outbreak, CCL November 2, 2023.



Photo 4. Location of western leachate outbreak, CCL November 2, 2023.

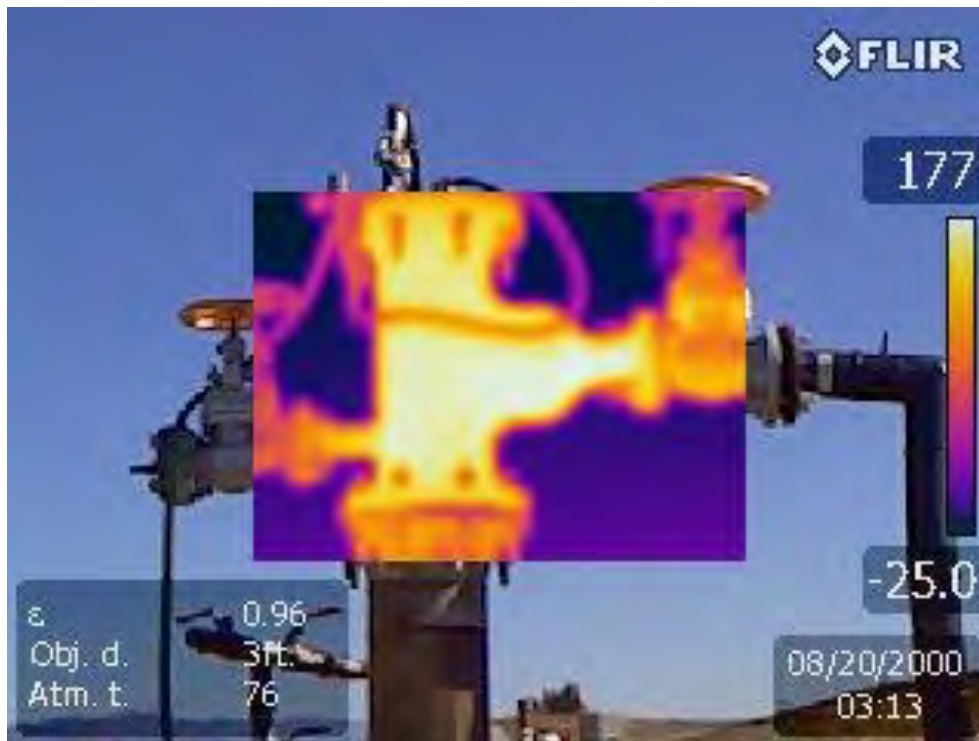


Photo 5. FLIR image of gas well with temperature range up to 177°F at CCL, November 2, 2023.



Photo 6. FLIR image of gas well with temperature range up to 199°F at CCL, November 2, 2023



November 14, 2023

Ms. Karen Gork, MPH, REHS
Chief Environmental Health Specialist
Solid Waste Management Inspection and Enforcement Program
Los Angeles County Department of Public Health – Environmental Health
5050 Commerce Drive
Baldwin Park, California 91706

Subject: Review Chiquita Canyon Landfill (19-AA-0052) Response Letter

Dear Ms. Gork:

CalRecycle staff are providing this letter in response to your request for technical assistance in reviewing the Chiquita Canyon Landfill (CCL) response letter concerning the odor incident.

The following comments are provided to the Los Angeles Local Enforcement Agency (LEA) as assistance to support the program in carrying out its responsibilities on permitted disposal sites. The final determination as to the comments to be provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in Title 14, California Code of Regulations (14 CCR), Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the Public Resources Code.

For this response, I visited the site on November 2, 2023, and reviewed the following documents submitted to the LEA:

- Chiquita Canyon Landfill Response to CalRecycle Review of the Odor Issues at CCL, dated October 20, 2021;
- SCS Engineers Reaction Area Map, de-watering for CCL dated November 1, 2023;
- SCS Engineers Reaction Area Map, existing wells for CCL dated November 1, 2023;
- SCS Engineers De-watering System Layout or CCL dated September 15, 2023; and
- SCS Field Services Boring Log for the new wells installed July to October 2023.

Site Visit

A multi-agency site visit was conducted on November 2, 2023. Staff from the LEA, CalRecycle, South Coast Air Quality Management District (SCAQMD), Los Angeles

1001 I Street, Sacramento, CA 95814 | P.O. Box 4025, Sacramento, CA 95812

www.CalRecycle.ca.gov | (916) 322-4027

Regional Water Quality Control Board (RWQCB), Department of Toxic Substances Control (DTSC), and the United States Environmental Protection Agency (USEPA) toured the site with CCL staff. During the visit, CCL staff discussed the remedial and odor control actions they had implemented. The CCL has installed 48 new gas control wells. Based on temperature readings during drilling, the new gas wells were constructed using either PVC-SHC 80, CVPC-SHC 80, or stainless steel. While installing the stainless-steel gas wells in some areas with the highest recorded temperatures, three well borings (i.e., CV-1534A, CV-1532B, and CV2338) resulted in the release of leachate under pressure. The CCL is also installing a French drain along the western slope to mitigate the leachate outbreak. To address off-site odors, the CCL staff has placed several agricultural-size fans at the west boundary of the landfill. During the site visit, I detected odors onsite and used real-time field equipment to monitor temperatures, volatile organic compounds (VOCs), oxygen, carbon monoxide, methane, and hydrogen sulfide.

A leachate outbreak in the north at map grid A-5/6 was observed by CalRecycle staff during the site visit. The area around gas well CV-2201 at map grid C-5 was also viewed. See Attachment A photo log for CV-2201. This area has settled 25 to 30 feet since 2022. The slope to the original grade outside the settlement area at gas wells CV-2305 and CV-2315, map grid C/D-6, was walked. At the toe of the slope, a second leachate outbreak and the construction of the French drain at map grid D/E/F-2 were observed. The CCL stated some over-saturated waste had slipped down the toe of the west slope.

During the visit, we discussed whether CCL staff or its consultant had observed industrial waste in the 48 new borings. The staff said the boring materials were typical municipal solid waste, but the observed waste from the reaction area was very wet with little cohesiveness. We also discussed slope instability at the toe of the western slope and whether the French drain would be designed to account for the low shear strength of the wet waste. Lastly, we discussed developing a containment strategy for the reaction area if it expands to the east and impacts the current disposal face. A containment strategy would include the installation of a reaction break made of soil at some predesignated area if the reaction reached the designated containment line.

Reaction

The two CCL reaction site maps from July 2023 and September 2023 show that the incident has expanded in all directions, most notably to the north and west. The approximate size of the incident now is between 30 and 35 acres.

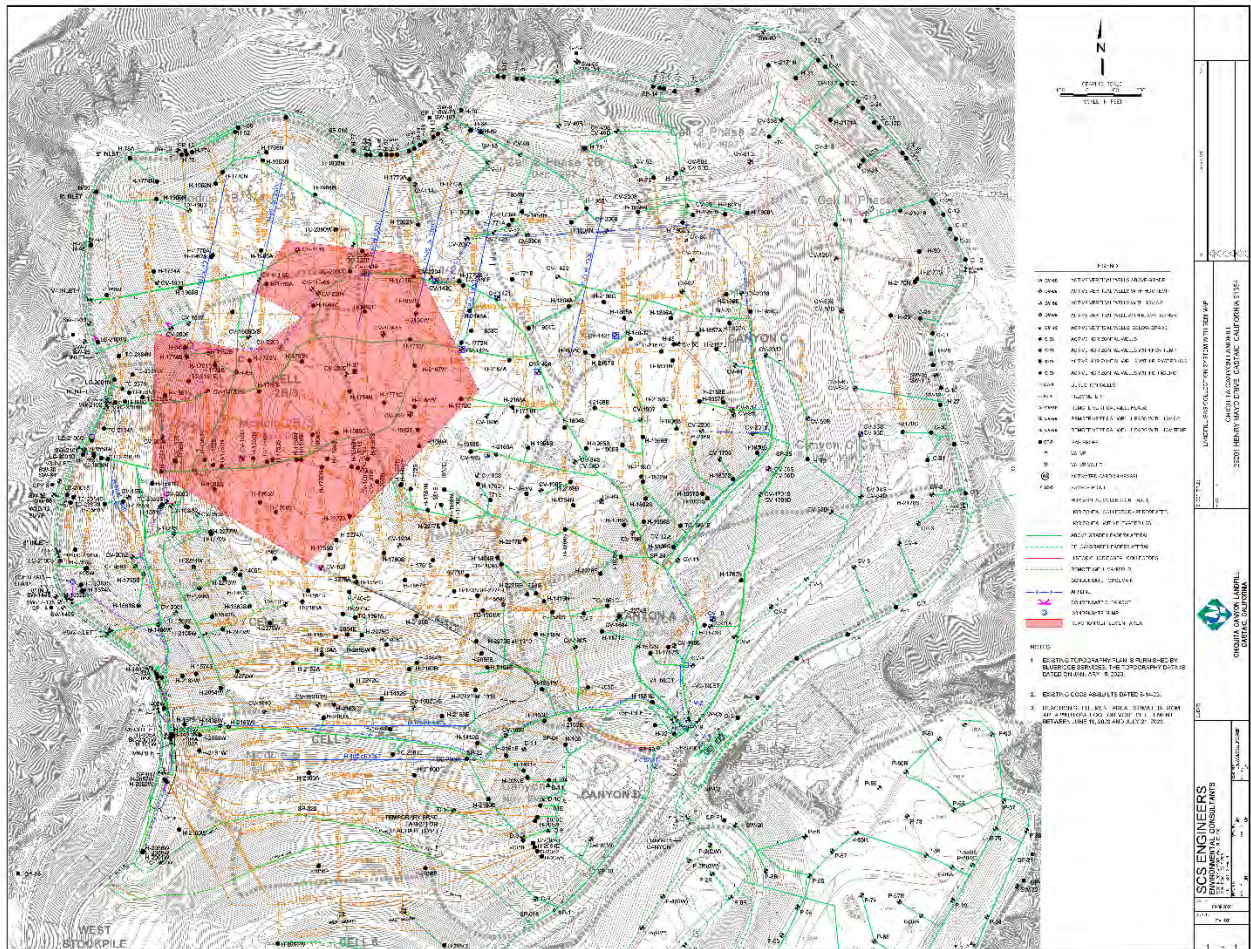


Figure 1. The reaction settlement area at the Chiquita Canyon Landfill. Red indicates one foot or more settlement between June 19, 2023, and July 21, 2023.

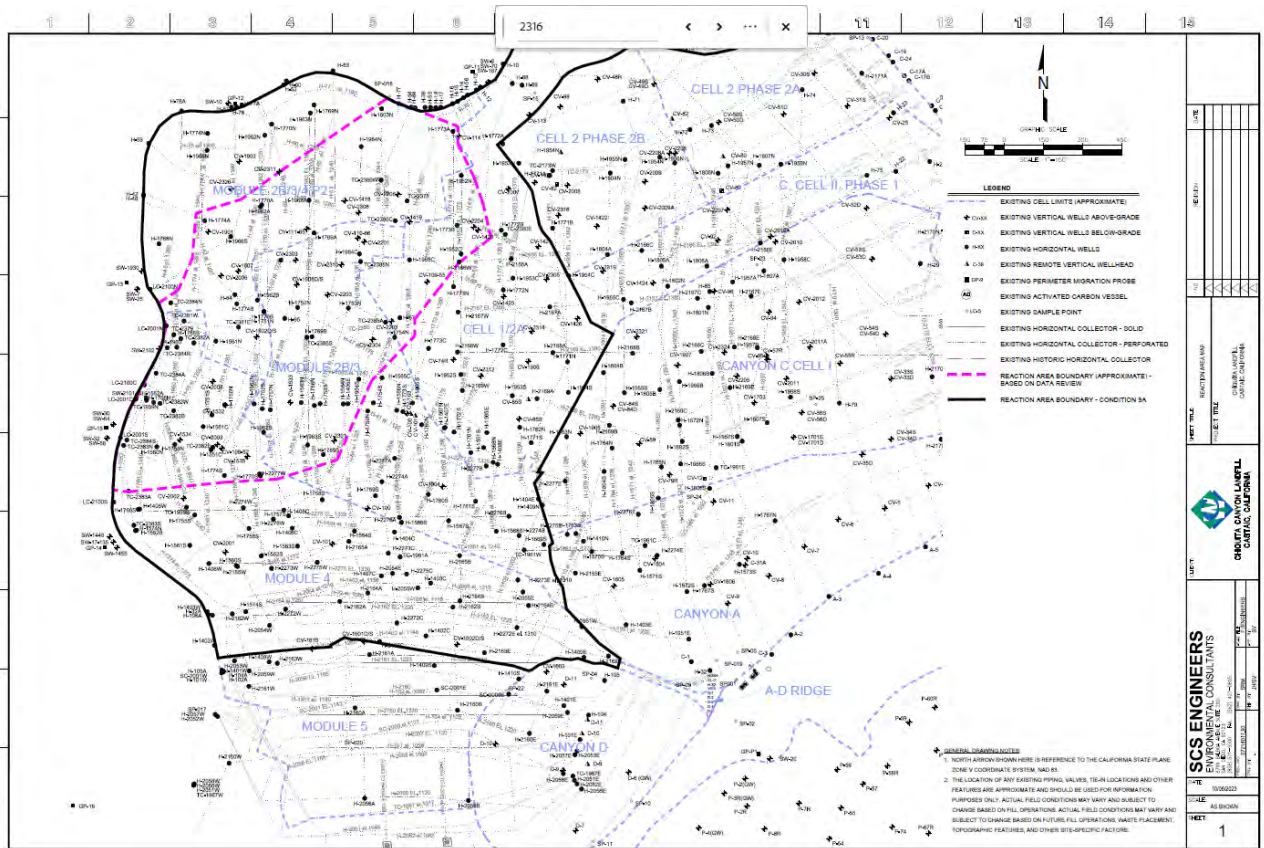


Figure 2. The reaction area is shown as pink dashed lines, September 15, 2023.

CCL Response and Discussions

Based on the site visit and the additional information provided in the CCL comment letter dated October 20, 2023, CalRecycle staff offer the following comments and recommendations.

I. Cause Analysis

Before 2014, the waste industry generally defined an elevated temperature landfill ("ETLF") event if a temperature greater than 131°F was observed at the wellhead, whether or not the site had accepted reactive industrial waste. Post 2014, a new definition for an ETLF was developed for Municipal Solid Waste (MSW) landfills to include temperatures above regulatory thresholds (i.e., 131 or 145 °F) due to abnormal chemical reactions within the waste mass that have not experienced a fire. Around 2015, multiple ETLF studies were carried out through the waste industry research foundation, Environmental Research and Education Foundation (EREF). The research group first proposed that ETLF events were a function of landfill depth. The hypothesis was that an ETLF was a function of the ideal gas law (i.e., $PV = nRT$) and that the waste at depth experienced higher temperatures because of pressure from the waste above. This hypothesis was disproved using temperature profiles from temperature monitoring

devices at ETLF and temperature data from California landfills with deep-fill designs. Their second hypothesis was that elevated temperatures were from a self-sustaining exothermic pyrolysis reaction; however, the EREF also showed that it did not cause elevated temperatures. The current industrial consensus is that ETLFs are due to abnormal chemical reactions from either an exothermic waste or an unknown reactive industrial waste. In my opinion, there are only three known causes of ETLF: (1) thermophilic bacteria, (2) reactive industrial waste, and (3) oxygen intrusion and resulting oxidation/smolder. Additionally, an ETLF can combine reactions such as aluminum dross, baghouse dust, salt cake, fly ash, or other metal oxide waste that can generate enough heat to ignite the surrounding MSW and cause pyrolysis or a smolder. Also, it is believed that hydrogen gas is only produced in landfill gas at concentrations above 2 percent with ETLFs with abnormal chemical reactions and not as a result of smoldering events. While it is true that the hydrogen gas concentration during the smolder phase is minimal since hydrogen gas is flammable and not a product of combustion if the four phases of smoldering are considered, one can see that a smolder can produce hydrogen gas well over 20 percent^{1 2} at the pre-combustion phase when gasification is occurring. A typical smolder event has a four-step process that consists of (1) pre-heating, (2) evaporation, (3) pyrolysis/gasification, and (4) oxidation/combustion. The pyrolysis/gasification phase is an endothermic reaction that is not self-sustaining and precedes the exothermic smoldering process (oxidation/combustion). The gasification phase will produce hydrogen gas, carbon monoxide, and short-chain hydrocarbons, while the oxidation/combustion phase will produce carbon dioxide, carbon monoxide, and water with substantial heat. It is also true the waste industry typically does not sample for hydrogen gas at the start of a suspected smolder event. The industry typically monitors for carbon monoxide and fixed gasses using field equipment.

Based on discussions with the landfill staff and a review of the 48 new boring logs, no reactive industrial waste was discovered in the reaction area. This result is expected since it would be remarkable that CCL accepted an unknown reactive industrial waste in an area over 35 acres in Cell 1/2A, Module 2B/3, Module 2B/3/4 P2, and Module 4.

II. CalRecycle's Recommendations 1 to 15 (Note: only 2, 8, 9, 13 are discussed further)

Regarding the previous set of recommendations presented to the LEA in our October 16, 2023, letter, we have the following changes and additions:

Recommendation #2: Place and compact a soil cover at least 24 inches in depth

Additional Comment: A flexible membrane liner ("FML") can prevent surface emissions

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Attachment A contains several photos from the site visit on November 2, 2023. Please do not hesitate to contact me by telephone at (916) 341-6356 or by email at Todd.Thalhamer@Calrecycle.ca.gov if you have comments or questions.

Sincerely,



Todd Thalhamer, P.E.
Senior Waste Management Engineer
CalRecycle

Cc: Shikari Nakagawa-Ota, Los Angeles County Department of Public Health
(sota@ph.lacounty.gov)
Wes Mindermann, CalRecycle (wes.mindermann@calrecycle.ca.gov)
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Jeff Lindberg California Air Resources Board (jeff.lindberg@arb.ca.gov)
Vanessa Aguila, California Air Resources Board (vanessa.aguila@arb.ca.gov)
Jack Cheng, South Coast Air Quality Management Board (jcheng@aqmd.gov)
Larry Israel, South Coast Air Quality Management Board (lisrael@aqmd.gov)
Douglas Cross, Los Angeles Regional Water Quality Control Board,
(dcross@waterboards.ca.gov)
Katherine Butler, Department of Toxic Substances Control
(Katherine.Butler@dtsc.ca.gov)

Attachment A
Photo Log
CCL Site Visit, November 2, 2023



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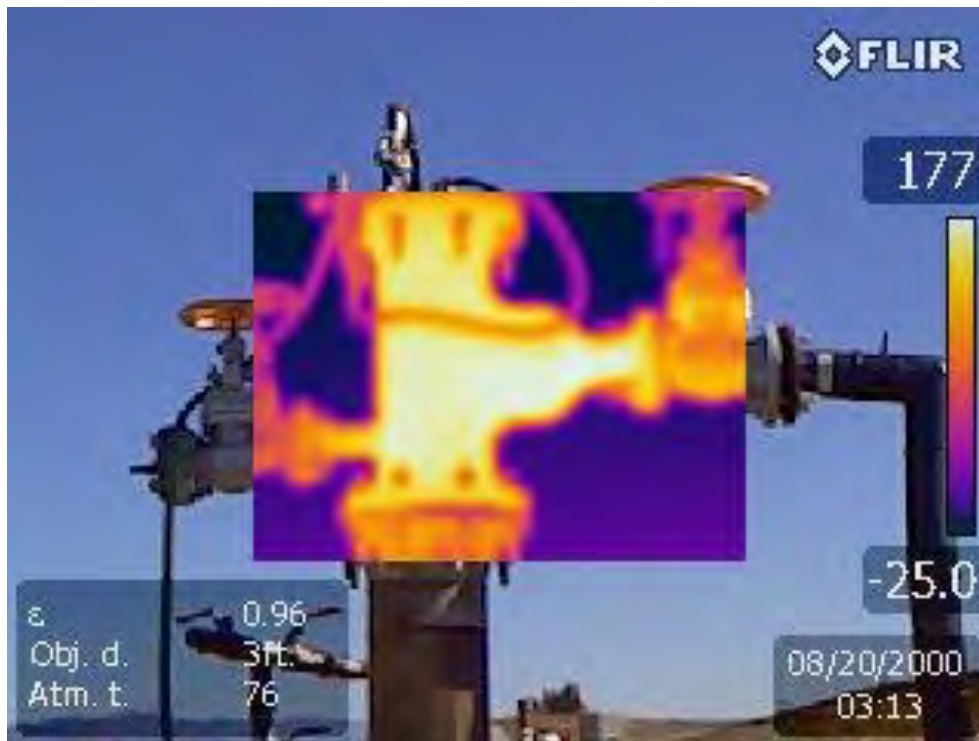


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Photo 6. FLIR image of gas well with temperature range up to 199°F at CCL, November 2, 2023



Department of
Resources Recycling and Recovery

Yana Garcia
Secretary for Environmental Protection
Zoe Heller
CalRecycle Director

CERTIFIED MAIL# 7015 0920 0001 7862 9917

May 15, 2024

Nicole Ward, Assistant District Manager
Chiquita Canyon Landfill
Waste Connections
29201 Henry Mayo Drive
Castaic, CA 91384

**SUBJECT: Inclusion of the Chiquita Canyon Landfill, Facility No. 19-AA-0052, on the
Inventory of Solid Waste Facilities Which Violate State Minimum Standards**

Dear Ms. Nicole Ward:

On February 8, 2024, Department of Resources Recycling and Recovery (CalRecycle) staff sent you a Notice of Intent (NOI) letter to include Chiquita Canyon Landfill, Facility No. 19-AA-0052, on the Inventory of Solid Waste Facilities Which Violate State Minimum Standards (Inventory). It was stated that if the violation listed in the NOI was not corrected within 90 days of receiving the NOI, the facility would be included on the Inventory. The 90 days expired on May 10, 2024. After your Local Enforcement Agency's (LEA) May 14, 2024, inspection, the LEA reported to CalRecycle that the violations of State Minimum Standards (SMS) cited in the NOI, have not been corrected.

YOU ARE HEREBY NOTIFIED THAT THE CHIQUITA CANYON LANDFILL, FACILITY NO. 19-AA-0052, HAS BEEN INCLUDED ON THE INVENTORY PURSUANT TO PUBLIC RESOURCES CODE SECTION 44104 FOR THE FOLLOWING STATE MINIMUM STANDARDS VIOLATIONS:

- Title 27, California Code of Regulations, Section 20921 – Gas Monitoring and Control
- Title 27, California Code of Regulations, Section 20750 – Site Maintenance

Any design or operational changes associated with correcting this violation of SMS is not sanctioned until incorporated into a revised solid waste facility permit concurred in by CalRecycle and issued by the LEA, or as part of a Report of Facility Information amendment where the LEA has made the necessary findings.

All facilities listed on the Inventory are required by statute to be under a compliance schedule, issued by the LEA, which ensures that diligent progress is being made to correct the violation. Title 14 of the California Code of Regulations section 18365 requires the LEA to issue the compliance schedule within 15 business days from the date of the inclusion letter.

CHIQUITA CANYON LANDFILL

May 15, 2024

Page 2 of 2

The LEA will continue to inspect your facility and provide written documentation (inspection reports) regarding the compliance status of the facility with respect to it being included on Inventory. If the violation is corrected to the satisfaction of the LEA and documented by the LEA in at least one inspection report, you will be notified that the facility has been removed from the Inventory. Otherwise, the facility will remain on the Inventory as long as the violation continues to be cited.

If you have any questions regarding this action, please contact Ivan Palenyy of my staff at (916) 341-6187 or me at (916) 341-6403.

Sincerely,

Catherine Blair, Section Manager
Solid Waste Enforcement Section
Waste Evaluation and Enforcement Branch
Waste Permitting, Compliance and Mitigation Division

cc:

Karen Gork, Chief Environmental Health Specialist
kgork@ph.lacounty.gov

Dee Hanson-Lugo, Chief Environmental Health Specialist
dlugo@ph.lacounty.gov

Felicia Truong, Los Angeles County LEA Supervisor
ftuong@ph.lacounty.gov

Nai Teurn, CalRecycle Permitting and Assistance Branch
nai.teurn@calrecycle.ca.gov

Mark Como, Los Angeles County LEA
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Benjamin Escotto, CalRecycle Permitting and Assistance Branch Supervisor
benjamin.escotto@calrecycle.ca.gov

Daniel Dela Cruz, Los Angeles County LEA
ddelacruz@ph.lacounty.gov



CERTIFIED MAIL: 7022 0410 0001 9245 3541

February 8, 2024

Nicole Ward, Assistant District Manager
Chiquita Canyon Landfill
Waste Connections
29201 Henry Mayo Drive
Castaic, CA 91384

SUBJECT: Notice of Intent to Include Chiquita Canyon Landfill, Facility No. 19-AA-0052, on the Inventory of Solid Waste Facilities Which Violate State Minimum Standards

Dear Ms. Ward:

A review of the monthly Enforcement Agency (EA) inspection reports of September 19, October 25, November 28, December 19, 2023, and January 17, 2024, respectively, for the Chiquita Canyon Landfill indicate that the following State Minimum Standards have been violated during that period:

- **Title 27, California Code of Regulations, Section 20921 – Gas Monitoring and Control**
- **Title 27, California Code of Regulations, Section 20750 – Site Maintenance**

The Department of Resources Recycling and Recovery (CalRecycle) is required to place on the Inventory of Solid Waste Facilities Which Violate State Minimum Standards (Inventory) facilities that have repeat violations of standards. California Code of Regulations Article 5.1 Title 14 outlines the inventory process.

CALRECYCLE STAFF IS PROPOSING TO INCLUDE THE CHIQUITA CANYON LANDFILL, FACILITY NO. 19-AA-0052, ON THE INVENTORY PURSUANT TO PUBLIC RESOURCES CODE SECTION 44104 FOR REPEAT VIOLATIONS OF THE ABOVE STATE MINIMUM STANDARDS.

The LEA will continue to inspect the facility on a monthly basis and will also provide written documentation (inspection reports) regarding the compliance status of your facility with respect to the standards cited above. If the violations are corrected and documented on an inspection report within 90 days of receipt of this notice, the facility will not be included on the Inventory.

Chiquita Canyon LF

February 8, 2024

Page 2 of 2

If you have any questions regarding this action, please contact Eric Tanner at (916) 341-6181 or Catherine Blair at (916) 341-6803.

Sincerely,

Catherine Blair, Manager
Solid Waste Enforcement Section
Waste Evaluation and Enforcement Branch
California Department of Resources Recycling and Recovery

cc:

Karen Gork, Chief Environmental Health Specialist
kgork@ph.lacounty.gov

Dee Hanson-Lugo, Chief Environmental Health Specialist
dlugo@ph.lacounty.gov

Felicia Truong, Los Angeles County LEA Supervisor
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benjamin.escotto@calrecycle.ca.gov

Daniel Dela Cruz, Los Angeles County LEA
ddelacruz@ph.lacounty.gov



LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
SOLID WASTE MANAGEMENT PROGRAM
ACTING AS THE LOCAL ENFORCEMENT AGENCY (LEA)
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706

IN THE MATTER OF:

CHIQUITA CANYON SANITARY LANDFILL

29201 HENRY MAYO DRIVE

CASTAIC, CA 91384

APN: 3271-002-011, 3271-002-013, 3271-002-019,

3271-002-036, 3271-002-039, 3271-005-034

SWIS# 19-AA-0052

OWNER/OPERATOR

CHIQUITA CANYON, LLC (RESPONDENT)

29201 HENRY MAYO DRIVE

CASTAIC, CA 91384

BY CERTIFIED MAIL AND ELECTRONIC COPY

CERTIFIED MAIL: 91 7199 9991 7037 9753 6218

COMPLIANCE ORDER

PUBLIC RESOURCES CODE SECTIONS

43209, 44106, 45000, 45005, 45011, 45014,

45017, 45023; TITLE 27 OF THE CALIFORNIA

CODE OF REGULATIONS (27 CCR),

SECTIONS, 20750, AND 20921; AND TITLE 14

OF THE CALIFORNIA CODE OF

REGULATIONS (14 CCR), SECTIONS 18304

AND 18304.1, 18304.3, 18365

DATE: June 6, 2024

TO: CHIQUITA CANYON, LLC

YOU ARE HEREBY ORDERED TO:

TAKE ALL ACTIONS AND ABIDE BY ALL OTHER ORDERS CONTAINED HEREIN

AT THE CHIQUITA CANYON LANDFILL EFFECTIVE IMMEDIATELY.

1.0 PLEASE TAKE NOTICE:

1.1 The Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), is authorized by Division 30 of the



LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
SOLID WASTE MANAGEMENT PROGRAM
ACTING AS THE LOCAL ENFORCEMENT AGENCY (LEA)
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706

Public Resources Code (PRC), §§ 43209 and 45000, and Title 14 of the California Code of Regulations (14 CCR), to enforce applicable solid waste regulations within the County of Los Angeles; and,

1.2 Division 30 Part 5 of the PRC and 14 CCR §§ 18304 and 18304.1 authorize the LEA to issue enforcement orders for violations of the PRC and regulations adopted pursuant to Division 30 of the PRC; and

1.3 Chiquita Canyon Sanitary Landfill (Site) is a permitted sanitary landfill located on parcel APNs 3271-002-011, -013, -019, -036, -039, and 3271-005-034 with an address of 29201 Henry Mayo Drive, Castaic, California, 91384, in the County of Los Angeles, and identified by Solid Waste Information System (SWIS) No. 19-AA-0052; and

1.4 Respondent, Chiquita Canyon, LLC, (CCL), is the operator and Responsible Party (RP) for noncompliance with state minimum standards. Specifically, 27 CCR, Sections 20921 and 20750 have been noted monthly on LEA inspection reports to date beginning September 1, 2023, and November 28, 2023, respectively, and are described in the paragraphs below.

2.0 STATMENT OF FACTS PERTAINING TO 27 CCR SECTION 20750:

2.1 On August 10, 2023, the LEA requested the California Department of Resources, Recycling and Recovery (CalRecycle) to provide technical expertise and assistance in determining root cause and mitigation strategies for multiple issues identified at the Site by the LEA and other regulatory agencies, such as elevated well temperatures, increased landfill gas (LFG) emissions (odor), and unusual landfill settlement.¹

¹ CalRecycle provides comments to the LEA as assistance to support the program carrying out its responsibilities on permitted disposal sites. The final determination as to the comments provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in 14 CCR, Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the PRC.

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2.2 CalRecycle issued a letter dated October 16, 2023 (October 16, 2023 CalRecycle Letter) to the LEA containing its review of the conditions that are causing the issues at the Site. CalRecycle conducted a comprehensive review of 18 months of Site records, and LFG data in the impacted area and around the general vicinity of the impacted area. The review focused on the Site's carbon monoxide concentrations, recent LFG temperatures, LFG control system operation, and other operational factors. The review determined that the Site sustained conditions over the past 18 months that include, but are not limited, to:

- Cover integrity issues;
- Increased temperatures and pressures in the LFG control systems and waste mass;
- Unusual landfill settlement;
- A heating/smoldering event that is expanding in size and intensity.

2.3 CalRecycle concluded that "conditions at CCL are causing additional pressure, odors, elevated leachate temperatures, and damage to the gas extraction system." To reduce the odors and better define the reaction, CalRecycle recommended 15 mitigation actions as part of the review.

2.4 On October 17, 2023, the LEA issued a letter (October 17, 2023 LEA Letter) requesting that CCL provide a written response and timeline to address the recent conditions sustained by CCL in the prior 18 months and the 15 recommended corrective and mitigation actions from the October 16, 2023 CalRecycle Letter by October 20, 2023.

2.5 CCL responded on October 20, 2023 (October 20, 2023 CCL Response) as instructed by the LEA. CCL addressed the 15 recommended mitigation actions, many of which according to CCL, were included in the South Coast Air Quality Management District's (SCAQMD) Stipulated Order for Abatement (SOFA).

2.6 The LEA requested CalRecycle's technical review of the October 20, 2023 CCL Response. As part of the review, CalRecycle visited the Site on November 2, 2023. Staff from the LEA, SCAQMD, Los Angeles Regional Water Quality Control Board (LARWQCB), Department of Toxic Substances Control (DTSC), and the United States Environmental Protection Agency (USEPA) toured the Site with CCL staff.



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2.7 On November 14, 2023, CalRecycle issued a letter (November 14, 2023 CalRecycle Letter) to the LEA based on the November 2, 2023 Site visit and the additional information provided in the October 20, 2023 CCL Response. CalRecycle's letter provided a cause analysis, comments to CCL's response to recommended mitigation actions (2, 8, 9 and 13) and further recommendations. Regarding recommended mitigation action 2, CalRecycle concluded that the current intermediate cover should not be viewed as adequate to minimize odors.

2.8 On November 21, 2023, the LEA issued a letter (November 21, 2023 LEA Letter) requiring that CCL perform four mitigation measures (Mitigation Measure 1A, 1B, 2A, 2B, 3 and 4) recommended in the November 14, 2023 CalRecycle Letter and October 16, 2023 CalRecycle Letter. The LEA directed that CCL provide a written response by Wednesday, December 6, 2023, and submit the required plan, data, and report by the due dates indicated in the letter.

2.9 The four mitigation measures listed in the November 21, 2023 LEA Letter that are required to correct the violation of 27 CCR § 20750 are described below.

Mitigation Measure 1 A & 1B – Soil Reaction Break/Barrier

2.10 CCL must provide a plan to construct a soil reaction break/barrier at a predesignated area(s) if the reaction reaches a determined action line. The plan is due to the LEA for approval no later than two weeks after installing temperature monitoring devices.

A. Develop a soil reaction break/barrier plan and propose a set of criteria that would require CCL to install a soil reaction break/barrier between the reaction and operational areas of the landfill. (Mitigation Measure 1A)

B. To obtain necessary data to determine the action line, CCL needs to collect data regarding intensity, depth, speed and direction of the reaction. It is imperative that CCL installs temperature monitoring devices by January 8, 2024. (Mitigation Measure 1B)

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Mitigation Measure 2 A & 2B - Cover

2.11 Because of the ongoing reaction, the cover that is currently in place is not adequate and not performing to the standards to maintain the site in reasonable repair.

A. Place and compact a minimum cover of 24 inches of 1×10^{-6} low permeability soil in and around the reaction settlement area and any well showing signs of a reaction by December 14, 2023. (Mitigation Measure 2A)

B. Develop a written plan that includes documentation and tracking of the fissures, settlement and tension cracks in the soil cover for LEA review and approval by December 6, 2023. The written plan needs to include a photo log of the fissure location including length and severity. Upon LEA approval, CCL must submit a weekly report to the LEA by each Tuesday. (Mitigation Measure 2B)

Mitigation Measure 3 - Slope Stability Analysis

2.12 Given the prior slope instability on the western slope near the leachate outbreak, CCL shall perform a slope stability analysis in the same area for LEA review, as saturated waste has very low shear strength. Submit a workplan with a timeline for LEA review and approval by December 14, 2023.

Mitigation Measure 4 – Manufacturer Maximum Design Specifications

2.13 CCL needs to collect temperatures in and around the reaction area to meet the manufacturer's temperature design specification/recommendations to ensure that the French drain does not fail due to elevated temperature of the leachate soon after installation, leaving leachate seepage without control at the site. This additional step is necessary because of the ongoing reaction and to ensure that the public does not come into contact with leachate.

2.14 On November 28, 2023, the LEA conducted a periodic inspection that noted a violation of 27 CCR § 20750-Site Maintenance and referred to the November 21, 2023 LEA Letter's four mitigation measures as a means to assist with correcting the violation. The LEA periodic inspection reports dated November 28, December 19, 2023, January 17, February 7,



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March 26, and April 30, 2024 have also noted the violation of 27 CCR § 20750. The violation noted on the report is described below.

Pursuant to 27 CCR § 20750, the operator shall implement a preventative maintenance program to monitor and promptly repair or correct defective conditions with respect to requirements of the CIWMB [California Integrated Waste Management Board, currently CalRecycle] standards, and conditions established by the EA [Enforcement Agency (LEA)]. All other aspects of the disposal site shall be kept in a state of reasonable repair.

Due to leachate outbreaks and stability issues with leachate saturated slope and waste, the issues with high temperatures, LFG collection, excessive leachate production, and unusual and large-scale settlement, the LEA required CCL to complete the following actions listed in the November 21, 2023 LEA Letter, as recommended by CalRecycle after the site inspection on November 2, 2023 and records review.

CCL's compliance status pertaining to 27 CCR § 20750 is subcategorized by mitigation measure and discussed below.

Mitigation Measure 1 A – Soil Reaction Break/Barrier Plan

2.15 On December 6, 2023, the LEA received a letter from CCL (December 6, 2023 CCL Response) in response to the November 21, 2023 LEA Letter. CCL responded to Mitigation Measure 1A by stating they would prepare a soil reaction break/barrier plan and propose a set of criteria that would require CCL to install the break/barrier by the LEA-provided deadline. CCL also stated that it does not believe that such a break/barrier is necessary or feasible, however, CCL did not provide any data to support CCL's belief.

2.16 On April 5, 2024, the LEA issued a letter to CCL (April 5, 2024 LEA Letter) stating the TMP and LFG collection well data, specifically carbon monoxide (CO) and hydrogen (H₂) are imperative for determining an action line, in which, if the reaction reaches a predesignated criteria then it would trigger implementation of an approved Soil Reaction

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Break/Barrier Plan. Directives 1 and 2 pertain to the installation of Mitigation Measure 1B and are discussed in the corresponding section. Directives 3 through 6 apply to the Soil Reaction Break/Barrier Plan (Mitigation Measure 1A) and are described below.

Directive 3: Provide waste photographs, boring logs and temperature logs to the LEA by April 12, 2024, for all LFG collection wells installed since June 2023.

Directive 4: Submit LFG data for all gas collection wells in the reaction area and wells 200 feet outside of the reaction area to the LEA by April 12, 2024.

Directive 5: Submit CO and H₂ readings for all gas collection wells in the reaction area and wells 200 feet outside of the reaction area to establish a baseline using Method ASTM D1946 in summa cans by May 6, 2024.

Directive 6: Submit monthly CO and H₂ data from a set of gas wells selected by the LEA after the baseline sampling is completed and recorded on a site map. Submit the lab data for all LFG data. Once a set of wells are selected, monthly LFG data shall be collected and submitted to the LEA, including a discussion of the LFG data and graphic showing CO and H₂ trends over time.

2.17 The April 5, 2024 LEA Letter provided a new deadline to submit the Soil Reaction Break/Barrier Plan, at least 10 days after gathering all the necessary data, rather than two weeks after the installation of the TMPs as per the November 21, 2023 LEA Letter. Lastly, the letter also stated that as an alternative option, CCL may submit a study to the LEA to assure the reaction is no longer a concern to public health, safety and the environment, if CCL chose to do so.

2.18 On April 12, 2024, the LEA received a response from CCL (April 12, 2024 CCL Response) to Directive 3 and 4 of the April 5, 2024 LEA Letter, and a Soil Reaction Break/Barrier Plan dated March 27, 2024 (March 27, 2024 Plan). The April 12, 2024 CCL Response is pending LEA review.

2.19 The LEA determined that the March 27, 2024 Plan was deficient and did not adequately address Mitigation Measure 1A requirements as described in the November 21, 2023 LEA Letter and the April 5, 2023 LEA Letter, and it was therefore rejected by the LEA in a

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letter dated May 3, 2024 (May 3, 2024 LEA Letter).

2.20 Prior to issuance of the May 3, 2024 LEA Letter, the LEA held a virtual meeting with CCL and CalRecycle on April 23, 2024, to discuss the need for a revised plan from CCL to adequately address the construction of a soil reaction break/barrier. The *CCL Barrier Discussion* presentation and *Isolation Break Criteria Example* document presented by CalRecycle at the meeting were provided to CCL via email on the same day.

2.21 As per the May 3, 2024 LEA Letter, CCL is required to submit a revised Soil Reaction Break/Barrier Plan to the LEA for review and approval within 10 days after gathering necessary data from the TMPs and LFG collection wells (refer to the April 5, 2024 LEA Letter). The data from the TMPs and LFG collection wells should be used to draft the revised plan and address the following:

1. Installation of an air/soil break that separates the waste with either an inert material or air.

2. Investigate how each cell or phase was constructed and examine if soil breaks between cells/phases can be exploited. The investigation should include a review of where haul roads were constructed to determine if the inert roads can also be used as fuel breaks. Information from the investigation should be used to develop where containment breaks should be placed.

3. Propose a set of criteria for the primary and secondary engagement lines and the type of reaction breaks/barriers and/or mitigations. These criteria shall be based on temperature, CO, and possibly settlement rate. The primary engagement lines should be designed to prevent the reaction from spreading into the main fill which is close to the reaction. The secondary line should prevent the reaction from entering the eastern and southern fill areas at the toe of the slope.

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4. Construction of reaction breaks in the main 160-acre fill area for the reaction of the engagement lines. The reaction break plans should include timelines and method of construction. The timelines and engagement lines should match.

5. Include the construction of reaction breaks/barrier between Canyon C, A, D, and Cell 5 in the event the reaction reaches the secondary engagement lines.

6. Use best available technology, such as grout injection, to slow or contain reaction movement to the south and east.

7. Description of the criteria that will mandate the temporary suspension of placing new waste.

CCL may submit an alternative plan to the LEA for review, only if such plan is adequately supported by substantive data and studies and provides assurances to the LEA that the reaction is no longer a threat to public health, safety and the environment.

2.22 On May 8, 2024, the LEA received the CO and H₂ data (May 8, 2024 Data) in response to Directive 5 of the April 5, 2024 LEA Letter which required CCL to submit CO and H₂ readings for all gas collection wells in the reaction area and wells 200 feet outside the reaction area by May 6, 2024.

2.23 On May 28, 2024, the LEA issued a response to CCL (May 28, 2024 LEA Letter) stating that the May 8, 2024 Data submittal is inadequate due to missing information. CCL was directed to resubmit the data as a standalone report with the gas data presented in a table, a summary of the sampling, including a map showing the reaction area as it is currently defined, description of the gas sampling performed, Quality Assurance/Quality Control (QA/QC) data (e.g., field and laboratory QA/QC samples and data including any flags), and proposed holding times, etc., with the signature of qualified person or licensed engineer by June 6, 2024.

Mitigation Measure 1B – Temperature Monitoring Probes

2.24 In the December 6, 2023 CCL Response to the November 21, 2023 LEA Letter, CCL

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agreed to install TMPs with a request for further clarification from the LEA on this requirement.

2.25 In order to collect data regarding intensity, depth, speed and direction of the reaction, the LEA required CCL to install TMPs. The November 21, 2023 LEA Letter provided recommended locations for the installation of 21 TMPs by January 8, 2024.

2.26 On December 6, 2023, the LEA, CalRecycle and CCL staff met to discuss TMPs per CCL's December 1, 2023 email request. CCL requested further clarification regarding probe locations, probe depths, and probe type.

2.27 On December 20, 2023, the LEA received the Landfill Reaction Area Temperature Monitoring Plan (December 20, 2023 Plan) from CCL for the installation of 20 TMPs and notification that the deadline of January 8, 2024 was not attainable. CCL proposed a new deadline of March 2024 to complete the installation based on availability of the materials, equipment, and the contractor.

2.28 On December 22, 2023, the LEA issued a letter (December 22, 2023 LEA Letter) accepting with conditions the December 20, 2023 Plan with conditions. Conditions included the submittal of design specifications and a typical design detail drawing of the TMPs, with specified probe depths, by February 15, 2024.

2.29 On January 2, 2024, the LEA received a letter from CCL (January 2, 2024 CCL Letter) with design specifications and design detail drawings for the TMPs. CCL agreed to meet the February 15, 2024 deadline, barring weather, material deliveries, health and safety, and permitting delays. CCL confirmed they would provide the LEA with weekly updates on the status of material deliveries and installation schedule.

2.30 On January 10, 2024 a virtual meeting was held between the CCL, the LEA and CalRecycle for a technical discussion. The LEA directed CCL to submit revised design specifications and design detail drawings for the TMPs to include the required depth intervals.

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2.31 On January 17, 2024, the LEA received a letter from CCL (January 17, 2024 CCL Letter) with a revised design specification and design detail drawings and depth intervals for the TMPs that were discussed during the January 10, 2024 meeting.

2.32 On January 19, 2024, CCL, the LEA, and CalRecycle met and discussed the telemetry system that will be used to record temperature data.

2.33 On January 29, 2024, the LEA issued a letter (January 29, 2024 LEA Letter) accepting the revised design specification and design detailed drawings for the TMPs. The LEA approved the latest schedule to install the TMPs by February 29, 2024 based on the January 11, 2024 weekly update from CCL regarding the material deliveries and revised installation schedule. In addition, as per the meeting on January 19, 2024, the LEA specified due date of February 8, 2024 for CCL to submit the specifications of the telemetry system that will be used to record temperature data.

2.34 On February 26, 2024, the LEA issued a letter to CCL (February 26, 2024 LEA Letter) regarding delays that CCL reported in the weekly status updates received through February 22, 2024. CCL stated that due to delays caused by rain events and for safety reasons, the completion time for drilling for TMP installation was estimated to be an additional 6-7 weeks. The LEA directed CCL to provide a written response by February 29, 2024 (current due date for completion of the TMP installation) that includes an updated construction schedule that details an accurate timeline for the installation of the TMPs, weekly goals for the installation, and what efforts and resources (such as additional equipment and workforce) are being implemented to expedite the work and meet the proposed timelines.

2.35 On February 29, 2024, the LEA received a response from CCL (February 29, 2024 CCL Letter) providing justification for delays and a new schedule for the installation of the TMPs. Due to weather conditions or related safety concerns, the anticipated completion date was extended from February 29, 2024 to April 4, 2024, weather permitting.

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2.36 On March 4, 2024, the LEA, CalRecycle and CCL staff met virtually to discuss issues with TMP installation to planned depths. The LEA and CalRecycle advised that CCL should install to the depth allowable and focus on getting the TMPs installed so that CCL can begin gathering data. The LEA also pointed out a typographical error and the lack of an official time extension request in the February 29, 2024 CCL Letter.

2.37 On March 4, 2024, the LEA received a revised response letter (March 4, 2024 CCL Letter) officially requesting modification to the timeline for TMP installation and correcting the typographical error noted in para. 2.36.

2.38 March 20, 2024, the LEA issued an approval (March 20, 2024 LEA Approval) to the modified schedule (March 4, 2024 CCL Letter) and April 4, 2024 completion date for the installation of TMPs, and directed CCL to continue to provide weekly updates on the progress of the installation of TMPs including any delays due to rain events or other special occurrence that may affect the modified schedule.

2.39 On March 20, 2024, the LEA issued a letter to CCL (March 20, 2024 LEA Letter) in response to a weekly update from CCL regarding the TMP installation received on March 14, 2024. The letter addressed the issues brought up by CCL that the well bores were saturated to the point that all five probes installed from March 11, 2024 through March 14, 2024 did not reach the proposed depth. The LEA determined that the adjustment to the remaining TMPs is necessary and required CCL to submit a report for the probe installation to the LEA by March 28, 2024 that would include: 1) an updated map showing the settlement area overlayed with the completed drilling locations, completed and proposed depths and remaining/planned drilling locations (if applicable), 2) drilling logs and 3) temperature logs of temperatures taken during drilling.

2.40 On March 28, 2024, LEA received the CCL report (March 28, 2024 Report) that stated the issues with achieving the proposed depths and a confirmation that sixteen (16) probes had been installed and were operational.

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2.41 On April 5, 2024, the LEA issued a letter (April 5, 2024 LEA Letter) directing CCL to: 1) relocate the planned installation for well TP-16 to an area outside of the reaction where drilling to the proposed depth may be feasible, and 2) submit a final construction report within 5 days of completion of the installation of all TMPs.

2.42 On April 10, 2024 virtual meeting was held between CCL, LEA and CalRecycle to discuss the progress of TMPs installation, the relocation of TMP TP-16 and TP-04, and the need for a formal extension request with justification for not meeting the April 4, 2024 deadline to complete installation of TMPs.

2.43 On April 12, 2024, LEA received the CCL's response (April 12, 2024 CCL Response) that addressed the two directives related to TMPs in the April 5, 2024 LEA Letter as well as items discussed during the April 10, 2024 meeting. CCL confirmed that it would submit weekly memorandum with temperature readings and analysis of those readings along with a summary and temperature graph of all TMPs to plot the trends of each TMP once the final construction report was completed.

2.44 On April 16, 2024, LEA received a letter from CCL (April 16, 2024 CCL Letter) to memorialize the April 10, 2024 virtual meeting and to request a time extension for the installation of TMPs to April 26, 2024 with justification that drilling operations for TMP installation were delayed due to saturated soil conditions from frequent rain events over the past two months and safety related concerns.

2.45 On April 24, 2024, LEA issued a letter to CCL (April 24, 2024 LEA Letter) accepting CCL's proposed timelines for TMP installation.

2.46 On May 3, 2024, the LEA received the Final Construction Report, 2024 Temperature Monitoring Probe Installation (May 3, 2024 CQA Report) as per Directive 2 of the April 5, 2024 LEA Letter.

2.47 On May 29, 2024, the LEA issued a response letter to the CQA Report (May 29, 2024 LEA Response) directing CCL to resubmit a CQA to the LEA by June 6, 2024 with a site

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map of the TMP's location, completion depth at each well, the reaction area as it is defined as of May 1, 2024, and a method (web-portal) for CCL to provide real-time access to temperature data to the LEA and CalRecycle. The temperature data included in the revised CQA Report was required to include the maximum weekly temperature recorded at each TMP, instead of or in addition to average weekly temperatures. Finally, the LEA advised that the revised CQA Report should include a signature and stamp of a licensed engineer to show all work can be clearly attributed to the licensee(s) in responsible charge of the work.

2.48 The May 29, 2024 LEA Response also addressed the weekly TMP reports and directed CCL to revise the weekly TMP reports with the weekly temperature readings to include graphs that show the maximum temperature recorded at each TMP instead of weekly average, as the criteria to implement a containment strategy must be based on maximum temperature readings and not an average temperature. The weekly TMP reports were also required to include the following additional details: a reaction map with the maximum observed temperature at each well with depth, a narrative describing any anomalies, outliers, data gaps, or malfunctions. The narrative must describe any temperature increases of 20°F or greater within 48 hours as stated in the April 5, 2024 LEA Letter and include an increase of 10°F in a week. The LEA advised that the weekly TMP reports should be a standalone document, and on the last weekly report for the month, CCL is directed to include a map that shows each TMP with color-coded observations based on the maximum observed temperature. CCL was required to submit revised weekly TMP reports beginning the week of June 2, 2024.

2.49 Additionally, the May 29, 2024 LEA Response specifically addressed the Weekly Cover Report dated May 14, 2024 that showed the reaction is extending south into areas outside the previously defined reaction area. To accurately track the reaction's progress, CCL was directed to install three specifically located temperature probes by June 12, 2024. CCL was reminded that while the settlement rate indicator is low, the reaction has advanced which

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requires the development of a plan to implement a containment strategy (Mitigation Measure 1A Soil Reaction Break/Barrier Plan).

2.50 A meeting was held on May 31, 2024 to discuss the directive in the May 29, 2024 LEA Response to add three TMPs. CCL stated that the settlement was misinterpreted in the Weekly Cover Report due to construction taking place in the area that showed settlement. Furthermore, CCL stated that there are TMPs near the subject area, planned LFG well installation in that area, and data that supports the reaction area is not expanding. LEA instructed CCL to reply by June 12, 2024, with installation plan, an alternate proposal or justification for no action based on information shared in meeting.

Mitigation Measure 2A – Geosynthetic Cover

2.51 In the December 6, 2023 CCL Response to the November 21, 2023 LEA Letter, CCL noted several concerns regarding the placement of soil and stated that an alternative proposal would be submitted to the LEA by December 8, 2023.

2.52 On December 8, 2023, the LEA received a Memorandum from CCL (December 8, 2023 CCL Memorandum) responding to the November 21, 2023 LEA Letter regarding the Mitigation Measure 2A requirement. The December 8, 2023 CCL Memorandum provided a description and timeline for two specific proposed alternatives to the additional cover as well as for the 24-inches of low permeability soil cover in and around the Reaction Settlement Area and any well showing signs of reaction as required by Mitigation Measure 2A: 1) Low Permeability Soil Cover, 2) Evaporative Soil Cover or 3) 12-mil Dura-Skrim Geosynthetic Cover (12-mil Cover).

2.53 On December 14, 2023, the LEA issued a response (December 14, 2023 LEA Letter) to the December 8, 2023 CCL Memorandum. The LEA advised CCL that although the placement of low permeability soil would be the most effective option to address the inadequacy of the existing cover over the reaction area, as it would prevent surface emissions of LFG while

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reducing oxygen infiltration. Because this option may take 12 weeks to implement which is the longest timeframe out of the three alternatives provided, it was no longer considered. Next, the proposed alternative to use an evaporative soil cover option using high permeability soil was deemed to be unacceptable as it would allow air, water, and LFG to migrate through the cover. CCL's proposed installation of the 12-mil Cover was the alternative that had the quickest installation timeline, within 5 weeks, and was an adequate option as a temporary measure to address cover conditions until the low permeability soil cover is added. Since the 12-mil Cover was not a long-term solution, CCL was required to install a more durable geosynthetic cover, 24-mil to 30-mil with welded seams, that will offer better performance and reduced maintenance. In short, the LEA recommended that CCL install the proposed 12-mil Cover now while it acquires low-permeability soil or opt to install a thicker and more durable geosynthetic cover between 24-mil to 30-mil with welded seams in lieu of the low permeability soil cover. A proposal for this option must be submitted to the LEA for review and approval.

2.54 On December 19, 2023 the LEA received a workplan from CCL (December 19, 2023 Plan) to install 30-mil high density polyethylene (HDPE) geosynthetic cover over the reaction settlement area.

2.55 On December 20, 2023, the LEA issued an approval (December 20, 2023 LEA Letter) on the condition that CCL submit the design specifications of the proposed geosynthetic cover pressure relief valves discussed in the December 19, 2023 Plan within 10 days.

2.56 On December 29, 2023, the LEA received a letter from CCL (December 29, 2023 CCL Letter) with the required information on the pressure relief valves.

2.57 On January 19, 2024, a meeting was held between CCL, LEA and CalRecycle to communicate that the pressure relief valves would not be approved by the LEA. Other methods to prevent potential LFG accumulation underneath the geosynthetic cover were discussed.

2.58 On January 23, 2024, the LEA received a letter from CCL (January 23, 2024

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CCL Letter) which stated that CCL no longer intended to install the pressure relief valves from the December 19, 2023 Plan. In addition, CCL provided an updated installation schedule for the 30-mil cover in the following order: 1) northerly portion of the western slope of the reaction area, 2) central portion of the western slope of the reaction area, 3) top deck of the reaction area and 4) north slope of the reaction area. Although CCL did not provide a specific date, the letter stated that installation of the cover was anticipated to take 8 weeks with an additional week for reporting. Lastly, CCL informed the LEA that it anticipated installing well boot seals on all wells located outside of the areas that will be covered with geosynthetic cover by February 16, 2024, and installing the remaining well boot seals as the geosynthetic cover is installed.

2.59 On January 26, 2024, the LEA issued a conditional approval (January 26, 2024 LEA Letter) in response to the January 23, 2024 CCL Letter. Per the conditions, in lieu of the pressure relief valves, CCL was to provide a system and procedure to ensure that LFG does not accumulate underneath the geosynthetic cover and to prioritize LFG extraction from the reaction area over other areas of the landfill, if necessary, by February 2, 2024. In addition, CCL was directed to submit weekly updates to the LEA on the geosynthetic cover installation (Weekly Geosynthetic Cover Updates) commencing the week of January 28, 2024 and complete the geosynthetic cover installation by March 25, 2024 (8 weeks from the start of cover installations as provided by the January 23, 2024 CCL Letter).

2.60 On February 2, 2024, the LEA received a response from CCL (February 2, 2024 CCL Letter) that adequately addressed all of the conditions listed in the January 26, 2024 LEA Letter as stated in the LEA response letter dated March 4, 2024 (March 4, 2024 LEA Letter).

2.61 To address ongoing delays documented in CCL's Weekly Geosynthetic Cover Updates received through February 23, 2024, the LEA issued the February 26, 2024 LEA Letter. CCL had reported delays caused by rain events and related safety issues without providing an update on the need for a revised installation schedule for the 30-mil geosynthetic cover. LEA

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instructed CCL to provide a written response by February 29, 2024 with an updated construction schedule that details an accurate timeline for the installation of the geosynthetic cover, weekly goals for the installation, and what efforts and resources (such as additional equipment and workforce) are being implemented to expedite the work and meet the proposed timeline.

2.62 The February 29, 2024 CCL Letter provided justification for delays and a new schedule for the installation of the geosynthetic cover. Due to weather conditions and related safety concerns, and an increase of the reaction area from 23.9 acres to 30 acres due to site conditions, the anticipated completion date was extended from March 25, 2024 to April 26, 2024, weather permitting. The submittal date for the completion report for the geosynthetic cover installation was consequently extended to May 3, 2024.

2.63 On March 4, 2024, LEA, CalRecycle and CCL staff met virtually and pointed out a typographical error with the compliance schedule and the lack of an official time extension request in the February 29, 2024 CCL Letter.

2.64 On March 4, 2024 CCL corrected the typographical error referred to in para. 2.63 and officially requested modification to the timeline for geosynthetic cover installation.

2.65 On March 20, 2024, the LEA issued an approval (March 20, 2024 LEA Letter) to the modified schedule and of the April 26, 2024 completion date for the installation of the 30-mil geosynthetic cover, and directed CCL to continue to provide weekly updates on the progress of the installation of the geosynthetic cover including any delays due to rain events or other special occurrence that may affect the modified schedule.

2.66 On April 19, 2024 the LEA received a memorandum from CCL (April 19, 2024 CCL Memorandum) that provided an updated geosynthetic coverage acreage, from 30 acres to 43.9 acres, and revised schedule for installation of the geosynthetic cover with, From April 26, 2024 to July 12, 2024. According to the memorandum, April 26, 2024 deadline could not be met due to

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delays related to concerns with wet weather, high winds, slope stability, and safety. The July 12, 2024 completion date did not include the replacement of the 12-mil Cover that is currently over the western slope with the 30-mil geosynthetic cover due to high leachate levels.

2.67 On May 10, 2024, the LEA issued a letter to CCL (May 10, 2024 LEA Letter) directing CCL to resubmit a revised schedule by May 14, 2024, that prioritizes the installation of the 30-mil geosynthetic cover in the reaction area (30 acres per the March 4, 2024 CCL Letter) over additional areas that CCL elected to also cover, and include a completion date for installation of the cover over the 30 acres, and a plan to manage the leachate at the western slope to allow for timely installation of the 30-mil geosynthetic cover.

2.68 On May 14, 2024, the LEA received two memorandums from CCL. One memorandum provided additional information on the need for the extended deadline of July 12, 2024, to complete the installation of the 30 acres of geosynthetic cover over the reaction area (May 14, 2024 CCL Updated Schedule). The other memorandum detailed the construction of a toe drain system to manage the leachate and allow for the installation of geosynthetic cover over the portion of the western slope currently covered by the 12-mil Cover. (May 14, 2024 CCL Plan).

2.69 On May 29, 2024, the LEA issued a letter to CCL (May 29, 2024 LEA Letter) stating that the May 14, 2024 CCL Updated Schedule is adequate, and required CCL to continue to provide weekly updates on the progress of the installation of the geosynthetic cover that include specific reasons for any further delays that may be due to rain events or other special occurrence that may affect the extended implementation of the new schedule. Also, the LEA determined the May 14, 2024 CCL Plan to be adequate contingent on the condition that CCL confirms waste temperatures are below the manufacturer's recommended maximum temperature limit of the proposed materials used.

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Mitigation Measure 2B - Cover Tracking

2.70 The December 6, 2023 CCL Response to the November 21, 2023 LEA Letter had no comment on Mitigation Measure 2B requirements and agreed to submit the required plan by the due date.

2.71 On December 6, 2023, the LEA received the Soil Cover Tracking Written Plan (December 6, 2023 Cover Tracking Plan) to monitor for fissures and cracks in the soil cover, collect and compile notes and pictures, and submit Weekly Cover Reports to the LEA. To track and document settlement, CCL proposed to use drones to document settlement on a biweekly basis.

2.72 On December 14, 2023, the LEA issued a letter (December 14, 2023 LEA Letter) requiring CCL to revise the December 6, 2023 Cover Tracking Plan to include response to issues that may arise with the geosynthetic cover, such as tears and where fill is needed to support the liner or maintain drainage, the necessary actions taken, and a photo log that has before and after pictures of the cover issues.

2.73 LEA received the Revised Plan dated December 21, 2023 (December 21, 2023 Revised Plan) that included documentation and tracking of issues related to the geosynthetic cover in addition to soil cover as well as a photo log of observations with before and after pictures.

2.74 On January 3, 2024, the LEA issued an approval (January 3, 2024 LEA Letter) to the December 21, 2023 Revised Plan and directed CCL submit Weekly Cover Reports starting January 9, 2024.

2.75 The LEA letter dated March 22, 2024 (March 22, 2024 LEA Letter), responded to the Slope Stability Analysis Report (Mitigation Measure 3) and addressed the Weekly Cover Reports. The LEA directed CCL to revise the Weekly Cover Reports to include a log with a summary and a map to track the documented fissures and tension cracks and to identify trends, to evaluate the documented series of fissures and tension cracks reported in recent Weekly Cover

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Reports from February and March 2024, and to include methods used to track the instability in the reaction area that is obscured by the geosynthetic cover.

2.76 On April 10, 2024, a virtual meeting was held between CCL, LEA and CalRecycle (April 10, 2024 Meeting) to discuss the status of Mitigation Measures 1-3 and the need for a second revision of the December 6, 2023 Cover Tracking Plan to address Mitigation Measure 2B. The LEA directed CCL to include in future weekly reports a section to document any instability events such as observations that led to CCL directing crews to cease work on the western slope mid-day March 20, 2024, because of concerns related to slope stability and pending the slope stability analysis report as per the March 22, 2022 Weekly Cover Report.

2.77 CCL submitted the second Revised Cover Tracking Plan dated April 16, 2024 (April 16, 2024 Revised Plan) that proposed to submit a map to identify and evaluate trends in the reported fissures and tension cracks. CCL proposed to perform daily visual inspections and bi-weekly drone flyovers, and other actions to track the instability of the reaction area obscured by the geosynthetic cover. In addition, CCL would include a profile of the western slope consisting of cross sections taken during the beginning and end of the month in the report.

2.78 On May 2, 2024, the LEA approved the second Revised Cover Tracking Plan (May 2, 2024 LEA Letter) and directed CCL to submit monthly reports starting May 14, 2024. The LEA also reminded CCL to include a section on stability issues as discussed during the April 10, 2024 Meeting.

2.79 The LEA issued a letter to CCL on May 29, 2024 (May 29, 2024 LEA Letter) to address, among other items, the Weekly Cover Reports dated May 10 and May 14, 2024, in which CCL made inaccurate statements that misrepresented the reason why the liner crews were removed from the western slope. The specific CCL statements were that "Landfill personnel were directed to cease normal activities on the western slope on or around March 20, 2024, because of the LEA's concerns regarding the potential slope stability and related safety

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concerns.” The LEA noted that CCL elected to remove crews without notifying the LEA for at least 48 hours, when the LEA received the March 22, 2024 Weekly Cover Report. CCL was directed to amend each the May 10 and 14, 2024 reports to reflect that CCL elected to move the liner crews because the crews noticed an additional bulge of waste at the toe of the slope. In addition, CCL was required to include slope stability concerns to the Weekly Cover Reports beginning June 4, 2024.

Mitigation Measure 3 – Slope Analysis

2.80 The December 6, 2023 CCL Response to the November 21, 2023 LEA Letter had no comment on the Mitigation Measure 3 requirement and agreed to submit a work plan with timeline by the due date.

2.81 CCL submitted the Slope Stability Analysis Workplan to the LEA on December 14, 2023 (December 2023 Slope Stability Analysis Plan).

2.82 On December 20, 2023, the LEA issued a letter accepting the December 2023 Slope Stability Analysis Plan with conditions. According to a timeline submitted by CCL, a Slope Stability Analysis Report would be submitted to the LEA by February 22, 2024.

2.83 The Slope Stability Analysis Report was received by the LEA on February 22, 2024 (February 2024 Slope Stability Analysis Report).

2.84 The March 22, 2024 LEA Letter in response to the February 2024 Slope Stability Analysis Report required CCL to perform additional analyses based on the current actual observed conditions of the waste and gas extraction wells. For example, the analysis in the February 2024 Slope Stability Analysis Report used peak shear strength instead of reduced shear strength. CCL was also directed to include a plan to monitor and record the temperature of the liner at the bottom of the landfill to verify and document that that there are no anticipated impacts to its the long-term performance given the potential exposure to high subsurface temperatures associated with the ongoing reaction. The plan regarding the liner was referred to the LARWQCB.

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2.85 On May 8, 2024, the LEA received a draft of the revised Slope Stability Analysis Report dated May 2024 (May 2024 Slope Stability Analysis Report). The report is currently under review.

Mitigation Measure 4 – Manufacturer Specifications

2.86 The December 6, 2023 CCL Response to the November 21, 2023 LEA Letter had no comment regarding Mitigation Measure 4 and agreed to comply with this mitigation measure.

2.87 The May 29, 2024 LEA Letter in response to the May 14, 2024 Plan to install a toe drain at the western slope directed CCL to confirm the waste temperatures are below the manufacturer's recommended maximum temperature limit of the proposed pipe materials. The letter guided CCL to use a forward-looking infrared camera to ensure the HDPE or other material can perform as designed within the recommended temperature limits.

3.0 STATEMENT OF FACTS PERTAINING TO VIOLATION 27 CCR § 20921:

3.1 Pursuant to 27 CCR Section 20921, in order to provide for the protection of public health and safety and the environment, the operator shall ensure that the concentration of methane gas migrating from the disposal site must not exceed 5% by volume in air at the disposal site permitted facility boundary or an alternative boundary approved in accordance with 27 CCR § 20925.

3.2 Beginning with the focused inspection dated September 1, 2023, periodic inspection reports dated September 19, October 25, November 28, December 19, 2023, January 17, February 7, March 26, and April 30, 2024, continue to note the violation for exceedance of methane as described below.

3.3 On September 1, 2023, the LEA measured the methane level at perimeter monitoring well GP-13 at above 5% by volume in air (bv), resulting in a violation of 27 CCR Section § 20921. CCL was directed via email on September 9, 2023, to comply with 27 CCR § 20937 which requires submittal of a remediation plan for approval and implementation within 60 days of noted exceedance and as documented on the report dated September 1, 2023. CCL submitted a



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remediation plan to address the methane exceedance at GP-13 on September 8, 2023 (September 8, 2023 Remediation Plan).

3.4 On September 15, 2023, CCL submitted a second remediation plan to include methane exceedance measured by the CCL at GP-15 (September 15, 2023 Remediation Plan). On September 19, 2023, the LEA measured methane levels at perimeter monitoring wells GP-13 and GP-15 at above 5% bv resulting in a violation of 27 CCR § 20921.

3.5 LEA electronic communication with CCL called for CCL to submit subsequent revised plans dated October 6, 2023 (October 6, 2023 Remediation Plan) and November 22, 2023 (November 22, 2023 Remediation Plan) addressing the exceedance at both probes GP-13 and GP-15. The LEA issued a rejection letter on February 6, 2024 (February 6, 2024 LEA Letter) directing CCL to respond to specific comments in a revised plan by February 23, 2024.

3.6 On February 27, 2024, the LEA received the latest version of the remediation plan (February 2024 Remediation Plan) that proposed to install an additional 107 LFG extraction wells by July 31, 2024.

3.7 The LEA approved the February 2024 Remediation Plan by letter May 8, 2024 (May 8, 2024 LEA Letter) requiring the LFG well installation to be completed by July 31, 2024, as proposed by CCL. Upon installation of the LFG extraction wells, CCL is required to continue to monitor the methane levels in all perimeter monitoring wells on a weekly basis and provide the results to the LEA for a monitoring period of 120 days. If the LEA's monitoring shows that the concentration of methane is and remains below the regulatory limit for three (3) consecutive monitoring events and the weekly results submitted by CCL provide supporting evidence that the landfill gas is controlled not to exceed 5% bv in air at the Site's perimeter boundary, then the Site will be deemed compliant with 27 CCR § 20921. If compliance with 27 CCR § 20921 is not achieved within the 120-day monitoring period, then a new remediation plan must be submitted to the LEA for review and approval within 30 calendar days.

3.8 The February 2024 Remediation Plan was also approved by CalRecycle on April 15, 2024 (April 15, 2024 CalRecycle Letter) as required by 27 CCR § 20937.

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4.0 PLACEMENT OF CCL ON THE INVENTORY:

4.1 The LEA issued inspection reports of CCL dated September 1, September 19, October 25, November 28, December 19, 2023, and January 17, 2024. Violations of 27 CCR, Sections 20921 (Gas Monitoring and Control) and 20750 (Site Maintenance) have been noted monthly on LEA inspection reports to date beginning September 1, 2023, and November 28, 2023, respectively.

4.2 On February 8, 2024, CalRecycle notified CCL in a letter sent via certified mail, and received by CCL on February 10, 2024, that if the violations were not corrected within 90 days of receipt of the letter that pursuant to PRC § 44104, the site would be placed on the Inventory of Solid Waste Facilities Which Violate State Minimum Standards (Inventory).

4.3 After confirming with the LEA that violations of the noted standards remained uncorrected and were continuing, on May 16, 2024, pursuant to 14 CCR § 18364, an Inclusion letter was sent by CalRecycle, notifying CCL that CCL was placed on the "Inventory of Facilities Violating State Minimum Standards" list (Inventory List). Inclusion on the Inventory List requires the LEA to establish and issue a compliance schedule to the facility within 15 business days from the date of the inclusion letter. (14 CCR § 18365(a).)

4.4 The purpose of the compliance schedule is to ensure that diligent progress is made by the operator to bring the facility into compliance pursuant to PRC § 44106. (14 CCR § 18304.3.)

4.5 The compliance schedule may be incorporated into a Notice and Order. (14 CCR §§ 18304.3 and 18361(a).)

4.6 The Compliance Schedule must require that all tasks and deadlines be completed within the timeframes specified in 14 CCR § 18365(b).

5.0 VIOLATIONS:

5.1 CCL is in violation of 27 CCR § 20750 (Site Maintenance) and 27 CCR § 20921 (Gas Monitoring and Control).

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6.0 ORDER FOR COMPLIANCE SCHEDULE:

6.1 On June 4, 2024, the LEA met with CCL to discuss the issuance of the Compliance Order. The Compliance Schedule was reviewed with CCL and an extension was asked for the Compliance Deadline for Milestone 1A-2, 1B-1 and 2A-1. The LEA granted the extensions and has updated the deadlines to the dates requested by CCL.

6.2 Pursuant to PRC §§ 43209, 44106, 45000, 45005, 45011, 45017, and 45023, 27 CCR §§ 20750 and 20921, and 14 CCR §§ 18304, 18304.1, 18304.3(b), and 18365(a), Respondent CCL is hereby ordered to comply with the following compliance schedule to eliminate the existing violations:

Compliance Schedule		
27 CCR Section 20750 – Site Maintenance <i>The operator shall promptly repair or correct defective conditions with respect to state minimum standards. All other aspects of the site shall be kept in a state of reasonable repair. THE FINAL DATE TO ACHIEVE FULL COMPLIANCE WITH 27 CCR § 20750 IN ACCORDANCE WITH THE COMPLIANCE SCHEDULE IS AUGUST 2, 2024.</i>		
Milestone	Action Plan/Directive	Compliance Deadline
1A - 1	Submit a revised Air/Soil Break Plan to the LEA for review and approval. The revised Air/Soil Break Plan must fully address the LEA directives including data from TMPs and LFG collection wells (refer to the May 3, 2024, LEA Letter for details) to inform the required items mentioned below: a. Investigate how each cell or phase was constructed and examine if air/soil breaks between cells/phases can be exploited. The investigation should include a review of where haul roads were constructed to determine if the inert roads can also be used as fuel breaks. Information from the investigation should be used to develop where containment breaks should be placed. b. Propose a set of criteria for the primary and secondary engagement lines and the type of reaction breaks/barriers and/or mitigations. These criteria shall	July 8, 2024

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	<p>be based on temperature, CO, and possibly settlement rate. The primary engagement lines need to prevent the reaction from spreading in the main fill close to the reaction.</p> <p>The secondary engagement lines need to prevent the reaction from entering the eastern and southern fill areas at the toe of the slope.</p> <p>c. Investigate and propose construction of air/soil reaction breaks in the main 160-acre fill area for the reaction of the engagement lines with either an inert material or air.</p> <p>d. Include the construction of air/soil reaction breaks/barrier between Canyon C, A, D, and Cell 5 in the event the reaction reaches the secondary engagement lines.</p> <p>e. Include timelines and method of construction. The timelines and engagement lines must match.</p> <p>f. Use best available technology, such as grout injection, to slow or contain reaction movement to the south and east.</p> <p>g. Description of the criteria that will mandate the temporary suspension of placing new waste.</p> <p><i>CCL may submit an alternative plan to the LEA for review, only if such plan is adequately supported by substantive data and studies and provides assurances to the LEA that the reaction is no longer a threat to public health, safety and the environment.</i></p> <p>Note: If the air/soil break plan submitted by CCL is rejected by the LEA after the final compliance date for this violation, then a penalty will be assessed from the date LEA issues a rejection until the air/soil break plan is approved by the LEA. (No penalty will be assessed during the period of LEA review.)</p>	
1A - 2	<p>Submit a report with CO and H2 readings for all gas collection wells in the reaction area and wells 200 feet outside the reaction area, including the following:</p>	June 11, 2024

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	<p>a. The gas data tabulated with the following information: date collected or measured, wellhead temperature, analyte names and concentrations, including but not limited to permanent gases and H₂ analyzed using thermal conductivity detection/ gas chromatography (TCD/GC) ASTM D1946-14 and CO analyzed using flame ionization detection/total combustion analysis (FID/TCA), EPA Method ALT-144</p> <p>b. Sampling summary, map showing the reaction area as it is currently defined, gas sampling plan, Quality Assurance/Quality Control data, and proposed holding times, and whether holding times were exceeded, etc.</p> <p>c. Report as a standalone document that is signed by a licensed engineer or qualified responsible person.</p>	
1A - 3	Submit the laboratory test results for <u>all</u> monthly LFG sampling (including CO and H₂) from a set of LFG wells selected by the LEA after the baseline sampling for CO and H₂ is completed and provided to the LEA as described above. The LFG data that is collected must be submitted to the LEA in a standalone report signed by a licensed engineer or qualified responsible person and include a discussion of the sampling, LFG data, and a graphic showing CO and H₂ trends over time.	Monthly by the 15th of the following month, from the date that CCL receives the selected LFG wells from the LEA
1B - 1	<p>Submit a revised Completion Report for the installation of the TMPs that include the following:</p> <p>a. Site map that includes the location of the TMP's location, the completion depth at each well, and as-builts. The map must also include the reaction area as it is defined as of May 1, 2024.</p> <p>b. Provide real-time access to temperature data to the LEA and CalRecycle and specify the method of access (e.g., web portal).</p> <p>c. Temperature data that includes the maximum temperature recorded at each TMP.</p>	June 11, 2024

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	d. Signature and stamp of a licensed engineer or qualified responsible party to show all work can be clearly attributed to the licensee(s) in responsible charge of the work.	
1B - 2	<p>Continue to submit the Weekly TMP Reports. Revise the reports so they are standalone documents that include the following:</p> <p>a. Graphs that show the maximum temperature recorded at each TMP. CCL may choose to continue to also include the average temperature in the weekly reports.</p> <p>b. Map delineating the reaction area with the maximum observed temperature at each TMP with depth.</p> <p>c. Narrative describing any anomalies, outliers, data gaps, issues or malfunctions. The narrative must describe any temperature increases of 20°F or greater within 48 hours or 10°F in a week.</p>	June 7, 2024, and weekly each Friday thereafter
1B - 3	Provide a temperature contour map that shows each TMP with color-coded observations based on the maximum observed temperature collected during the month. Example was provided in the May 29, 2024 LEA Response.	Monthly by the 15th of the month beginning June 2024.
1B - 4	<p>Install three temperature probes around the area that is extending south into areas outside of the previously defined reaction area as shown in the Weekly Cover Report dated May 14, 2024. Map showing locations of wells around the extended reaction area was provided in the May 29, 2024 LEA Response.</p> <p>Provide a final completion report that includes a map and as-builts that is signed by a registered engineer or qualified responsible person.</p>	July 11, 2024
2A - 1	Install the approved 30-mil HDPE geosynthetic cover over the 30-acre reaction settlement area as defined in the Weekly Cover Reports dated up through May 28, 2024, and around any wells showing signs of reaction, i.e., any wells with temperature over 160°F or CO concentrations over 1,500 ppmv.	August 2, 2024

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2A - 2	<p>Continue to provide Weekly Updates on the Installation of the 30-mil Geosynthetic Cover including a map showing approximate limits of the installed geosynthetic cover. Updates shall include any delays due to rain events or other special occurrences.</p> <p>Revise the map to show the required 30-mil geosynthetic coverage area, delineate any areas showing settlement and any wells showing signs of reaction.</p>	<p>Ongoing on Fridays with revised map beginning June 14, 2024.</p> <p><i>(Note: Weekly reporting may be reduced in frequency or discontinued only after the required geosynthetic cover is installed and with LEA written approval.)</i></p>
2B	<p>Continue to submit the Weekly Geosynthetic Cover Reports as in the approved April 16, 2024 Revised Written Plan, include the required directives in the May 29, 2024 LEA Letter.</p>	<p>Ongoing</p> <p><i>(Note: Weekly reporting may be reduced in frequency or discontinued only with LEA written approval.)</i></p>
3 - 1	<p>Ensure slope stability issues are included in the Weekly Geosynthetic Cover Reports as directed in the May 3, LEA Letter and May 29, 2024 LEA Response.</p>	<p>Ongoing</p> <p><i>(Note: Weekly reporting may be reduced in frequency or discontinued only with LEA written approval.)</i></p>
3 - 2	<p>Submit a West and North Slope Stability Analysis Final Report that fully addresses LEA's comments.</p>	<p>Two weeks from the date of the LEA comment letter</p>
<p>27 CCR Section 20921 – Gas Monitoring and Control <i>The concentration of methane gas migrating from the disposal site must not exceed 5% by volume in air at the disposal site permitted facility boundary or an alternative boundary approved in accordance with § 20925.</i> THE FINAL DATE TO ACHIEVE FULL COMPLIANCE WITH 27 CCR § 20921 IN ACCORDANCE WITH THE COMPLIANCE SCHEDULE IS NOVEMBER 28, 2024.</p>		

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4 - 1	<p>Install and operate an additional 107 LFG extraction wells as per approved February 26, 2024 Remediation Plan for LFG Exceedance. Notify the LEA upon completion.</p> <p>Provide a final completion report that includes a map and as-builts that is signed by a registered engineer or qualified responsible person.</p>	July 31, 2024
4 - 2	<p>Continue to submit a weekly status update on the installation of the LFG extraction wells as per the May 8, 2024 LEA Letter.</p>	<p>Ongoing</p> <p><i>(Ongoing until completion of installation of all LFG extraction wells listed in the February 26, 2024 Remediation Plan.)</i></p>
4 - 3	<p>Continue to submit weekly results of methane readings at perimeter monitoring wells GP-13 and GP-15.</p>	<p>Ongoing until compliance with 27 CCR 20921 has been demonstrated as set forth in Milestone 4-4</p> <p><i>(Note: Weekly reporting may be reduced in frequency or discontinued only with LEA written approval.)</i></p>
4 - 4	<p>Demonstrate compliance with 27 CCR Section 20921 within the 120-day compliance period that begins after the completion of the planned LFG extraction well construction referred to in the February 2024 Remediation Plan.</p> <p>In order to demonstrate compliance, the concentration of methane must be at or below regulatory limit for three (3) consecutive monitoring events conducted by the LEA, and the weekly results submitted by CCL must provide supporting evidence that the LFG is controlled not to exceed 5% by volume in air at the site's perimeter boundary.</p>	<p>120 days after completion of the LFG extraction well installation and no later than November 28, 2024 (Compliance Period)</p> <p><i>(Note: November 28, 2024 is based on the</i></p>

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		<i>anticipated completion date for installation of the LFG extraction wells.)</i>
5	Submit a consolidated monthly report with individual maps overlayed with the following data in an easily understood format <ul style="list-style-type: none"> - Defined reaction area; - Expansion of reaction area if any; - Weekly TMP data; - Settlement with heat maps; and - LFG data including, but not limited to CO and H2 data 	Monthly by the 15th of the month, from the date that CCL receives the selected LFG wells from the LEA - Refer to Milestone 1A-3 <i>(Note: Monthly reporting may be reduced in frequency or discontinued only with LEA written approval.)</i>

7.0 APPLICABLE TO ALL MILESTONES:

7.1 CCL must obtain all required and necessary Federal, State, and local permits prior to commencement of any work at the site.

7.2 Notwithstanding anything to the contrary herein, if any of the above milestones and compliance deadlines cannot be met in good faith, CCL may submit a written extension request to the LEA setting forth good cause justification.

7.3 Pursuant to PRC § 45011, failure to comply with the final compliance date for each violation, unless otherwise excused in writing by the LEA, will result in the LEA issuing an administrative penalty order for penalties payable by CCL to the LEA, of up to \$5,000 per day for each day that CCL is in violation of the final compliance schedule for a particular violation, calculated from the day after the violation compliance date, until the date compliance is achieved and verified by the LEA.

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LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
SOLID WASTE MANAGEMENT PROGRAM
ACTING AS THE LOCAL ENFORCEMENT AGENCY (LEA)
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706

**8.0 NOTICE OF FURTHER PENALTIES AND ENFORCEMENT THAT MAY RESULT FROM
FAILURE TO COMPLY WITH THE LEA'S ORDER:**

8.1 The LEA may assess administrative civil penalties not to exceed five thousand dollars (\$5,000) for each violation, for each day that the violation continues, if compliance is not achieved in accordance with the compliance schedule set forth in this Order. (PRC §§ 45010.1 and 45011.)

8.2 The LEA may suspend or revoke the solid waste facility permit if the facility does not meet the requirements contained in the compliance schedule issued by the LEA until the violation(s) of state minimum standards which caused the facility to be included in the Inventory are remedied. (PRC §§ 44305 and 44306, and 14 CCR §§ 18307 and 18368(b).)

8.3 The LEA may file a petition in the Superior Court for injunctive relief to enforce any part of this Order. (PRC §45014.)

8.4 Upon failure to comply with the Order, the LEA may bring an action in the Superior Court to impose upon CCL civil penalties of not more than ten thousand dollars (\$10,000) for each day a CCL is in violation of the Order. (PRC §§ 45023 and 45024.)

8.5 The LEA and/or CalRecycle shall not be liable for injuries or damages to persons or property resulting from acts or omissions by CCL or related parties in carrying out activities pursuant to this order, nor shall the LEA and/or CalRecycle be held as a party to any contract entered into by CCL or its agent(s) in carrying out activities pursuant to this Order.

8.6 Nothing in this Order shall constitute or be construed as a satisfaction or release from liability for any conditions or claims arising as a result of past, current, or future operations. Notwithstanding compliance with the terms of this Order, CCL may be required to take further actions as necessary to protect public health and safety or the environment.

8.7 This Order does not relieve CCL from complying with all other local, state, and federal requirements or prevent the LEA and/or CalRecycle from taking any and all other actions allowed by law.

8.8 This Order is supported by the accompanying declarations by Eric Morofuji and Mark Como.



LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
SOLID WASTE MANAGEMENT PROGRAM
ACTING AS THE LOCAL ENFORCEMENT AGENCY (LEA)
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706

8.9 This Order may only be amended in writing by an appropriate representative of the LEA.

9.0 RIGHT TO APPEAL

9.1 CCL has the right to appeal this Order (PRC §§ 44307 and 44310) by submitting a written request for a hearing, together with a statement of issues on which appeal is based, within 15 days. Request for Hearing is provided with this Order. The appeal must be sent via U.S. Mail to Los Angeles County Public Health, Solid Waste Management Program/Local Enforcement Agency (LEA), 5050 Commerce Drive, Baldwin Park, Ca 91706, Attention: Karen Gork or via electronic mail to kgork@ph.lacounty.gov.

9.2 An appeal does not stay the effect of any provision of this Order. However, you may petition the Director of CalRecycle, in writing, to stay the effect of this Order, or portion thereof, pending the completion of administrative appeals. (PRC § 45017.) A petition submitted must be in writing and shall state the extraordinary circumstances that justify the stay. The petition shall also state the grounds, if any, on which a finding may be made that the immediate effect of the order or determination will preclude or interfere with the provision of an essential public service so that the public health and safety or the environment will be adversely affected.

10.0 CERTIFICATION

10.1 This Compliance Order is issued as of the date set forth below.

Signed: Liza Frias Date: June 6, 2024

Liza Frias, Director, Environmental Health
Los Angeles County LEA

Attachments:

Declarations
September 1, 2023 LEA Focused Inspection Report



LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
SOLID WASTE MANAGEMENT PROGRAM
ACTING AS THE LOCAL ENFORCEMENT AGENCY (LEA)
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706

September 19, 2023 LEA Periodic Inspection Report

October 25, 2023 LEA Periodic Inspection Report

November 28, 2023 LEA Periodic Inspection Report

December 19, 2023 LEA Periodic Inspection Report

January 17, 2024 LEA Periodic Inspection Report

February 7, 2024 LEA Periodic Inspection Report

March 26, 2024 LEA Periodic Inspection Report

April 30, 2024 LEA Periodic Inspection Report

May 14, 2024 LEA Focused Inspection

October 16, 2023 CalRecycle Letter

October 17, 2023 LEA Letter

October 20, 2023 CCL Response

November 14, 2023 CalRecycle Letter

November 21, 2023 LEA Letter

December 6, 2023 CCL Response

April 5, 2024 LEA Letter

April 12, 2024 CCL Response

March 27, 2024 Plan

May 3, 2024 LEA Letter

May 8, 2024 Data

May 28, 2024 LEA Letter

December 20, 2023 Plan

December 22, 2023 LEA Letter

January 2, 2024 CCL Letter

January 17, 2024 CCL Letter



LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
SOLID WASTE MANAGEMENT PROGRAM
ACTING AS THE LOCAL ENFORCEMENT AGENCY (LEA)
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706

January 29, 2024 LEA Letter

February 26, 2024 LEA Letter

February 29, 2024 CCL Letter

March 4, 2024 CCL Letter

March 20, 2024 LEA Approval

March 20, 2024 LEA Letter

March 28, 2024 Report.

April 16, 2024 CCL Letter

April 24, 2024 LEA Letter

May 3, 2024 CQA Report

May 29, 2024 LEA Response

December 8, 2023 CCL Memorandum

December 14, 2023 LEA Letter

December 19, 2023 CCL Plan

December 20, 2023 LEA Letter

December 29, 2023 CCL Letter

January 23, 2024 CCL Letter

January 26, 2024 LEA Letter

February 2, 2024 (CCL Letter)

April 19, 2024 CCL Memorandum

May 10, 2024 LEA Letter

May 14, 2024 CCL Updated Schedule

May 14, 2024 CCL Plan

May 29, 2024 LEA Letter

December 6, 2023 Cover Tracking Plan



LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
SOLID WASTE MANAGEMENT PROGRAM
ACTING AS THE LOCAL ENFORCEMENT AGENCY (LEA)
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706

December 21, 2023 Revised Plan

January 3, 2024 LEA Letter

March 22, 2024 LEA Letter

April 16, 2024 Revised Plan

May 2, 2024 LEA Letter

CCL Barrier Discussion presentation

Isolation Break Criteria Example document

December 2023 Slope Stability Analysis Plan

February 2024 Slope Stability Analysis Report

February 26, 2024 60-Day Remediation Plan for GP-13 and GP-15

April 15, 2024 CalRecycle Response to 60-Day Remediation Plan

May 8, 2024 LEA Letter Response to 60-Day Remediation Plan

Request for Hearing Form



BARBARA FERRER, Ph.D., M.P.H., M.Ed.
Director

MUNTU DAVIS, M.D., M.P.H.
County Health Officer

ANISH P. MAHAJAN, M.D., M.S., M.P.H.
Chief Deputy Director

NICHOLE QUICK, M.D., M.P.H.
Deputy Director for Health Protection

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Kathryn Barger
Fifth District

September 24, 2024

Via Electronic Correspondence

Steve Cassulo
Steven.cassulo@WasteConnections.com
District Manager
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

SUBJECT: CHIQUITA CANYON LANDFILL (SWIS NO. 19-AA-0052) – LEA RESPONSE TO CHIQUITA CANYON'S REVISED SOIL REACTION BREAK/BARRIER PLAN – MILESTONE 1A-1 OF THE LEA COMPLIANCE ORDER DATED JUNE 6, 2024

Dear Mr. Cassulo,

On July 8, 2024, the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), received the Revised Soil Reaction Break/Barrier Plan (Plan) dated July 8, 2024, prepared by SCS Engineers for Chiquita Canyon Landfill (CCL) to comply with Milestone 1A-1 of the LEA Compliance Order dated June 6, 2024.

The LEA, in collaboration with CalRecycle, has determined that the Plan is insufficient to address the Subsurface Elevated Temperature (SET) Event and to control shallow reactions, which could lead to further expansion and increased risks. Below are key concerns from the enclosed CalRecycle review letter dated September 20, 2024 (CalRecycle Letter), along with directives on determining the criteria for barrier installation and implementation strategies. **To ensure full understanding and compliance, please thoroughly review the enclosed CalRecycle Letter, as it contains critical details that are not fully incorporated in this letter.**

The landfill's reaction area has expanded beyond CCL's initially defined area, with temperature increases detected outside the geomembrane at shallow depths of 15 to 30 feet at several temperature monitoring probes (TMPs), notably a 33.4°F spike at TMP-15 in one day.

The reaction now extends both east and south of the originally defined area, necessitating immediate containment measures. CCL must establish a barrier for the SET Event, with three areas of concern: the primary reaction area and two small areas to the east and south. Furthermore, the main reaction area is larger than previously reported, with CalRecycle defining the boundary as the entire area under the geomembrane cover as of August 1, 2024.

CCL is required to submit a revised Plan by October 24, 2024, that incorporates the updated threshold and barrier installation criteria, and installation of an additional TMP as described below:

Threshold Limit Criteria as Presented in Exhibit 2 in the CalRecycle Letter

Temperature Criteria: If the in-situ waste temperature exceeds 230°F, down well gas temperatures exceed 230°F, or drill tailings temperatures exceed 250°F, CCL must begin installation of a barrier within 30 days. Furthermore, any temperature spike greater than 50°F over a 30-day period will necessitate immediate sampling of landfill gas (LFG) and consultation with the LEA to determine the next steps.

LFG Criteria: The LFG composition, a barrier installation may be required if methane levels fall below 15%, hydrogen exceeds 5%, or carbon monoxide rises above 1,500 ppmv. If these conditions are met, gas samples from adjacent wells must be analyzed to determine whether the reaction is expanding. If no signs of expansion are detected, continuous monitoring must continue every 30 days until the reaction stabilizes. CCL, LEA and other agencies will meet to discuss the results and determine whether additional sampling or barrier is required.

Other Criteria: In addition to temperature and LFG monitoring, settlement rates and strain should be observed regularly to assess the reaction's expansion. Although settlement data is important for tracking physical changes, it should not be used as a primary criterion for barrier installation. Dimethyl sulfide and Chemical Oxygen Demand (COD) should not be used as reliable indicators of a SET event due to insufficient evidence supporting their use. Similarly, while benzene concentrations should be monitored, they will not serve as primary criteria for barrier installation but may be used to support the assessment of other gas indicators.

Barrier Construction Strategies Based on the Reaction Depth

For reactions occurring at depths of less than 50 feet, a 4-foot-wide soil trench should be constructed, extending at least 40 feet deep or to the leachate liquid level. This trench must be backfilled with low-permeability soil and compacted to achieve a permeability no greater than 1×10^{-5} cm/s to act as an effective fuel break.

For deeper reactions, the barrier must be constructed using borehole drilling combined with flowable fill injection. If this method proves ineffective, a vertical shaft barrier should be installed using a bucket auger drill rig with a 3 to 4-foot diameter augur, drilled to a minimum depth of 50 feet or leachate liquid level, and backfilled with a cement-bentonite or soil-bentonite mixture to form a continuous barrier. See Figure 5 in the CalRecycle Letter.

Installation of an additional TMP as noted below.

The proposed additional temperature monitoring probes (TMPs) listed in Appendix D of the Plan, including the "Sentinel" TMPs and Primary & Secondary Engagement Lines, are accepted. Due to the recent temperature spike at TMP-10, one TMP must be added at the location shown in Figure 6 in the CalRecycle Letter. The installation of these additional TMPs is required, with

priority given to the new probe's placement near TMP-10 in light of the observed temperature increase.

Ensure no waste is placed within 500 feet of the current reaction area before, during, and after the implementation of barrier plan, creating a buffer zone to maintain adequate spacing between the reaction area and other areas of the landfill.

Submit the revised Plan that includes the signature of a qualified person or licensed engineer.

In addition, CalRecycle recommends that the CCL limit oxygen to no more than 2 percent in any interior gas well within the main waste area. Please discuss this recommendation with the South Coast Air Quality Management District.

If you have any questions, please contact Karen Gork at (626) 430-5540.

Sincerely,



Shikari Nakagawa-Ota
Branch Director, Environmental Protection Branch
Los Angeles County Local Enforcement Agency (LEA)

Enclosure

Cc: (Via Electronic Correspondence Only)

- 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
- Ken Habaradas, Los Angeles County LEA
- Karen Gork, Los Angeles County LEA
- Renee Jensen, LEA Counsel (rjensen@fwhb.com)
- Blaine McPhillips, Senior Deputy County Counsel
- Emiko Thompson, Los Angeles County Department of Public Works
- Alex Garcia, Los Angeles County Department of Regional Planning
- Ai-Viet Huynh, Los Angeles County Department of Regional Planning
- Wes Mindermann, CalRecycle (wes.mindermann@calrecycle.ca.gov)
- Janelle Heinzler, CalRecycle (janelle.heinzler@calrecycle.ca.gov)
- Jeff Lindberg California Air Resources Board (jeff.lindberg@arb.ca.gov)
- Vanessa Aguila, California Air Resources Board (vanessa.aguila@arb.ca.gov)
- Jack Cheng, South Coast Air Quality Management Board (jcheng@aqmd.gov)
- Larry Israel, South Coast Air Quality Management Board (lisrael@aqmd.gov)
- Douglas Cross, Los Angeles Regional Water Quality Control Board (dcross@waterboards.ca.gov)
- Joel Jones, United States Environmental Protection Agency (Jones.Joel@epa.gov)



Department of
Resources Recycling and Recovery

Yana Garcia
Secretary for Environmental Protection
Zoe Heller
CalRecycle Director

September 20, 2024

Via Email: kgork@ph.lacounty.gov

Karen Gork
Chief Environmental Health Specialist
Los Angeles County Department of Public Health
5050 Commerce Drive
Baldwin Park, California 91706

Subject: Chiquita Canyon Landfill (19-AA-0052) Review – Revised Soil Reaction Break/Barrier Plan dated July 8, 2024

Dear Ms. Gork:

CalRecycle staff is providing this letter in response to your July 2024 request for technical assistance in reviewing the subject Chiquita Canyon Landfill's (CCL) Revised Soil Reaction Break/Barrier Plan.

The following comments are provided to the Los Angeles County Department of Public Health [Local Enforcement Agency (LEA)] as assistance to support the program in carrying out its responsibilities on permitted disposal sites. The final determination as to the comments to be provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in Title 14, California Code of Regulations (14 CCR), Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the Public Resources Code.

Discussion

The main waste area, which contains the 40-acre reaction area, consists of cells 1 and 2, modules 1 to 5, and canyons A to D. Figure 1 identifies the current area covered by the geomembrane as of September 5, 2024.

The subject plan recommends installing additional temperature monitoring probes (TMP), placing a soil layer over where the reaction occurs, and injecting inert material as a barrier layer. The plan deems other methods, such as inert material barriers, air breaks, and trench excavations, implausible due to incompatible timelines, logistical and public concerns, increased air emissions and potentially hazardous conditions,

increased fire risk, and/or impaired ability to address Elevated Temperature Landfills (ETLF).

CalRecycle staff has determined that the Revised Soil Reaction Break/Barrier Plan is insufficient to control shallow reaction expansions, which may lead to rapid reaction expansion and jeopardize the entire 190-acre main waste area.

It appears the CCL is no longer using the term “unknown chemical reaction” to describe the reaction at the landfill but has adopted an industry-developed term, Elevated Temperature Landfill (ETLF). However, this term also does not indicate a cause of the reaction. The waste industry claims ETLFs are generally characterized when municipal solid waste (MSW) decomposition is impeded by heat accumulation and are not smoldering fires.

To date no evidence to support this conclusion has been provided for this incident. Nor has a root cause analysis been performed for this incident by examining the conditions that led to the initial event at gas control wells CV-109-55, CV-1419, and CV-1418. Before 2014, the waste industry generally defined a Subsurface Elevated Temperature (SET) Event as a gas wellhead temperature measured greater than 131°F at a site that had accepted unknown or reactive industrial waste. After 2014, the waste industry changed the definition of a SET Event to a landfill that had measured wellhead temperatures above the regulatory thresholds of 131°F or 145°F from an abnormal chemical reaction and not a subsurface fire or waste smolder.

Around 2015, the Environmental Research and Education Foundation (EREF) conducted multiple studies on SET Events. The research group selected for the EREF study first proposed that SET Events were a function of landfill depth. This hypothesis for a SET Event was based on the ideal gas law (i.e., $PV = nRT$, where P is pressure, V is volume, n is the number of moles in the gas, R is the gas constant, and T is temperature). Using the ideal gas law, the EREF studies surmised that the increased pressure created by the waste above can generate higher temperatures as waste depth increases. This hypothesis was disproved using vertical temperature profiles derived from using thermocouples at several landfills experiencing a SET Event and temperature data from California landfills with deep-fill designs.

The second hypothesis of the EREF-sponsored research was that a self-sustaining exothermic pyrolysis reaction caused SET Events. This hypothesis was disproven in 2022 because EREF revealed that self-sustaining exothermic pyrolysis reactions did not cause SET Events. As a result, the current waste industry consensus is that SET Events are due to landfills accepting unknown industrial waste (e.g., aluminum dross) that causes unknown chemical exothermic reactions under certain conditions. The industry consensus that landfills with SET Events have accepted unknown reactive industrial wastes is not supported by any published research, root cause analysis per USEPA, New Source Performance Standard (NSPS) regulations, probable cause assessment, or post-industrial chemical investigation such as ones performed by the United States Chemical Safety Board. While some landfills knowingly and unknowingly

accept reactive industrial waste, suggesting that a landfill can accept some unknown industrial waste disposed of over 20 to 80 acres at the same elevation in different waste cells with interim soil covers constructed 2 to 10 years apart is unlikely. Additionally, the CCL has stated the facility has not accepted any hazardous or reactive wastes during its operational period.

CalRecycle staff maintains there are only three known causes of a SET Event: (1) thermophilic bacteria, (2) reactive industrial waste causing heat, and (3) combustion, pyrolysis, and/or smoldering due to oxygen intrusion. To suggest a SET Event cannot be related to a fire or smolder and can only be caused by a landfill accepting industrial waste is unrealistic.

Lastly, the CCL stated they are “not aware of regulations or guidance published by federal or state regulatory agencies that inventory specific numerical values for these parameters,” which is factually incorrect. The CCL is correct that no federal or state regulations or published guidance that inventory specific numerical values for these parameters for unknown chemical reactions or ETLFs.

However, SCS Engineer Robert P. Stearns was the first in the nation to establish criteria for identifying and controlling landfill fires in 1984. CalRecycle and other state regulatory agencies later referenced the Stearns criteria in many guidance documents. The USEPA also implemented new landfill gas control regulations to investigate and control SET Events. The USEPA and the Ohio EPA developed a set of criteria in the following document:

Final Report, Work Activities Pursuant to Administrative Agreement and Order on Consent for Removal Action (AOC), Docket No. V-W-'08-C-897, Countywide Recycling and Disposal Facility, East Sparta, Stark County, Ohio, dated October 2009

The criteria determined when and where to install the air break at the Countywide Landfill. There are also other documents available with specific break criteria for the Bridgeton Incident in Missouri.

Criteria for Reaction Area

Several criteria and details must be established to install a barrier in a SET Event. The first issue is to provide a starting point for the SET Event area. The recent TMP data from August 30, 2024, and September 12, 2024, the reaction is beginning to show the following:

- Temperature increases outside the geomembrane at shallow depths of 15 to 30 feet at TMP-8, TMP-10, TMP-13, TMP-15, and TMP-17.
- The 15-foot thermocouple at TMP-8 showed a change in maximum temperature of 16.2°F in 14 days from 115.3°F to 131.5°F from August 30 to September 11, 2024, and the 30-foot thermocouple showed a change in maximum temperature of 16.8°F in 14 days from 120.0°F to 136.8°F from September 1 to September 11, 2024.

- TMP-10 increased by 19.8°F within 48 hours from August 30 to September 5, 2024, and 41.6°F in 14 days from 126.1°F to 167.7°F from August 25 to September 8, 2024.
- TMP-13, TMP-15, and TMP-17 also show temperature spikes of 20°F to 25°F during the week of August 16 to August 22, 2024. The most significant temperature spike was from TMP-15, where the temperature rose 33.4°F in one day from September 5 to September 6, 2024, at the 30-foot thermocouple. Figures 2 and 3 show examples of the shallow temperature spikes in TMP-13 and TMP-10, respectively.
- The CCL-identified reaction zone from the depths of 70 feet to approximately 140 feet has remained consistent since July 26, 2024.

Based on the CCL's project data, past settlement rates, fissure reports, drilling logs, TMP data, field observations, odor data, landfill gas (LFG) data, 24-hour high temperature reports required by Title 40 of the Code of Federal Regulations (40 CFR) Section 63.1981(k), physical evidence, and other factors there are three distinct areas of concern: the primary reaction reported by CCL and two newly identified smaller reaction areas to the east and the south. The data also indicates that the main reaction area is larger than reported by the CCL. As of August 1, 2024, CalRecycle considers the reaction boundary to be defined as the entire area under the geomembrane cover identified in Figure 1.

Criteria for Barrier Installation

The CCL proposes to install the reaction break/barrier at the primary and/or secondary engagement lines, as shown in Figure 4, only if all the Threshold Criteria Limits shown in Exhibit 1 are exceeded at the corresponding Sentinel Monitoring Network (i.e., TMPs and associated vertical LFG extraction wells). The criteria for implementing containment strategies will be the same as determining whether the reaction is expanding with several verifications to ensure the decision to install a barrier is valid. Temperature will be the primary standard for installing a barrier, with LFG data being the secondary standard.

CalRecycle Recommended Barrier Activation Requirements

Exhibit 2 presents the recommended barrier activation requirements. Should condition one or two in Exhibit 2 below be exceeded, the CCL will implement a barrier strategy based on the depth of the reaction.

Temperature Criteria

The CCL has proposed a temperature of 250°F as one of the metrics for installing a barrier. The highest recorded temperature to date in the reaction area has been approximately 230°F. Using a temperature requirement of 250°F would allow the reaction to continue to expand as it has since January 2022. Additionally, using a down well temperature of 250°F in PVC schedule 80 gas wells outside the reaction area is

also problematic due to the thermal breakdown and the collapsing of PVC well casings at temperatures above 180°F.

Based on current reaction temperature data, CalRecycle recommends that the temperature criteria be based on actual recorded maximum temperature and changes in temperature observed over a short period. The temperature baseline for TMPs, wellheads, and down wells outside the reaction area will be August 1, 2024. Should new wells or TMPs be installed or new down well temperatures be collected, the baseline temperature will be the initial temperature collection.

CalRecycle recommends that if the in-situ waste temperature from a TMP exceeds 230°F, a down well gas temperature exceeds 230°F, or a temperature recorded from drill tailings using a forward-looking infrared (FLIR) device exceeds 250°F, the CCL will implement one of the barrier strategies discussed below within 30 days.

Landfill Gas Composition Criteria

CalRecycle concurs with the CCL's temperature requirement of 190°F for wellhead or down well temperatures and other LFG data to confirm that a barrier should be installed as a secondary standard. LFG data (i.e., O₂, CO, H₂, CH₄, CO₂) will be analyzed using laboratory methods.

If the temperature does not exceed the criteria listed in condition one but does exceed 190°F or increases by 50°F within 30 days, additional landfill gas will be collected twice and analyzed for CO, H₂, CH₄, and CO₂ within 15 days. The CCL will also sample the four adjacent wells for the field gas data. If the adjacent wells do not show indications of a reaction for temperature or landfill gas indicators, three additional monitoring events for temperature (i.e., wellhead and down well) and landfill gas (i.e., O₂, CO, H₂, CH₄, CO₂, and TO-15) will occur every 30 days. The landfill will submit the results of each sampling event to the LEA for consultation. Should the results in the adjacent wells not show an increase in temperature or problems with O₂, CO, H₂, CH₄, CO₂, or TO-15, the target well should continue to be monitored every thirty days until the temperature stabilizes and is repeatable.

The CCL will meet with the LEA and other agencies to discuss the results and determine whether additional sampling or a barrier is required. The barrier construction decision will be based on temperature and the following landfill gas criteria: CO above 1,500 ppm, H₂ above 5 percent, or CH₄ below 15 percent. For recommended criteria, see Exhibit 2. If the LEA determines a barrier is required, the CCL will submit a work plan for approval.

Settlement Rate Criteria

The CCL proposes to use strain rate and change in historic change strain rate as criteria to implement the barrier plan. Criteria based on settlement rates are post-SET Event indicators, and CalRecycle does not recommend their use as criteria to

implement proactive protective measures such as a barrier. Settlement rates and tracking are critical physical properties that can help identify the reaction rate of expansion occurring through an area.

Other Criteria

There is little evidence that dimethyl sulfide and COD are reliable indicators of a SET Event, and CalRecycle does not recommend their use. While high benzene concentrations have been shown to occur at SET Events, the temperature in waste at which benzene is produced at the regulatory threshold level has yet to be determined. CalRecycle agrees with the CCL and will not use benzene as a criterion to install the barrier at the CCL. Benzene levels will be used to support the other known SET Event landfill gas criteria.

Barrier Strategies

As requested, the CCL reviewed historical documentation to research how waste disposal units were constructed and operated. The review efforts focused on the existence and location of any physical features that could impede the propagation and movement of reaction within the waste mass. The CCL found no cell separation berms or legacy roads that would prevent the reaction from limiting the movement. The evaluation of intermediate soil cover layers between cells to provide a fuel break was inconclusive. A 2004 imagery shows soil placed up against the western and southwestern side slopes of Cell 1/2A, Cell 2 Phase 2B, and Canyon A slopes, but recent well logs did not provide evidence that there was a substantial intermediate cover.

As such, the plan lists the following five potential scenarios to impede the reaction:

- 1) Air break through avoidance of placement of additional waste lifts overlying existing buried wastes.
- 2) Air break through excavation to “cut out” existing buried wastes.
- 3) Soil barrier through placement of soil layer atop existing landfill surface.
- 4) Soil barrier through excavation and backfilling of a deep trench.
- 5) Inert material barrier through borehole drilling, dewatering, and flowable fill injection.

The plan states that while an air break (Scenario #1), an air break excavation (Scenario #2), and a soil barrier through excavation (Scenario #5) may be plausible at other SET Events, the CCL deemed them implausible or unsuitable for implementation at the CCL. The CCL proposes to implement a combination of placing a soil layer atop the existing landfill surface and the construction of an inert material barrier through borehole drilling, dewatering, and flowable fill injection.

CalRecycle Recommended Barrier

If the reaction is less than 50 feet deep, a soil trench, soil boring, or combination will be required to create a fuel break and contain it.

The trench will be 4 feet wide and at least 40 feet deep or to the leachate liquid level. Low-permeability soil will be placed and compacted in lifts to achieve a permeability of no greater than 1×10^{-5} cm/s. The excavated trash will be logged for physical properties, including temperature from a FLIR, physical condition, and color. If the waste is not reactive, it may be placed in the disposal area indicated in the work plan. If the waste is reactive, the material should be removed from the main waste cell, taken to a predesignated staging area, and handled in a method approved by the LEA.

For reactions at depths greater than 50 feet, an inert material barrier can be constructed through borehole drilling, dewatering, and flowable fill injection. Should the injection method be ineffective at containing the reaction, a vertical barrier would be drilled to a depth of at least 50 feet or the liquid level by a bucket auger drill rig with a 3 to 4-foot diameter auger. The resulting vertical elements will be backfilled with a soil-bentonite or cement-bentonite mix that will resist heat transmission through the barrier. The shafts would be tangent (i.e., touching or overlapped), as shown in Figure 5, to create a continuous barrier across the narrow point of the landfill.

Additional TMP Installation

CalRecycle recommends that the LEA accept the proposed additional TMPs listed in Appendix D, Proposed “Sentinel” Temperature Monitoring Probes and Primary & Secondary Engagement Lines. In addition, due to the recent temperature spike at TMP-10, the CCL should add one TMP at the location shown in Figure 6. This temperature probe should be the first TMP installed.

Summary of Recommendations for LEA Consideration

CalRecycle Staff recommends the LEA consider the following:

- Require the CCL to revise the plan to incorporate the threshold limit criteria presented in Exhibit 2.
- Require the CCL to revise the plan to incorporate the barrier construction recommendations.
- Accept the proposed additional TMPs listed in Appendix D, Proposed “Sentinel” Temperature Monitoring Probes and Primary & Secondary Engagement Lines. In addition, due to the recent temperature spike at TMP-10, the CCL should add one TMP at the location shown in Figure 6. This temperature probe should be the first TMP installed.
- Allow no waste to be placed closer than 500 feet from the current reaction area.
- Recommend that the CCL limit oxygen to no more than 2 percent in any interior gas well within the main waste area.

Karen Gork
September 20, 2024
Page 8 of 15

If you have comments or questions, please call (916) 341-6356 or email
Todd.Thalhamer@Calrecycle.ca.gov.

Sincerely,



Todd Thalhamer, P.E.
Senior Waste Management Engineer
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Cc Via Email:

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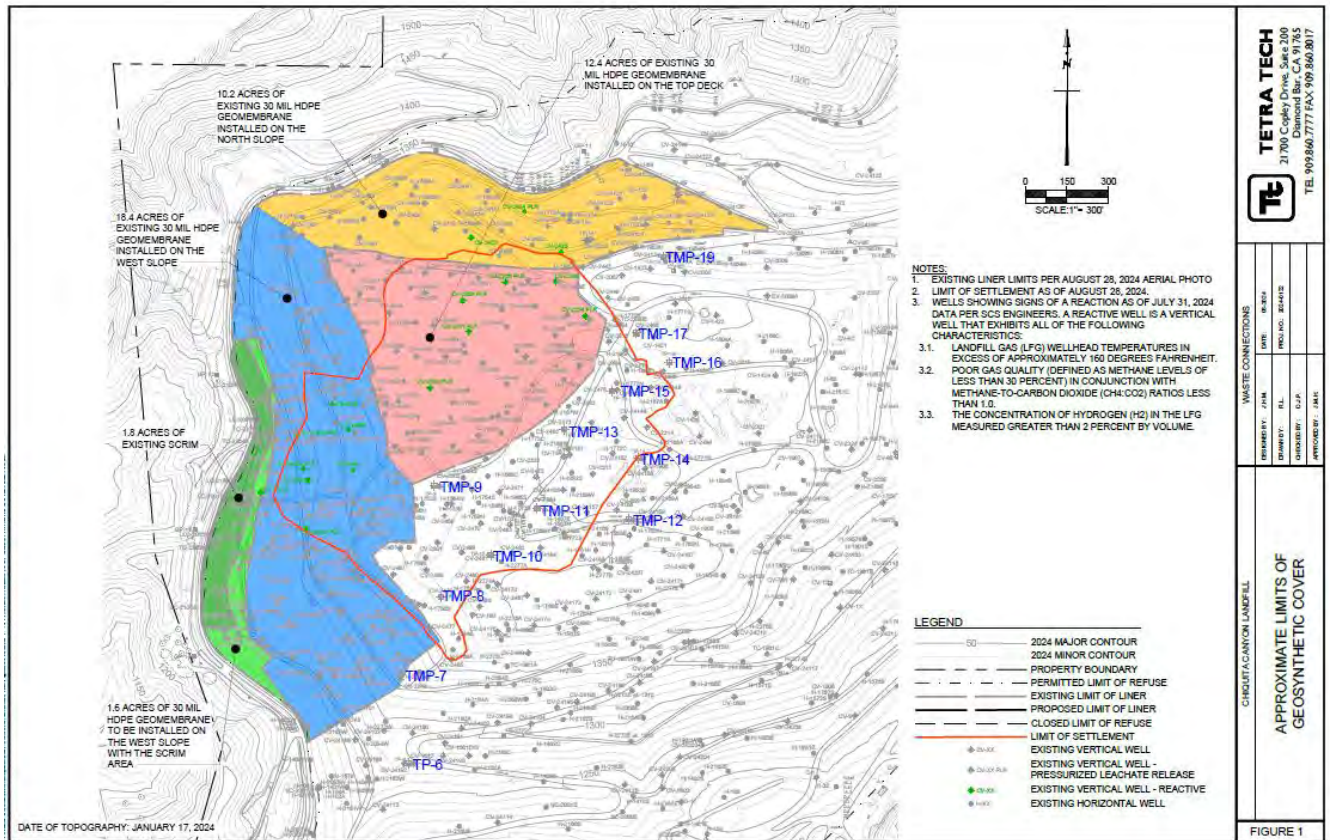


Figure 1. Current Reaction Area Under the Geomembrane Area as of September 5, 2024.

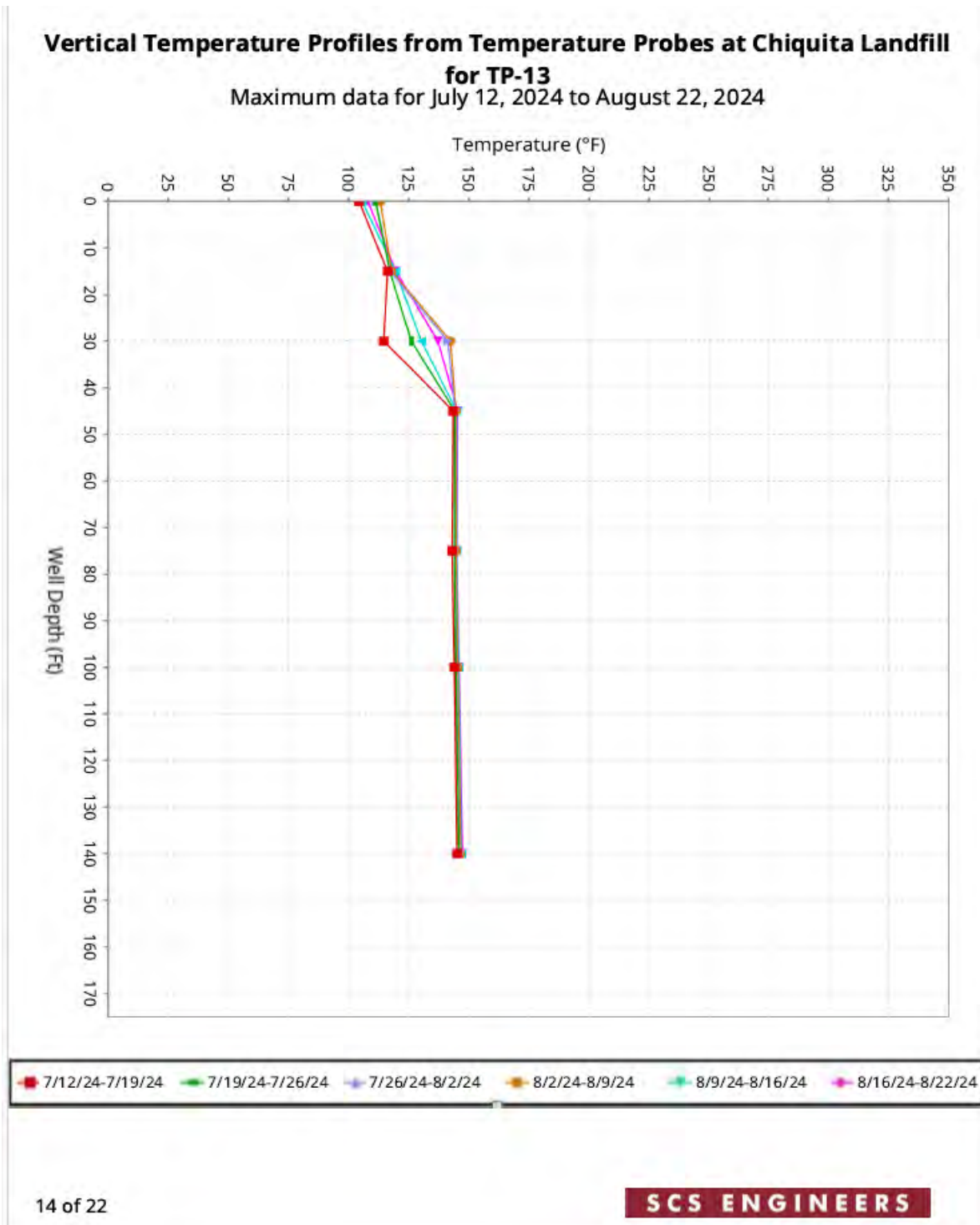


Figure 2. Temperature Spike at TMP-13 as Measured at 30 Feet from July 12 to August 16, 2024.

**Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill
for TP-10**

Maximum data for August 2, 2024 to September 12, 2024

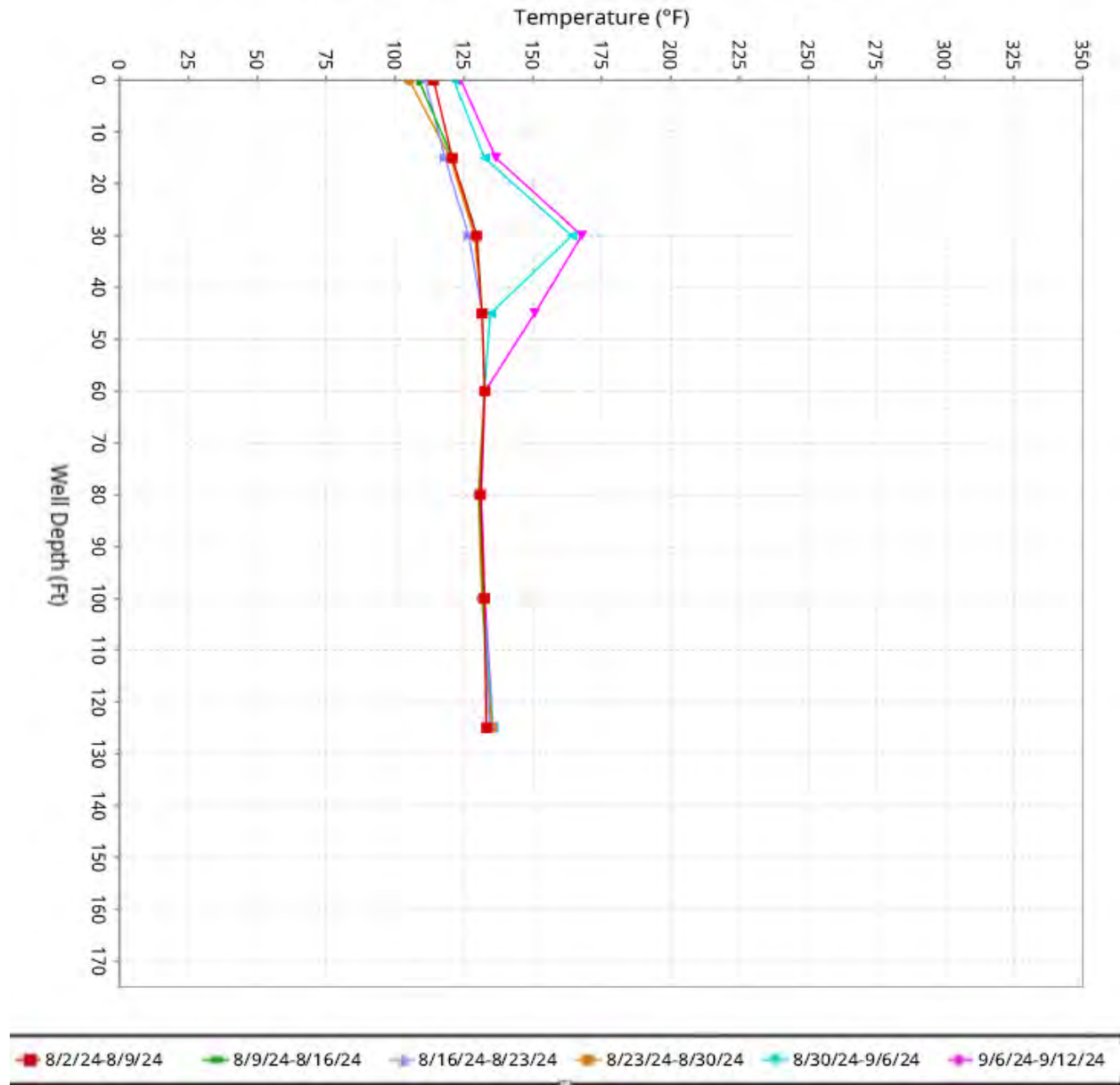


Figure 3. Temperature Spike at TMP-10 as Measured at 30 Feet from July 26 to September 12, 2024.

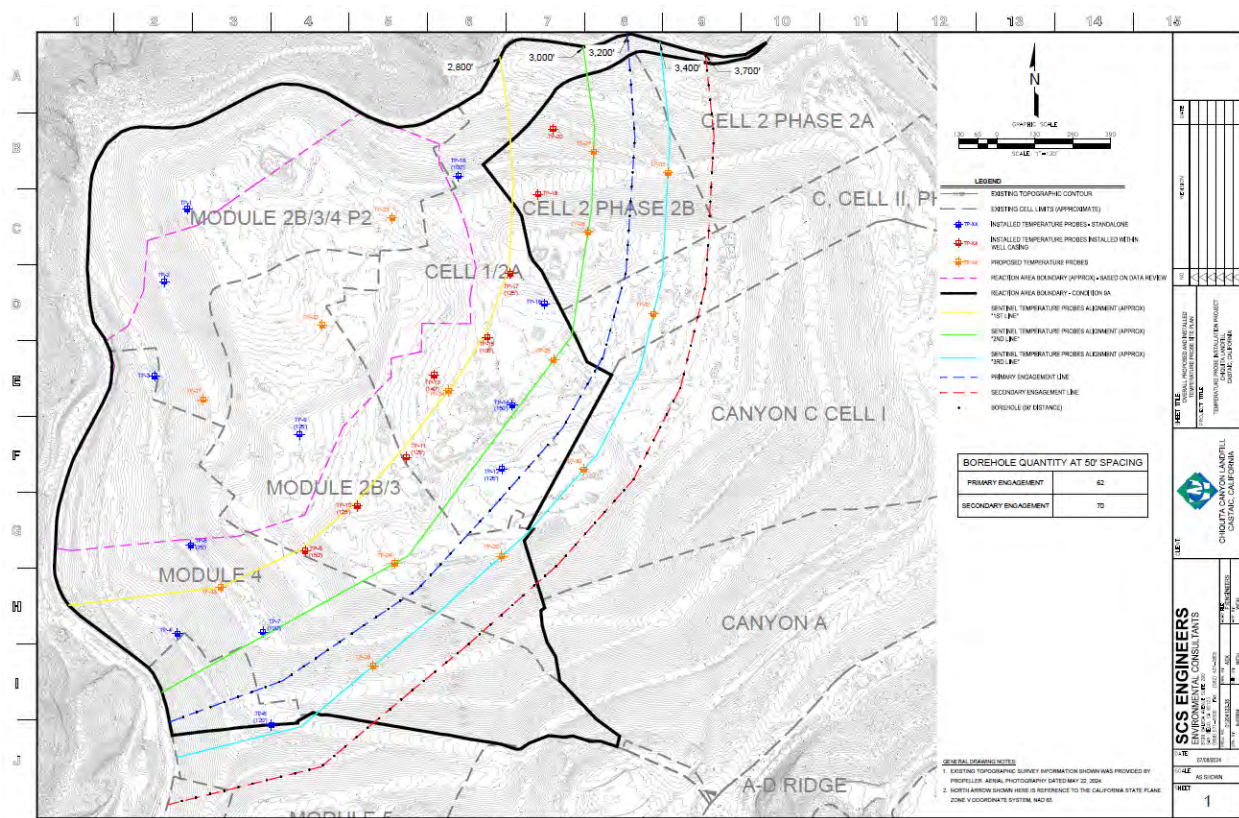


Figure 4. CCL's Temperature Probe Installation Project, Dated July 2024.

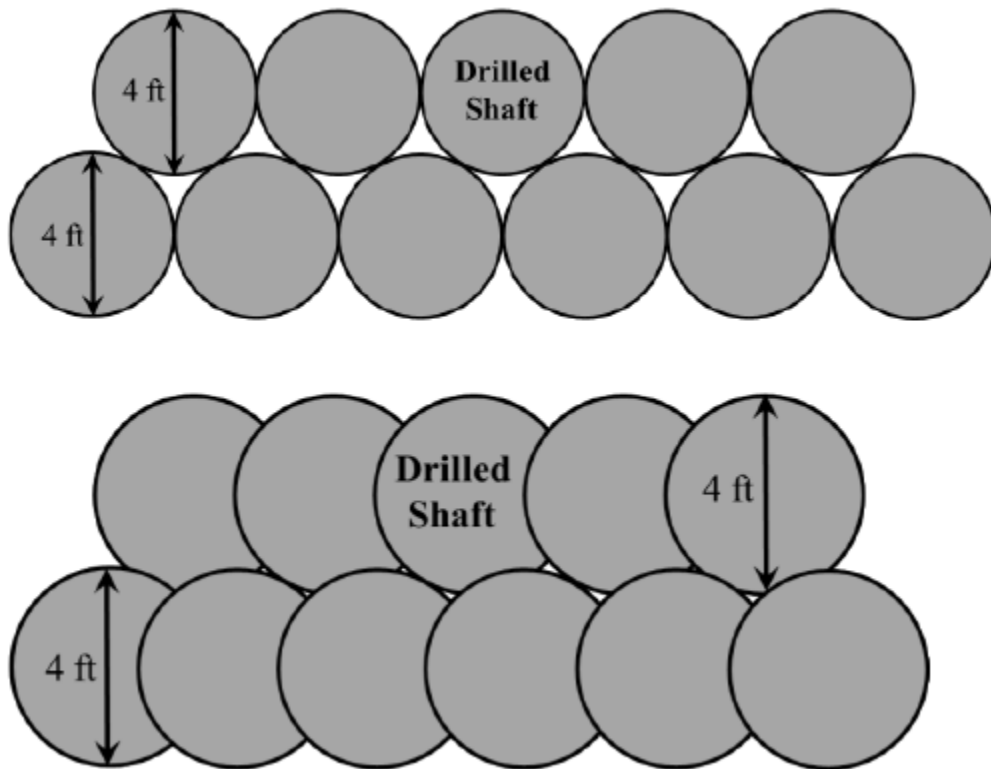


Figure 5. Vertical Shaft Barrier.

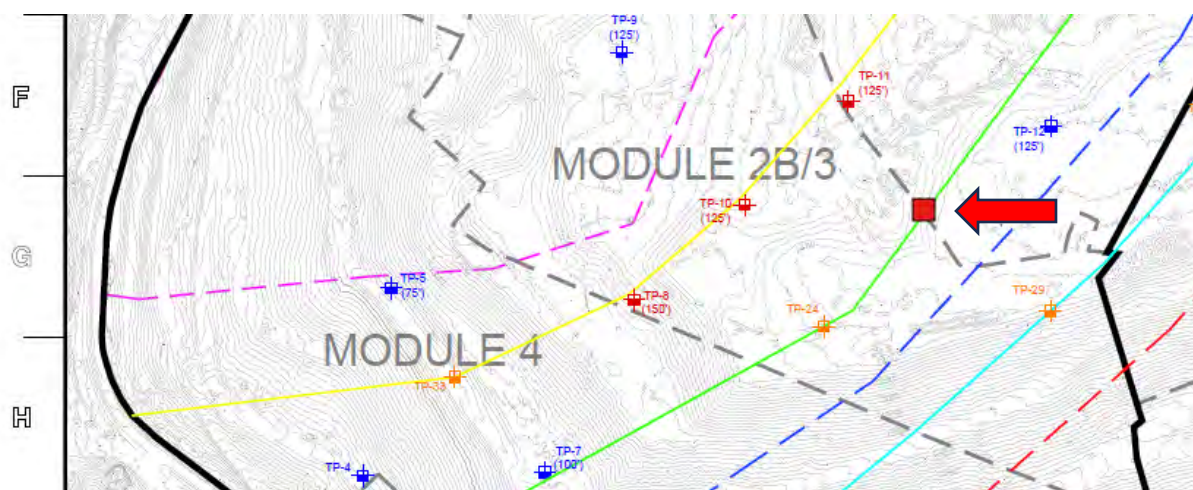


Figure 6. Location of Additional TMP Shown on the CCL's Temperature Probe Installation Project Map, Dated July 2024.

Exhibit 1. CCL's Proposed Threshold Criteria Limits.

Threshold Criteria Description	Limitation Value
Temperature	
In-Situ Waste Temperature	250 °F
LFG Wellhead Temperature	190 °F
Down Well Liquid/Gas Temperature	250 °F
Temperature of Drill Tailings Removed from Borehole	N/A
Gas Composition	
Methane-to-Carbon Dioxide Ratio	< 0.75
Hydrogen	> 5.0%
Methane	< 30%
Carbon Monoxide	> 2,000 ppm
Dimethyl Sulfide	> 100 ppm
Benzene	N/A
Liquid Composition	
COD	> 30,000 mg/L
Settlement	
Strain Rate	> 3%/yr
Change in Historical Strain Rate	> 50%

Exhibit 2. CalRecycle-Recommended Threshold Criteria Limits to Install a Barrier for the CCL Project.

CalRecycle Threshold Criteria Description	Limitation Value
Condition 1. Temperature Only	
In-Situ Waste Temperature	> 230 °F
Down Well Liquid/Gas Temperature	> 230 °F
Temperature of Drill Tailings Removed from Borehole	> 250 °F
Condition 2. Temperature Exceedances Requiring Additional Landfill Gas Sampling, LEA Notification, and Consultation.	
Temperature Spike at TMP or Wellhead Within 30 Days	> 50 °F
LFG Wellhead Temperature or Down Well Temperature	> 190 °F
Required LFG Data Criteria¹	
Hydrogen	> 5.0%
Methane	< 15%
Carbon Monoxide	> 1,500 ppm

¹ LFG Data will be collected every 30 days for three consecutive sampling events from the vertical well or closest vertical well to the TMP. The four next closest vertical wells will also be sampled. Laboratory samples of LFG will be collected and analyzed for O₂, CO, H₂, CH₄, CO₂, and TO-15.

TIMOTHY D. STARK, Ph.D., P.E., BC.GE

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To: Mr. Matthew Dwyer
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Regional Manager
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From: Timothy Stark, Ph.D., P.E., BC.GE, Dist.M.ASCE

Date: February 26, 2025

RE: Comments on November 26, 2024 Revised Soil Reaction Break/Barrier Plan and February 20, 2025 waste temperature data for Chiquita Canyon Landfill Subsurface Elevated Temperature (SET) Event

Pursuant to your request and Task Order #1 under my contract with ERRG, I have reviewed the November 26, 2024 Revised Soil Reaction Break/Barrier Plan¹, waste temperature data provided by SCS dated February 20, 2025², and the weekly tracking of fissures and tension cracks in the impacted area dated February 17, 2025³ and submitted by the Chiquita Canyon Landfill (CCL) operated by Waste Connections, Incorporated to the Legal Enforcement Agency (LEA) on February 25, 2025.

Landfill Location and Description:

The CCL is located at 29,201 Henry Mayo Drive, Castaic, California, in northern Los Angeles County. This facility is a Class III non-hazardous municipal solid waste (MSW) landfill. The 639-acre landfill site began accepting waste in 1972. The landfill can receive up to 12,000 tons of MSW per day. The average daily tonnage in 2021 was reported to be 6,412 tons. The CCL only accepts non-hazardous solid waste for disposal, including municipal solid waste, green waste for composting or recycling, construction and demolition debris, and e-waste for recycling. The facility is prohibited from accepting hazardous waste that is ignitable, corrosive, reactive, or toxic. The landfill also does not accept biohazardous waste, household hazardous waste, radioactive materials, incinerator ash, sludge, automobile shredder fluff, or liquid waste.

The landfill site is a former limestone quarrying and crushing operation which began in 1939 and ended in 1988. The quarrying resulted in two quarry pits, the North Quarry Pit and the South Quarry Pit, which were excavated to a maximum depth of 240 feet below ground surface (bgs). The north and south quarry portions cover an area of approximately 52 acres.

¹ SCS Engineers, Revised Soil Reaction Break/Barrier Plan: Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, November 26, 2024, 198 p.

² SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

³ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

Landfilling began in the North Quarry Pit in 1974 and continued in this area until 1985. In 1985, the landfill underwent expansion to the southwest into the area known as the South Quarry Pit. This continued until August 2005 when the landfill stopped accepting waste to reduce the potential for birds to interfere with nearby airport operations. The total waste thickness is approximately 320 feet which means about 80 feet is above ground surface and about 240 feet is below ground surface. The landfill accepted approximately 17,000,000 in-place cubic yards of waste, including commercial, and municipal solid wastes.

The permitted landfill disposal footprint totals 257 acres and is comprised of three separate areas designated as “Primary” Canyon, “Canyon B,” and the Main Canyon (including Canyons A, C, D and subsequent fill modules). Currently, 231 acres of the footprint have been used for disposal. All areas except the Primary Canyon have geosynthetic bottom liner systems and leachate collection and removal systems. Leachate is collected and trucked off-site, but condensate from the gas extraction wells is injected into the flare.

Revised Barrier Plan:

The Revised Barrier Plan states a:

“discrete portion of the waste mass in the northwestern section of the Landfill is experiencing elevated temperature landfill (ETLF) conditions. ETLF conditions can generally be characterized as when the typical waste decomposition processes and corresponding methanogenesis associated with anaerobic digestion of organic solid waste materials disposed in a landfill are impeded because of heat accumulation. As a result, certain abiotic (non-biological) processes and chemical reactions within the buried wastes occur instead.”

Even though SCS Engineers (SCS) claims the Subsurface Elevated Temperature (SET) Event only is impacting a “discrete portion of the waste mass”, they review five options for isolating and containing the SET Event to impede heat flow into other adjacent portions of the waste mass. These five options are:

- (1) Air Break through avoidance of placement of additional waste lifts overlying existing buried wastes.
- (2) Air Break through excavation to “cut out” existing buried wastes.
- (3) Soil Barrier through placement of soil layer atop existing landfill surface.
- (4) Soil Barrier through excavation and backfilling of a deep trench.

5) Inert Material Barrier through Borehole Drilling, Dewatering, and Flowable Fill Injection.

SCS concludes an air break through avoidance of additional waste placement (option #1) or excavation (option #2) are “implausible” and thus are not being pursued by CCL. In addition, SCS deemed option #4 (soil barrier through excavation and backfilling) “implausible”, and the technology involved in introducing an inert material for Option #5 “uncertain”. As a result, options #4 and #5 are not being pursued by CCL.

Option #3 was deemed by SCS to be the “most plausible and may accomplish the desired objective without incurring substantial environmental and safety risks.” Option #3 simply involves placing additional soil over the top of the landfill, i.e., to create a thicker soil cover. This option will be less effective for controlling odors and emissions from CCL than a geomembrane cover (discussed below) because of many issues including inadequate soil compaction especially on the sideslopes, differential settlement causing cracks in the soil cover, and creation of desiccation cracks during the hot and dry months.

The Revised Soil Reaction Break/Barrier Plan⁴ was issued on November 26, 2024, which is important because CCL claims:

“CCL has implemented extensive mitigation measures that reduce the likelihood that CCL will need to construct any form of the various reaction break concepts, including CCL’s proposed additional mitigation measures. Previous experience at other ETLF landfills demonstrates that landfill reactions and resulting odors have been mitigated by best management practices, including increased gas extraction and liquid removal (e.g., through expanding systems and providing adequate LFG control capacity and leachate disposal capacity). Another best management practice is to improve cover integrity, which reduces infiltration of precipitation and limits the amount of excess liquids available to sustain various chemical reactions. Implementing these measures will help slow the reaction, impede the spread of the reaction to new areas, and mitigate impacts.”

“Further, Chiquita is constantly monitoring the landfill for signs of potential ETLF conditions so that it can react quickly in the event of changing conditions. CCL and SCS are confident that implementation of the best management practices developed by the landfill industry and EPA to contain and manage the reaction will succeed in slowing the propagation of the reaction area. Other landfills that have experienced widespread ETLF heating events during the past approximately 15 years have

⁴ SCS Engineers, Revised Soil Reaction Break/Barrier Plan: Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, November 26, 2024, 198 p.

successfully utilized these tools to contain those events. Continued application of the current mitigation measures will result in cooling of the buried wastes, which enable methanogenesis to ultimately be re-initiated within a large section of the affected waste mass. This in turn will mitigate and abate the detrimental impacts, such as odors, being experienced by surrounding off-site communities.”

Unfortunately, the waste temperature data released on February 20, 2025⁵ shows these “best management practices” have not “helped slow the reaction, impede the spread of the reaction to new areas, and mitigate impacts” as claimed by CCL and SCS above, as discussed in the next section. In summary, the removal of “hot” gas and leachate has not been successful in containing the SET Event.

Summary of Recent Temperature Data

SCS presents Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁶ An aerial image of CCL with a table of maximum temperatures is included in the subject SCS Report and reproduced in **Figure 1**. I have placed the maximum waste temperature from the table in **Figure 1** adjacent to some of the gas extraction wells to facilitate understanding the extent of the SET Event, especially on the east side of CCL. **Figure 1** shows waste temperatures of 183°F and 185°F at the eastern side of the top deck of the CCL. This means the SET Event has migrated from the western slope (TP03) to the eastern side of the CCL (TP31). Expansion of the SET Event has the following implications:

- Elevated temperatures (185°F to 189°F) surround the leachate tank farm (see red arrow in **Figure 1**). This area is going to undergo significant settlement, if it has not already started to do so, due to thermal breakdown of the buried waste. This settlement will cause differential movement of the leachate tanks, which could result in a leachate release. As a result, I recommend the leachate tank farm be moved off the top deck and to a site off the CCL and on native soil because the SET Event continues to expand.
- Waste temperatures of 183°F and 185°F are already present on the eastern side of the top deck of the CCL. As a result, it is not possible to “isolate and contain” this SET Event using a north-south vertical barrier as previously discussed. Thus, the only option for controlling odors and emissions is to cover the area with a geomembrane (discussed below) over which the temperature monitoring probes (TPs) have been installed. This means the geomembrane should cover from the west to the east side of the CCL and from the north

⁵ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

⁶ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

end to just south of TP06 shown in **Figure 1**. In other words, the exposed geomembrane cover would cover about 183 acres and leave only about 13 acres at the southern end of the CCL uncovered for current disposal operations.

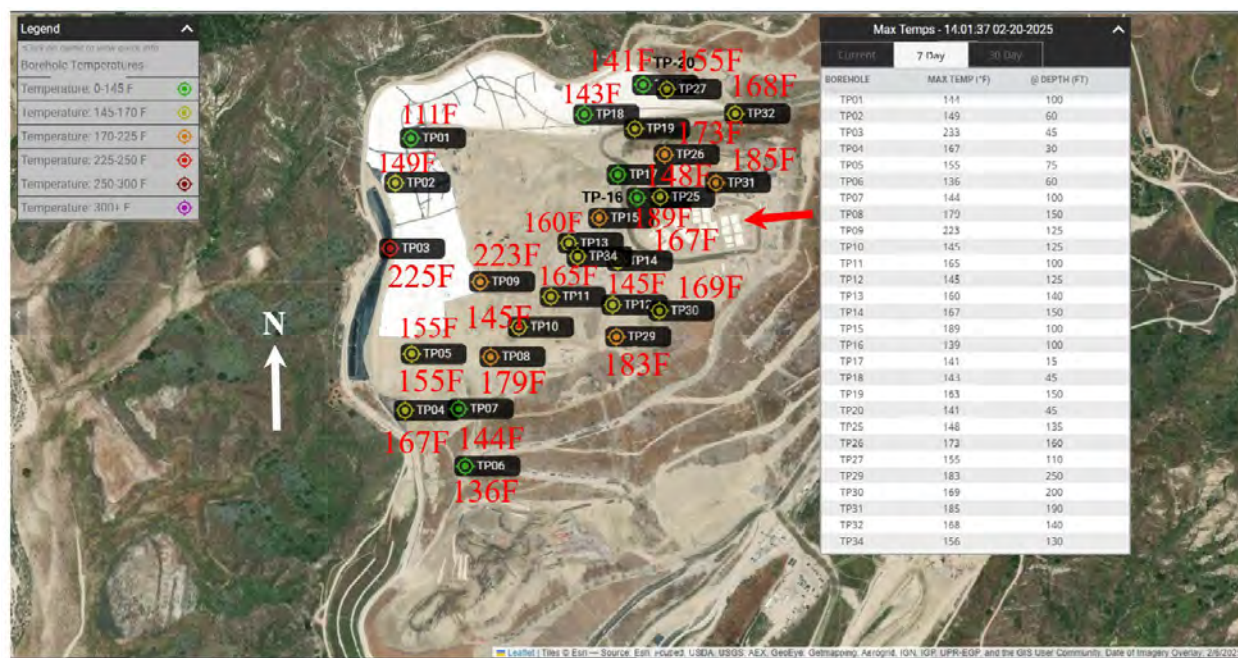


Figure 1. Temperature profiles over six weeks from 1/9/2025 to 2/19/2025 from SCS report dated February 20, 2025.

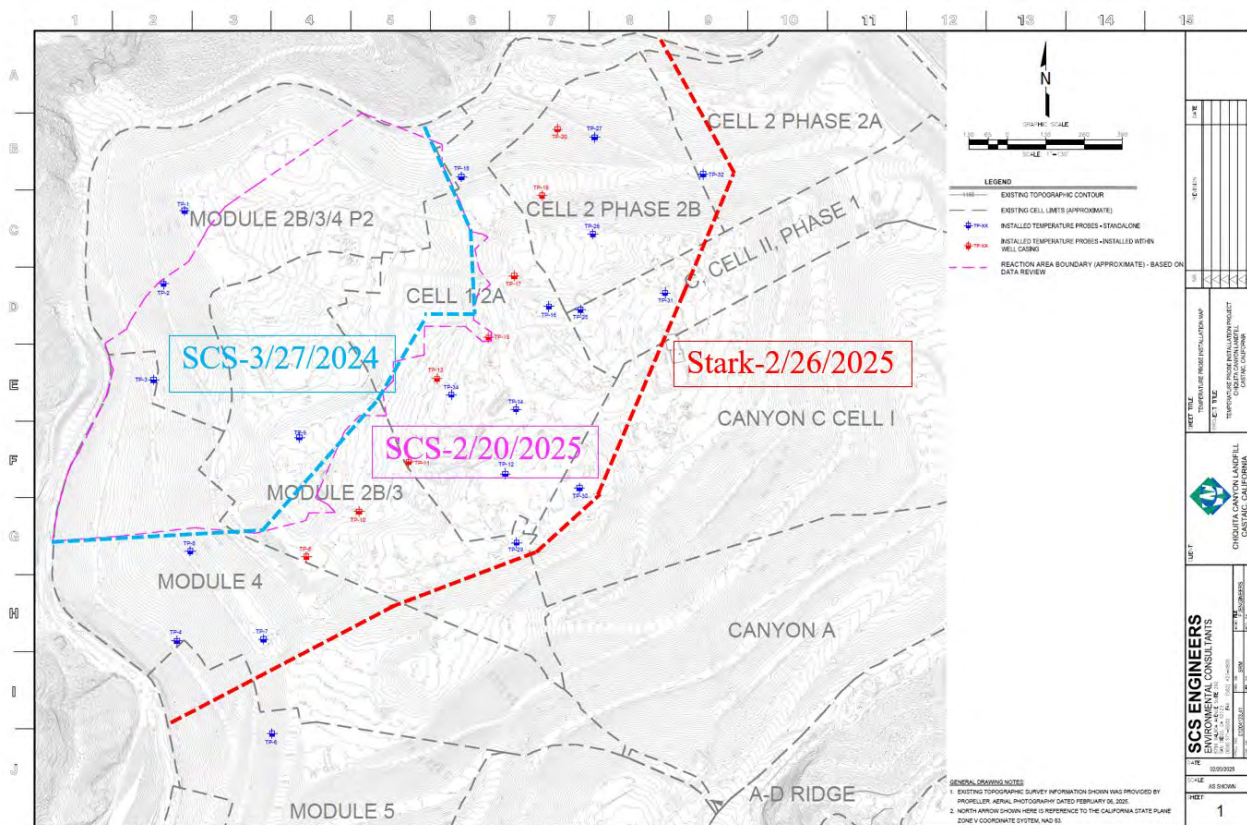
Figure 2 presents Sheet #1 from the SCS Report that presents the Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁷ The dashed pink line represents the extent of the SET Event as determined by SCS on February 20, 2025. This extent is slightly larger than the dashed blue line, which represents the extent of the SET Event on March 27, 2024 as reported by SCS in the initial Soil Reaction Break/Barrier Plan.⁸ **Figure 2** also presents my extent of the SET Event as of February 26, 2025 (see dashed red line) based on the Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁹ **Figure 2** shows the western slope and entire top deck of the CCL is now part of the

⁷ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

⁸ SCS Engineers, Soil Reaction Break/Barrier Plan, Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, March 27, 2024, 17 p.

⁹ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

SET Event, which is a significant increase over the extent reported by SCS on March 27, 2024¹⁰ and February 20, 2025.¹¹ Based on **Figure 2**, SCS believes the SET Event only covers about 28 acres as of February 20, 2025 whereas my extent of the SET Event covers about 90 acres.



¹⁰ SCS Engineers, Soil Reaction Break/Barrier Plan, Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, March 27, 2024, 17 p.

¹¹ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

Weekly Fissures and Tension Cracks Report Dated February 17, 2025

CCL also presented their 4050 – Chiquita Reaction Area Tracking of Fissures and Tension Cracks weekly report on February 17, 2025¹². This report presents: (1) observations of new fissures and tension cracks, which are usually due to landfill settlement and/or slope instability, (2) exposed geomembrane tears and defects, and (3) other geosynthetic cover issues.

This weekly report dated February 17, 2025¹³ confirms that settlement has started to occur around the leachate tank farm, which reinforces the recommendation above that the tanks should be moved off the top deck and to a site off the CCL and on native soil. In particular, Area #148, which is just north of the tank farm (see red dot in **Figure 3**), experienced opening of significant fissures and tensions cracks that have been remediated but are likely to reappear as additional buried waste undergoes thermal breakdown. Area #154, which is located just south of the tank farm (see **Figure 3**), also recently experienced fissuring and tension crack development. Even more concerning is Area #147 experienced a significant sinkhole, which indicates a significant thermal breakdown of buried waste that resulted in a void developing below the interim soil cover. Area #147 is the next grid area north of Area #148.

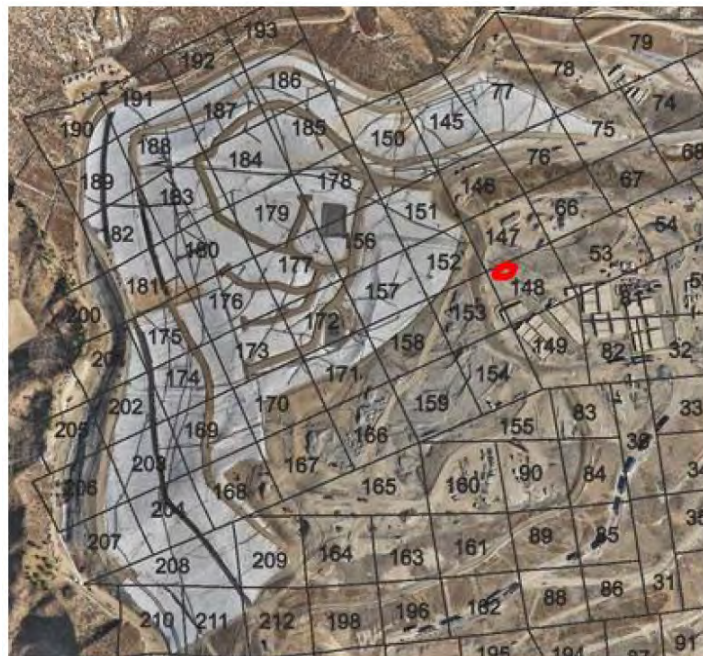


Figure 3. Red dot shows location for fissures and tension cracks identified in weekly CCL report dated February 17, 2025¹⁴.

¹² Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹³ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁴ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

Figure 4 shows a tension crack in Grid #148 near the leachate tank farm on the top deck of the CCL. This photograph also reinforces the recommendation above that the tanks should be moved off the CCL. This photograph was taken during a South Coast Air Quality Management District (SCAMD), Inspection of the CCL on February 27, 2025.



Figure 4. Photograph of tension crack in Grid #148 near leachate tanks on top of CCL dated February 27, 2025¹⁵.

¹⁵ South Coast Air Quality Management District (SCAMD), Inspection Report - Chiquita Canyon Landfill, by Larry Israel, Gerardo Vergara, and Christin Ojeda, February 27, 2025, 21 p.

The weekly report dated February 17, 2025¹⁶ also discusses recent tears and defects in the exposed 30 mil thick white HDPE geomembrane cover. In particular, this weekly report presents photographs of four significant tears in the exposed geomembrane. For example, **Figure 5** presents two of these tears, which were repaired using an extrusion welded patch. Unfortunately, the location of these two tears is not identified in the weekly report dated February 17, 2025¹⁷. This indicates the 30-mil thick white HDPE geomembrane may be deteriorating in the presence of the SET Event temperatures and related activities and equipment, which is discussed below.



Photo 1



Photo 2

Figure 5. Photographs of exposed geomembrane tears identified in weekly CCL report dated February 17, 2025¹⁸.

The weekly report dated February 17, 2025¹⁹ also discusses other “Geosynthetic Cover” issues. In particular, this report presents fourteen photographs illustrating “instability under the cover”.

¹⁶ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁷ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁸ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁹ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

For example, **Figure 6** presents two of these photographs, which show settlement under the geomembrane due to thermal breakdown of the buried waste.



Photo 3



Photo 4

Figure 6. Photographs of other exposed geomembrane issues identified in weekly CCL report dated February 17, 2025²⁰.

Temporary Exposed Geomembrane Cover

Given the west side and top deck of the CCL are experiencing elevated temperature, I unfortunately think the only remedial option is to cover the entire landfill north of TP06 or north of the red and blue dashed line shown in **Figure 7**. The elevated temperatures have not manifested themselves on the eastern slope yet, but I anticipate leachate outbreaks could start occurring because elevated temperatures (183°F and 185°F as shown in **Figure 1**) are present at the crest of the eastern slope.

Currently, CCL is using a 30-mil thick high-density polyethylene (HDPE) geomembrane with a white reflective and textured surface. This geomembrane was manufactured by Solmax and shipped in 22.5 ft wide rolls from Canada to the CCL. An Ethylene Vinyl Alcohol (EVOH) geomembrane has been found to be better at containing odors and omissions during other long-term SET Events, e.g., Bridgeton Landfill. EVOH geomembranes are manufactured as a “sandwich” with the outside layers comprised of HDPE with an inner layer of semi-crystalline thermoplastic resin that resists odor and gas transmission.

Bridgeton Landfill near St. Louis has been experiencing a SET Event since 2011 and is covered with green colored 60 mil thick EVOH geomembrane. Given there is no mechanism to “isolate and contain” the CCL SET Event, I am anticipating this facility will continue to generate odors and emissions for many years to come. As a result, I recommend the CCL consider installing an

²⁰ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

exposed EVOH geomembrane over the area to the north of the red and blue dashed line shown in **Figure 7**.

The exposed EVOH geomembrane could consist of a tan (easier to UV stabilize, reduces heat, and better matches dry surroundings) or green (less visible during wet periods) 40 or 60 mil thick EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile. A tan EVOH geomembrane color is recommended because there are a number of tan geomembranes that have been in exposed for a number of years, so a suitable UV stabilized formulation is available.

The EVOH geomembrane should be continuously seamed and continuously tied into the existing exposed 30 mil HDPE geomembrane cover along the top deck. The EVOH geomembrane can be welded to the existing 30 mil thick HDPE exposed geomembrane because the outside layers are comprised of HDPE and thus can be welded with traditional HDPE welding equipment. As the existing 30-mil thick exposed white HDPE geomembrane deteriorates with time, it should be replaced with the selected EVOH geomembrane.

The selected EVOH geomembrane (GM) should have a life span of about 10 years due to the large amount of waste that is being impacting by the SET Event. Given the long and steep slopes, a double-sided textured EVOH GM may be required. However, to facilitate walking on the EVOH GM, the exposed side should probably be textured. The EVOH GM also should be able to withstand a temperature of about 180°F because TP15 is showing a waste temperature of 175°F at a depth of only 15 feet. Finally, the EVOH GM should exhibit a methane permeance of less than 2.5×10^{-13} m/s obtained using ASTM D1434²¹ to control benzene and other emissions.

The total area proposed for the EVOH geomembrane cover is about 100 acres, i.e., the area not covered with the 30-mil thick white HDPE geomembrane. The nonwoven geotextile underlying the EVOH geomembrane will be installed on a prepared subgrade and provide a cushion and gas and liquid transmission layer under the geomembrane. Alternatively, a geonet with two heat-bonded nonwoven geotextiles could underlie the EVOH geomembrane and provide a higher transmissivity than a geotextile.

The EVOH geomembrane could be installed by deploying the manufactured rolls across the top deck and down the sideslopes. The perimeter edge of the new EVOH geomembrane cover will either be welded to the existing 30 mil thick white HDPE geomembrane or anchored along the perimeter of the CCL. Of course, the CCL should design appropriate long-term ballasting for the existing HDPE geomembrane and the proposed EVOH geomembrane because of the long duration of other SET Events. The EVOH geomembrane should be installed by an experienced contractor

²¹ ASTM D1434-23, Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting, ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428, <https://compass.astm.org/document/?contentCode=ASTM%7CD1434-23%7Cen-US&proxycl=https%3A%2F%2Fsecure.astm.org&fromLogin=true>.

and crews in accordance with CCL project specifications and an accompanying QA/QC Plan. Given the long-term application of the EVOH geomembrane, the installation should be monitored in accordance with the QA/QC Plan by an experienced third-party engineering firm. A final certification report should be prepared under the direction of a certified engineer and be submitted to the CCL and proper local authority, e.g., Los Angeles Regional Water Quality Control.

Pipe penetrations of the HDPE and EVOH geomembrane cover should be sealed utilizing a suitable pipe boot and pipe clamp or seal. These boots can be the source of significant odor release and/or oxygen intrusion so these pipe boots and seals should be inspected and monitored regularly for vapor emissions so defects due to total and differential can be remediated quickly.

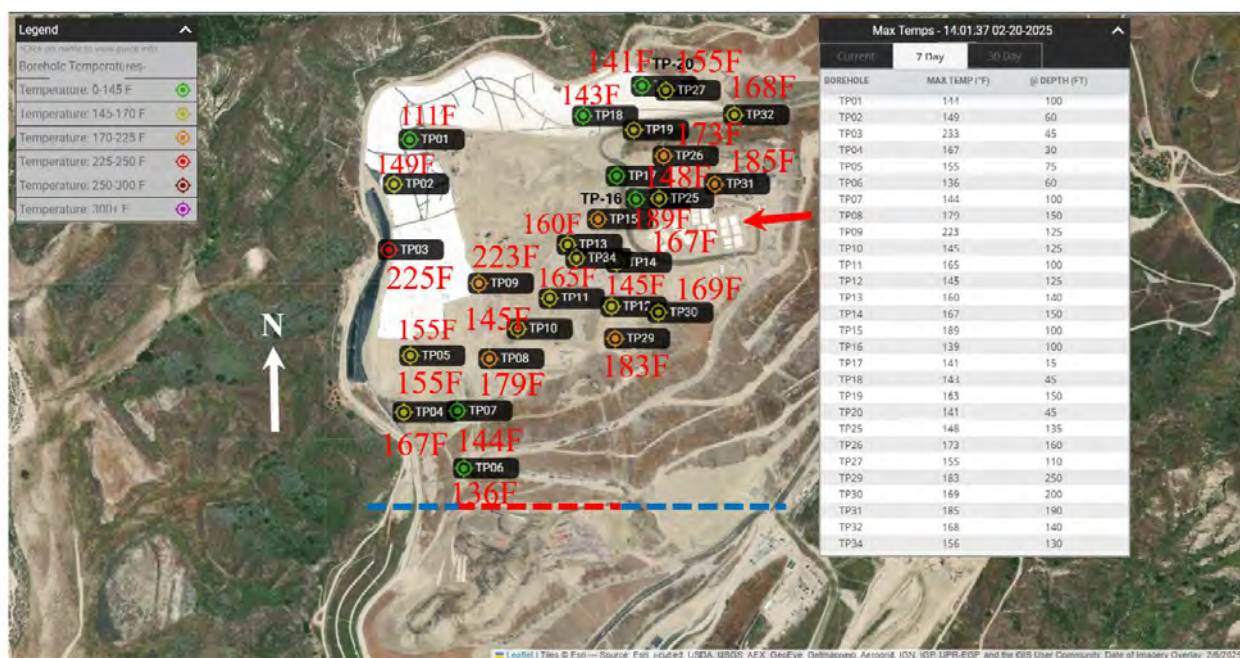


Figure 7. Extent of elevated temperatures on February 26, 2025 and location of a possible vertical barrier to isolate southernmost 13 acres.

Proposed Vertical Barrier

This section discusses installing a thermal barrier south of TP06 (see dashed red and blue line in **Figure 7**). A thermal barrier is recommended along the dashed red and blue line in **Figure 7** for at least the following reasons:

- CCL is using the approximately 13 acres south of the dashed red and blue line in **Figure 7** for disposal operations so elevated temperatures should be prevented from reaching this area, so the landfill continues to have an area to dispose of on-site wastes.
- Ensure continued ingress and egress from the CCL.
- Reduce the amount of waste that can be consumed by the SET Event and thus reduce the duration of odors and emissions to the surrounding communities.
- Maintain stability of the southern sideslope.

The red dashed line in **Figure 7** roughly delineates the location of a thermal barrier already constructed by CCL. The extent and depth of the thermal barrier are not known, so I request this information be provided by CCL. The blue dashed lines in **Figure 7** indicate the existing thermal barrier should be extended east and west so the SET Event cannot go around or under the existing thermal barrier.

If the existing thermal barrier does not extend to near below the leachate level, vertical elements can be used to create a vertical thermal barrier to prevent the SET Event from impacting the southernmost 13 acres of the CCL. The vertical elements involve excavating a vertical shaft using a three or four-foot bucket auger drill rig, which is being used to install gas extraction wells at CCL. These vertical elements would be constructed along the dashed red and blue lines in **Figure 7**. After excavating the shaft, it could be backfilled with a soil-bentonite or soil-cement mix. The shafts would be tangent, i.e., touching, or overlapped (see **Figure 7**) to create a continuous barrier across the toe of the southern sideslope to prevent the SET Event from consuming the southernmost 13 acres. If heat transfer calculations require a wider thermal barrier, a second row of vertical elements could be constructed north or south of the initial row (see **Figure 7**). The secondary row would be tangent to the initial row and be centered at each intersection of the initial row as shown below (see **Figure 7**).

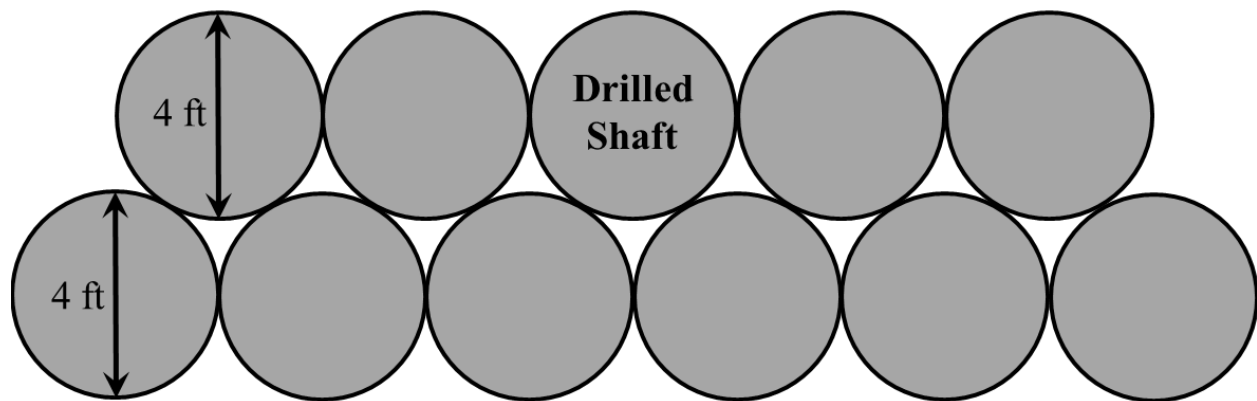


Figure 8. Possible configurations of 3 to 4 ft diameter vertical elements to comprise a heat barrier system south of TP06 to isolate southernmost 13 acres.

Summary

This section summarizes the main findings and recommendations presented in this report:

1. SET Event has expanded to the east side of the top deck of the CCL,
2. Leachate Tank Farm should be relocated off the top deck because the CCL is undergoing settlement under the tanks,
3. Due to the movement of the SET Event, the Tank Farm should be relocated to a site off the CCL and on native soil,
4. Given the extent of the SET Event, install 40 or 60 mil thick tan or green HDPE EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile over the approximately 100 acres currently exposed and weld it to the existing 30-mil thick white HDPE geomembrane or place it in a suitable anchor trench,
5. Submit a Request For Information (RFI) regarding the current extent and depth of the thermal barrier installed near the southern end of the CCL (see red dashed line in **Figure 7**), and
6. Expand the current thermal barrier so it reduces the potential for the SET Event to impact the southernmost 13 acres of the CCL.



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April 1, 2025

Via Electronic Correspondence

Mr. Steve Cassulo, District Manager
Steven.cassulo@wasteconnections.com
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

Dear Mr. Cassulo,

On November 26, 2024, the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), received Chiquita Canyon Landfill's (CCL) third revision of the Soil Reaction Break/Barrier Plan (SRBBP), dated November 26, 2024. The SRBBP was submitted to comply with Milestone 1-A1 of the LEA Compliance Order issued on June 6, 2024. On December 24, 2024, the LEA requested additional information from CCL to complete its technical review. CCL provided a response on January 24, 2025.

The LEA, in consultation with CalRecycle, has reviewed the SRBBP and CCL's additional information.

The SRBBP does not propose a physical barrier, as directed in the June 6, 2024 Compliance Order, but instead relies on gas and leachate removal for control and containment. However, no thermodynamic analysis has been provided to demonstrate the effectiveness of these measures. Temperature trends in multiple Temperature Monitoring Probes (TMPs) indicate ongoing reaction activity, particularly in areas with significant distances between gas extraction wells, such as the reaction boundary near Tank Farm #9 and TMP-17. Given the evidence of ongoing reaction activity, and no thermodynamic analysis, the LEA does not believe that gas and leachate removal alone is appropriate to contain the reaction.

Additionally, CalRecycle is not aware of any published studies supporting gas and leachate removal as a standalone containment strategy for a Subsurface Elevated Temperature (SET) Event. CCL's evaluation also confirmed that no internal barrier exists to prevent the reaction from spreading throughout the facility. For further discussion on these findings, refer to the attached CalRecycle Letter dated March 28, 2025.

Based on the reviewed documents and site data, the LEA is issuing the following response and directives to address the ongoing SET Event, ensure regulatory compliance, and prevent further impacts:

1. **Containment and Cover System:** Install a 40- to 60-mil thick tan or green HDPE-EVOH textured geomembrane underlain by a minimum 6 oz/sy nonwoven geotextile over approximately 100 acres outside the existing geomembrane cover. This new barrier must be welded to the existing 30-mil-thick white HDPE geomembrane or placed in a suitable anchor trench. A construction and quality assurance/quality control (QA/QC) plan must be submitted for approval.
2. **Relocation of Leachate Tank Farm 9:** Leachate Tank Farm 9 must be relocated off the top deck to an area unaffected by the SET Event, both currently and in the future.
3. **Preventing Expansion into Cell 8A:** The SET Event must not expand into Cell 8A. To prevent this, the previously constructed soil barrier must be extended to connect the western and eastern edges of Cell 8A. This barrier should serve as a thermal block and eliminate any waste connection between Cells 6 and 8A. This measure is critical to maintaining space for a potential soil buttress for slope stabilization and continued disposal operations in Cell 8A.
4. **Additional TMPs:** Five new TMPs must be installed at locations specified in Attachment A of the CalRecycle Letter.

This letter serves as the LEA's initial response to the SRBBP. Please note that the LEA is preparing an official Notice and Order, which will formally establish compliance deadlines for these directives. The LEA reserves the right to modify these directives as new data becomes available.

If you have any questions, you may contact me at kgork@ph.lacounty.gov.

Sincerely,



Karen Gork
Chief Environmental Health Specialist
Los Angeles County LEA

Enclosure: CalRecycle review letter dated March 28, 2025

CC: (Via Electronic Correspondence Only)

- 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
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Steve Cassulo

April 1, 2025

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Department of
Resources Recycling and Recovery

Yana Garcia
Secretary for Environmental Protection
Zoe Heller
CalRecycle Director

March 28, 2025

Karen Gork
Chief Environmental Health Specialist
Los Angeles County Department of Public Health
5050 Commerce Drive
Baldwin Park, California 91706

Subject: Review of the November 26, 2024, Revised Soil Reaction Break/Barrier Plan for the Chiquita Canyon Landfill Subsurface Elevated Temperature (SET) Event

Dear Ms. Gork:

CalRecycle staff is providing this letter in response to your request for technical assistance in reviewing the subject analysis to determine the next course of action.

The following comments are provided to the Los Angeles County Department of Public Health, a Local Enforcement Agency (LEA), as assistance in supporting the program in carrying out its responsibilities at permitted disposal sites. The final determination as to the comments to be provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in Title 14, California Code of Regulations (14 CCR), Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the Public Resources Code.

Review Background

On March 27, 2024, the CCL submitted its initial Soil Reaction Break/Barrier Plan (Work Plan) to the United States Environmental Protection Agency (USEPA) in accordance with Condition No. 22.c.2 of the Unilateral Administrative Order EPA Docket No. RCRA 7003-09-2024-001 and CERCLA 106-09-2024-05 and to the Los Angeles County Department of Public Health Solid Waste Management Program [solid waste Local Enforcement Agency (LEA)] as required in Mitigation Measure #1A. The LEA provided comments on the Work Plan in a letter dated May 3, 2024. The LEA requested that the revised CCL Barrier plan address the

following:

1. Installation of an air/soil break that separates the waste with either an inert material or with an air break.
2. Investigate how each cell or phase was constructed and examine if air/soil breaks between cells/phases can be exploited. The investigation should include a review of where haul roads were constructed to determine if the inert roads can also be used as breaks. Information from the investigation should be used to develop where containment breaks should be placed.
3. Propose a set of criteria for the primary and secondary engagement lines, including the type of reaction breaks, barriers, and/or mitigations. These criteria shall be based on temperature, carbon monoxide levels, and possibly settlement rate. The primary engagement lines need to prevent the reaction from spreading in the main fill area close to the reaction. The secondary engagement lines need to prevent the reaction from entering the eastern and southern fill areas at the toe of the slope.
4. Construction plans for reaction breaks in the 160-acre main fill area. The reaction break plans should include timelines and a construction method that aligns with the timelines and engagement lines.
5. Include the construction of reaction breaks/barriers between Canyons C, A, D, and Cell 5 in the event the reaction reaches the secondary engagement lines.
6. Use the best available technology, such as grout injection, to slow or contain reaction movement to the south and east.
7. Description of the criteria that will mandate the temporary suspension of placing new waste.

On July 8, 2024, CCL submitted a response regarding the LEA's comments. On September 20, 2025, CalRecycle staff again provided comments and recommendations to the LEA regarding the second Barrier Plan submitted by CCL. In general, the letter outlined the criteria for defining the reaction area, the expansion of the SET Event, and for installing a barrier, and included barrier strategies, additional temperature probe installations, and measures to limit oxygen intrusion during landfill gas collection and control operations.

On November 26, 2024, CCL submitted the third Work Plan to the LEA. CalRecycle staff requested the following information to complete their review on December 16, 2024:

1. All downwell gas temperature data collected for 2023 and 2024 were per New Source Performance Standards (NSPS) protocols.
2. All gas well data, both vertical and horizontal, from SCS E-tools, including notes in an EXCEL format for 2023 and 2024 up to December 12, 2024.
3. Current gas collection map showing vertical and horizontal wells.
4. Access to the forward-looking infrared (FLIR) Images from October and December via the FLIR web portal.

5. Landfill Gas (LFG) Operational Manual for CCL.
6. Resubmittal of the Revised Soil Reaction Break/Barrier with a registered professional signature(s) as required by the California Professional Engineering Act.

As of March 24, 2025, the CCL has not provided the information requested in items 1, 4, and 5. In addition, the CCL provided most of the landfill gas data in Excel format, but did not include the notes section. Of the requested 34 downwell temperatures, only eight were provided because five were abandoned and the remaining 21 had Lorenz Pumps installed and the data was not available. The temperature data from the Lorenz Pumps is not NSPS compliant because the temperature is reported from only one depth and not at required 10-foot intervals. Neither data set is fully sufficient to adequately track the SET Event.

Subsurface Elevated Temperature Event Causes

SET Events are caused by several mechanisms, including air intrusion, spontaneous combustion, surface fires, smoldering, and/or reactive waste. A SET Event can generate significant heat through combustion or the exothermic reaction of waste, causing pyrolysis in surrounding materials such as plastics, paper, wood, cardboard, and other flammable substances. It is important to note that pyrolysis¹ is the chemical degradation of a substance by heat. In fire science, this refers to the fire stage before combustion, without requiring the presence or absence of oxygen. Combustion² is defined as a self-sustained, high-temperature oxidation reaction.

Most SET Events are typically caused by excessive oxygen into the waste mass near or on a side slope. SET Events can start locally at a gas extraction well, area of cap erosion, or other features that allow oxygen to enter the waste mass. If not adequately addressed, the SET Event may become a smolder and spread to the entire landfill facility if it is not isolated and contained.

The definition of a SET Event varies among landfill owners, consultants, and regulators. However, all include elevated temperatures in the municipal solid waste (MSW) increasing to a threshold, which begins to stress the biochemical decomposition processes. Some landfill operators attempt to change the terminology to avoid using the words "fire," "subsurface oxidation (SSO)," or "smolder," but federal regulations also state that the operating temperature value at a particular landfill gas well may not cause fires nor significantly inhibit anaerobic decomposition by killing methanogens. The operator must comply with both parts of the regulation.

SET Events also can (1) impact the integrity of bottom, top deck, and side slope

¹ Vytenis Babrauskas, Ignition Handbook 14,18 (2003).

² Id.

geosynthetic liner systems; (2) impact the efficacy of gas and leachate control infrastructure made from high-density polyethylene (HDPE) and/or polyvinyl chloride (PVC) materials (e.g., pipes, lines, and gas wells, due to softening and/or melting), (3) impact the quality of gas composition for renewable energy and operation of flare systems, (4) change in chemical profile of leachate from non-hazardous waste liquid to hazardous waste liquid due to increased benzene concentration, (5) slope instability, and (6) cause excessive and/or rapid settlement of the landfill surface.

A SET Event can result from a combination of reactions. For example, reactive industrial waste (e.g., aluminum dross, baghouse dust, salt cake, fly ash, incinerator ash, or other metal oxide waste) can generate sufficient heat to pyrolyze or ignite surrounding municipal solid waste (MSW) and cause high gas pressures at temperatures exceeding 212°F (100°C). A SET Event can also be caused by aggressively overpulling a gas collection and control system (GCCS) to address emissions and/or odors. This "doom loop" occurs when the operator attempts to correct one adverse condition by increasing the vacuum in the adjacent wells, which causes negative events (i.e., a spike in temperature or oxygen levels) in the surrounding gas wells, leading to further deterioration. This is precisely what CCL's industry expert recommended in his November 2024 EREF-sponsored presentation³. CalRecycle staff agree that the pressure in the landfill should be reduced, but not at the risk of initiating a new shallow SET Event by exceeding the oxygen threshold of 2 percent or requesting a temperature higher operating value.

To suggest that a SET Event cannot be related to a fire or smolder and can only be caused by a landfill accepting industrial waste that causes an unknown chemical reaction, as claimed by CCL, is not reasonable. A proper root cause analysis would show that the aforementioned scenario is the probable cause of the SET Event.

A root cause analysis for a SET Event must be based on the scientific investigation method. The study should employ a logical, step-by-step process that considers all possible mechanisms and utilizes measured parameters to eliminate mechanisms and determine the cause or causes of the SET Event. The analysis for a SET Event should follow pre-defined steps. The fact that Elevated Temperature Landfills (ETLFs) are limited to the United States (US), as confirmed by Dr. Morton A. Barlaz of North Carolina State University in his November 2024 EREF-sponsored presentation⁴, suggests that ETLFs are primarily due to landfill operating standards, conditions, and practices in the US. For example, in 1999, the Department of Energy estimated that approximately 2 billion pounds of aluminum dross and salt cake materials were landfilled annually in the US. Past SET Events at Countywide and Middle Point MSW Landfills are directly related to

³ Environmental Research & Education Foundation, A Deep Dive into Elevated Temperature Landfills, YouTube (Nov. 20, 2024), https://www.youtube.com/watch?v=sQQZBbtQ_w4.

⁴ Id.

the documented acceptance of 1.28 million tons of aluminum dross waste, which created an exothermic reaction that thermally broke down surrounding MSW. At the Countywide MSW Landfill, leachate recirculation provided enough liquid to cause an exothermic reaction of the placed aluminum dross waste.

Subsurface Elevated Temperature Event Monitoring

Temperature is the key metric in tracking a SET Event. Other metrics include LFG such as carbon monoxide (CO), hydrogen (H₂), methane (CH₄), volatile organic compound (VOC) levels in the landfill gas, settlement, cover fissures, leachate outbreaks, damage to the GCCS, emissions and odors, reduction in effective well screen lengths and higher liquid levels, positive gas pressure, and liquid geysers from gas wells⁵.

Landfill temperatures can be measured using various methods, including gas temperatures at wellheads, vertical profiles in gas wells, probes in the waste, liquid temperatures monitored with specific pumps, and surface temperatures measured with FLIR cameras.

Landfill gas methane content typically declines at 131°F (55 °C) because methanogenic activity decreases. At temperatures above 158°F (70°C), few methanogens will survive, and methane concentrations will drop below 15 percent.^{6 7} This upper threshold is crucial in maintaining compliance with Title 40 of the Federal Code of Regulations (40 CFR), as stated in multiple sections.⁸ The operator must not operate a GCCS that causes a fire or significantly inhibits anaerobic decomposition by killing methanogens. The operator must also maintain waste temperatures below the level that damages the GCCS and liners.

CalRecycle staff recommends that temperatures above 131°F (55°C) be considered the threshold at which a SET Event is considered to have started. We recognize that USEPA revised its regulation under the National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 63.1958(c), effective September 27, 2021, which increased the operational standard temperature from 131°F (55°C) to 145°F (62.8°C). CalRecycle still recommends the more conservative temperature threshold of 131°F (55°C) to initiate a root cause analysis, restrict oxygen to less than two percent, and repair the cover to prevent a SET Event.

⁵ When Does a Municipal Solid Waste Landfill Become an Elevated Temperature Landfill (ETLF)? US EPA (Mar. 7, 2025), https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=CESER&dirEntryId=354569.

⁶ Krause et al., Understanding Landfill Gas Behavior at Elevated Temperature Landfills, 165 Waste Management 83-93 (2023).

⁷ Jafari, Progression of Elevated Temperatures in Municipal Solid Waste Landfills, (Mar. 23, 2017), https://cdn.prod.website-files.com/5977726d80d12837b9592f43/5c1751e2f58cb29ead2cffc9_Navid-Progression%20of%20Indicators-JGGE-2017.pdf.

⁸ 40 C.F.R. § 63.1958 (2025), 40 C.F.R. § 62.16716 (2025), 40 C.F.R. § 60.34f (2025), 40 C.F.R. § 60.763 (2025)

CalRecycle staff also recommends a maximum operating temperature threshold of 140°F (60°C) for systems with PVC and HDPE pipe due to the risk of failure. Additionally, CalRecycle staff considers a temperature of 140°F (60°C) to be the threshold that impacts the service life of liners.⁹ As discussed in "Service Life of HDPE Geomembranes Subjected to Elevated Temperatures," by Navid H. Jafari, PhD, Timothy D. Stark, Ph.D., P.E., and R. Kerry Rowe, Ph.D., P.Eng., a temperature of 140°F (60°C) decreases the service life to 15 to 20 years from 205 to 315 years at 86F (30°C).

Reaction Area Boundary

As part of a South Coast Air Quality Management District (SCAQMD) Stipulated Order of Abatement regarding the reaction at the CCL (Case No. 6177-4), a Reaction Committee was formed to review applicable data, estimate the extent of the SET Event, and determine the reaction area. The CCL's Reaction Committee uses the following criteria to track the SET Event:

- *Landfill gas (LFG) wellhead temperatures more than approximately 160 degrees Fahrenheit.*
- *Poor gas quality (defined as methane levels of less than 30 percent) in conjunction with methane-to-carbon dioxide (CH₄:CO₂) ratios less than 1.0.*
- *The concentration of hydrogen (H₂) in the LFG measured greater than 2 percent by volume.*
- *Accelerated settlement of the landfill surface, defined as approximately 6 inches or greater within a 60-day period, and cracks in landfill cover.*
- *First-hand observations of landfill and/or SCS engineering, construction, and operations and maintenance (O&M) field personnel who are on-site related to:*
 - 1) atypical excess leachate quantities (presence and quantity of liquids);*
 - 2) instances of pressurized liquids emitting from the landfill surface, from boreholes during drilling, and from LFG wells; and*
 - 3) the characteristics of the odors originating from the select areas of the waste footprint (often described as "chemical-like" and distinctly different from typical LFG or landfill working face odors).*
- *Observations of subsurface waste conditions and characteristics as noted on borehole drilling logs for recently installed new wells and/or probes.*
- *Initial subsurface temperatures recorded at the in-situ waste temperature probes that were commissioned in April 2024.*

Unfortunately, the Reaction Committee has taken a conservative approach in determining the reaction area. The Committee relies on a complex set of evaluations,

⁹ Navid H Jafari et al., Service Life of HDPE Geomembranes Subjected to Elevated Temperatures, The Journal of Hazardous, Toxic and Radioactive Waste 1-3 (2014).

including wellhead temperatures, the presence of H₂, poor gas quality, odors, waste conditions from drilling logs, and some TMP data, to determine the reaction boundary.

Indications of a Smolder or SET Event

The Committee disregards the CO results, possibly because they assume this reaction is an unknown chemical reaction causing an ETLF event, rather than a smolder, SSO, or fire. Carbon monoxide concentrations have been used for over 40 years in the US and abroad as a measure to determine if a smoldering or SSO is extinguished. Carbon monoxide is also a sign of incomplete combustion, and the change of CO levels over time is a critical tool in determining the magnitude of the SET Event. This is also why USEPA requires CO measurements¹⁰ at a wellhead or any point in the well greater than 170°F (76.7°C). CalRecycle staff is aware that CCL is tracking CO and providing a scale for intensity in SCS Tool, but we are unsure why the Committee is disregarding a key metric. **Figure 1** provides the most current CO levels at the CCL.

As far back as 1984, SCS Engineers¹¹ discussed how to identify a subsurface fire. While the authors stated identification and size determination can be difficult, a subsurface fire is typically indicated by:

- Unusual or rapid settlement.
- Venting of smoke.
- CO in the GCCS.
- Combustion residue in header lines.
- Elevated LFG temperatures.

And the location and areal extent of a subsurface fire can involve:

- Thermographic scans.
- Excavation or boring to allow visual examination of refuse.
- Installation of test wells to allow for monitoring.

All of these steps have been done by CCL; however, CO is not being evaluated by the Reaction Committee. The CCL also notes that they are not observing smoke venting, concluding elevated temperatures must not be a result of a fire. CalRecycle staff have excavated many subsurface fires without initially seeing smoke. At times, a smolder will appear as steam venting, and only when CO sampling, excavation, and/or a FLIR survey is performed will the operator confirm a smolder. Additionally, compacted waste outside the smolder can act as a filter for particulate matter, depending on its depth and location. The 1984 SCS Engineer's article¹² acknowledges this, stating, "*Depending on the location of the subsurface fire, smoke could be drawn through the LFG extraction system unnoticed.*" The absence of smoke does not confirm that a smolder is not present. CalRecycle staff is not implying that all SET Events are smolders; however,

¹⁰ 40 CFR 63.1981(h)(8)

¹¹ Robert Stearns & Galen Petoyan, Identifying and Controlling Landfill Fires, 2 Waste Management & Research 303-309 (1984).

¹² Id 11.

smolders start from SET Events. Some SET Events can be tracked by other parameters, such as oxygen levels above 5 percent and/or the presence of H₂, VOCs, or the occurrence of settlement and fissures. However, USEPA makes the distinction between smolders and SET Events, and that the owner or operator may establish a higher operating temperature, provided that it neither causes fires nor significantly inhibits anaerobic decomposition by killing methanogens. The demonstration must satisfy both criteria to be approved. Temperature above 160°F (71°C)¹³ significantly inhibits the production of methane.

Temperature

To simplify the discussion between the LEA and CCL, CalRecycle will use CCL's Reaction Committee value of 160°F (71°C) as the temperature at which the SET Event is expanding and inhibiting methanogenic bacteria from producing methane. Temperatures greater than 160°F (71°C) will signify an increase in reaction intensity. Since the CCL has elected not to install a barrier, the previous installation criteria will not be used. Instead, a temperature of 160°F (71°C) will be the criterion to confirm that a SET Event has expanded.

To monitor the SET Event, CCL constructed 20 TMPs in the waste, which were operational in late April of 2024. Only two TMPs (TP-3 and TP-9) could be completed within the known reaction area. Other TMPs were scheduled to be placed in the Reaction Area, but due to unsafe conditions with pressurized leachate and thirteen geysering gas wells, CCL elected to wait. In January 2025, CCL added eight additional TMPs to act as sentinels adjacent to the Reaction Area. The TMP network collects data in real-time and reports daily.

The most accurate temperature measurement in a landfill is the in situ temperature, measured at various depths using TMPs. As discussed previously in CalRecycle's letter dated October 16, 2023, the enhanced monitoring of downwell temperatures at CCL, documented the 2023 First Semi-Annual NSPS and NESHAP Report showed two gas wells (CV-2201 and CV-1902S) with significant temperature differences in the shallow zone (i.e., less than 50 feet below ground) of waste. On June 27, 2023, CV-2201 had a wellhead temperature of 135°F (57°C). Twenty feet down from the well casing, the temperature was measured to be 36°F (20°C) higher at 171°F (77°C). On June 28, 2023, CV-1902S had a wellhead temperature of 141°F (60°C), and forty feet below, a downhole temperature of 188°F (87°C) indicated a difference of 47°F (27°C). While some of the downwell temperatures from the 2024 Semi-Annual Report enhanced monitoring requirements¹⁴ showed temperatures within 10°F (5.5°C) of the wellhead temperature, several downhole logs showed temperature differences ranging from 40 to 120°F (23.8 to 37.7°C). Operators should not rely on wellhead temperatures in an area where the SET Event is expanding or where oxygen levels exceed 2 percent by volume. The operator should consider other indicators, such as downhole temperatures, TMPs, LFG data, or results for CO, H₂, and VOCs, to verify the movement of the SET Event.

¹³ Id 5,6.

¹⁴ Id 9.

Using wellhead temperatures to determine SET Event boundaries is questionable. Past SET Events have documented temperature differentials between the wellhead temperature and downhole temperatures exceeding 100°F (37.7°C), and at the CCL, the differential was even higher at 120°F (48.8°C). Once the LFG temperatures stabilize, the operator can use the wellhead data to visually display the progression graphically. **Table 1** provides a summary of selected enhanced monitoring downwell temperatures from the 2023 and 2024 Semi-Annual Reports.

Table 1. Selected Wellhead and Downwell Temperature Differential at Chiquita Canyon Landfill (Source: Semi-Annual Reports 2023 to 2024)

Well ID	Date	Wellhead Temp (°F)	Downwell Temp (°F)	Downhole Depth (ft)	Temp (°F) Differential
CV-2201	6/27/23	135	171	20	36
CV-1902S	6/28/23	141	188	40	47
CV-1532A	12/5/23	148	194	34	45
CV-2310	11/16/23	184	226	125	42
CV-24034	1/6/24	166	196	11	30
CV-2001	1/17/24	60	165	37	105
CV-24139	1/31/24	74	180/194	15/25	106/120
CV-24140	1/31/24	99	175	12	76
CV-2352	8/26/24	104	166/200	15/25	62/96
CV-24017	8/29/24	140	165	3	25
CV-2341	11/10/24	140	165/170	3/33	25/30
CV-24139	11/17/24	127	190	13	63
CV-2339	12/26/24	168	195	12	27

The TMPs provide a more accurate account of temperature than wellhead monitoring for two distinct reasons. First, TMPs provide more accurate and in-depth waste mass temperatures compared to wellhead temperatures. Second, TMPs provide real-time data, unlike collecting LFG data, which is typically done only one or twice a month.

As an example of how wellhead temperatures can mask what is occurring in the waste, as shown in **Figure 2**, TMP-14 reported a temperature of 80°F (26.7 °C) on April 24, 2024, at the fifteen-foot probe. By March 19, 2025, the temperature at the 15-foot probe had increased to 133°F (56°C). This shallow temperature spike was not observed in gas well CV-1906, approximately 10 to 15 feet away, where the wellhead temperature was reported to be 68°F (20°C) on April 1, 2024, and 60°F (15.5°C) on March 19, 2025. There were also significant temperature swings in the wellhead temperature data for gas well CV-1906, where the temperature rose from 95°F (35°C) to 121°F (49°C) and then dropped to 73°F (22.7°C) within a month. However, all the wellhead temperatures are below the regulatory threshold and do not require further analysis. Data from TMP-14 indicated that on March 19, 2025, the temperature reached 133°F (56°C) and exceeded the 131°F (55 °C) threshold. CV-1906 is also experiencing a significant oxygen overdraw at this location. The percent oxygen has varied from 10.9 percent on March 4, 2024, to 18.7 percent on March 6, 2025. The average oxygen for the past year at this well is 8.4 percent. Continued high oxygen levels above 2 percent and temperature spikes will lead to a SET Event. This TMP and gas well are approximately 450 feet away from the CCL-defined reaction boundary and CalRecycle staff do not believe the shallow temperature increases are connected to the main reaction area. CalRecycle believes that the temperatures of 166 to 168°F (74.4 to 75.5°C) at the deeper probe (i.e., 125 to 150 ft) are connected. However, this data demonstrates that the operation of the GCCS must not sacrifice LFG operational objectives/standard operating procedures (i.e., limiting oxygen to 2 percent¹⁵) to control emissions and risk developing of new SET Events. **Table 2** and **Table 3** provide the LFG data and temperatures for gas well CV-1906 and TMP-14.

The Reaction Committee has disregarded a significant number of in situ TMP readings and does not consider shallow temperature spikes as indicative of SET Events or smolders. Again, in the SCS Engineers 1984 journal, they describe a gas temperature of 45°F (25°C) above baseline gas temperatures just before verification of a subsurface fire.

The Reaction Committee stated in November 2024, that the temperatures recorded by the 13 probes (TP-4, TP-6, TP-7, TP-8, TP-10, TP-11, TP-13, TP -14, TP-15, TP-17, TP-19, TP-20) outside the boundary during October 2024, are not indicative of a subsurface reaction and do not substantiate a decision to expand the boundary of the reaction area at this time. However, in January 2025, the CCL made an adjustment to the Reaction Area boundary that included TMP-15. **Figure 3** provides a map of the TMP's network as of December 2024, while **Figure 4** shows the most recent TMP network, which includes the seven installed TMPs (TP-25, TP-26, TP-29, TP-30, TP-31, TP-32) and the new Reaction Area boundary encompassing TP-15.

Of the primary twenty TMPs (TP-1 to TP-20), four TMPs (TP-8, TP-10, TP-11, TP-15) have shown or are exhibiting shallow temperature spikes above 160°F (71°C) at the shallow depths between 15 and 45 ft. Six other TMPs (TP-6, TP-13, TP-14, TP-17, TP-

¹⁵ Todd Thalhamer, Expert Opinion of the Bridgeton Sanitary Landfill Incident, Bridgeton, Missouri, MO.gov (Sept. 1, 2025), <https://dnrservices.mo.gov/bridgeton/docs/agobridgeeval92015.pdf>.

19, TP-20) have temperatures that have been or are currently trending upwards since installation. The remaining ten are holding their current temperatures and have not cooled. Two TMPs (TP-6 and TP-8) have seen both increases and decreases. TP-6 reported a significant temperature decrease in the deeper probes at depths of 80, 100, and 120 ft; however, it also observed substantial temperature increases in the shallow probes at depths of 15, 30, 45, and 60 ft. TP-8 recorded substantial temperature increases on January 10, 2025, once TP-8 came back online. The CCL elected to take TP-8 offline in early October 2024, for a waste filling process. Temperature differentials of 30 to 90°F were observed in all TMPs. Two probes in TP-8 recorded temperatures of 230 to 232°F (110 to 111°C). Since January 2025, all temperatures have dropped, but not to the original temperatures measured in May 2024. As of April 2024, the two TMPs (TP-3 and TP-9) in the original waste area have maintained their maximum temperatures at 222°F (105.5°C) and 233°F (111.6°C), respectively. Attachment B provides graphs of the ten TMPs that have demonstrated or are currently experiencing temperature increases.

A review of the new temperature data from TMPs (TP-25, TP-26, TP-27, TP-29, TP-30, TP-31, TP-29, and TP-34) determined that all the temperatures in the new TMPs exceed the regulatory threshold of 145°F (62.8°C). Five TMPs (TP-26, TP-29, TP-30, TP-31, TP-32) have temperatures above 160°F (71.1°C), with the highest being TP-31 (with a temperature of 185°F (85°C) at a depth of 190 ft), located over 600 ft from the CCL-defined reaction boundary. It is also important to note that in January 2025, the CCL changed the probe depths of the new TMPs without notifying the LEA. The CCL elected to install the probes at 25, 40, and 50 ft instead of the approved design of 15, 30, and 45 ft. This change in probe depth will decrease the ability to track shallow SET Events. It is recommended that any future TMP be constructed in accordance with the approved plan. **Figure 5** provides the current maximum vertical temperature map for the TMPs at the CCL.

Table 2. LFG Data for Gas Well CV-1906 from March 2023 to March 2025. (Source: Chiquita Canyon Landfill Raw Gas Data)

Point Name	Record Date	CH4 [%]	CO2 [%]	O2 [%]	Bal Gas [%]	CH4:CO2	Init Temp [°F]
CV-1906	3/4/24	25.2	23.7	10.9	40.2	1.1	68.2
CV-1906	4/1/24	30.9	30.1	9.2	29.8	1.0	68.2
CV-1906	5/17/24	51.0	44.2	0.5	4.3	1.2	82.8
CV-1906	6/10/24	44.3	49.7	0.4	5.6	0.9	91.6
CV-1906	7/3/24	43.6	39.5	3.4	13.5	1.1	109.3
CV-1906	8/1/24	20.8	33.3	9.6	36.3	0.6	104.0
CV-1906	8/19/24	8.2	13.0	15.6	63.2	0.6	95.2
CV-1906	9/4/24	16.5	18.3	12.7	52.5	0.9	106.7
CV-1906	9/28/24	13.8	17.5	13.9	54.8	0.8	93.9
CV-1906	10/2/24	28.4	33.7	1.8	36.1	0.8	121.9
CV-1906	10/16/24	30.6	36.7	0.9	31.8	0.8	73.0
CV-1906	11/1/24	27.1	37.1	0.0	35.8	0.7	79.5
CV-1906	11/17/24	22.4	24.1	7.1	46.5	0.9	79.6
CV-1906	12/6/24	4.4	19.4	16.7	59.5	0.2	79.1
CV-1906	12/18/24	28.1	36.4	2.4	33.1	0.8	80.8
CV-1906	1/4/25	4.4	11.5	16.6	67.5	0.4	66.7
CV-1906	1/12/25	40.8	58.9	0.0	0.3	0.7	107.4
CV-1906	1/17/25	4.3	7.3	15.3	73.1	0.6	68.4
CV-1906	2/3/25	4.7	8.7	15.8	70.8	0.5	71.1
CV-1906	2/20/25	38.2	30.9	5.3	25.6	1.2	73.5
CV-1906	3/6/25	4.1	16.0	18.7	61.2	0.3	60.9

Table 3. TMP Monitoring Data for TP-14 at Chiquita Canyon Landfill. (Source: SCS Engineers TMP Data)

TMP Tracking		TP-14					
		Probe Depth (ft)					
Date	15 ft	30 ft	45 ft	75 ft	100 ft	125 ft	150 ft
Apr 24, 2024*	80	107	123	137	150	160	165
Aug 5, 2024	89	107	123	139	153	164	165
Sep 5, 2024	93	106	123	140	153	165	166
Sep 25, 2024	102	104	122	138	153	164	166
Oct 1, 2024	109	105	123	139	153	164	165
Nov 1, 2024	100	105	123	139	153	164	165
Dec 4, 2024	120	133	123	139	154	164	166
Jan 13, 2025	114	114	123	139	154	164	166
Feb 8, 2025	129	114	123	139	154	164	166
Mar 5, 2025	119	112	123	139	154	164	166
Mar 12, 2025	130	116	123	140	154	164	167
Mar 19, 2025	133	118	123	142	155	166	168
*Data estimated from SCS Engineers Temperature Profiles, raw data not submitted by CCL							

It is also the opinion of CalRecycle staff that the CCL has caused other SET Events to occur in the shallow zone by overdrawing the GCCS. These shallow SET Events with temperatures above 160°F (71°C) were observed in the TMP network. Further gas wellhead data and downwell temperature surveys should be done to determine the magnitude of the problem.

CCL and the Reaction Committee have stated that the shallow temperature spikes are not significant in relation to the CCL-defined reaction area. CalRecycle staff have consistently cautioned CCL that overdrawing the GCCS will lead to independent and separate SET Events. The CCL and its consultant state this has not happened in the waste industry, nor has any case study been documented. However, this is not the case. In 2024, the waste industry published part of a case summary of a landfill that most likely had a combination of multiple SET Events. A review of the entire LFG data for oxygen exceedance is sufficient to confirm the overdraw of the GCCS was related to the smolder. On March 14, 2024, a consultant for Middle Point Landfill in Tennessee submitted a minor permit modification to place new MSW waste above an area where aluminum dross waste reacted for Middle Point Landfill. Although the permit request was later withdrawn, the report offered several valuable insights into SET Events. The Middle Point Landfill consultant documented that the facility had two distinct and separate SET Events. One was from the reaction of aluminum dross and the other was a smolder. Both SET Events produce temperatures that kill methanogenic bacteria, as well as high CO and H₂ readings. A summary of some of the insights from both reactions from the report is provided below:

- The heat generated by the reaction is efficiently retained in the waste, leading to elevated temperatures. The elevated temperatures can continue to rise to levels that kill methanogenic bacteria found in landfills and may continue to rise, resulting in pyrolysis of organics in the waste.
- Pyrolysis contributes to rapid settlement observed at elevated temperature landfills by consuming organic waste much quicker than typical anaerobic degradation.
- Pyrolysis is an exothermic process and may begin as low as 212°F.
- Evaporation of the liquid from the organics requires a lot of energy to change from liquid to vapor. This may limit the propagation of the pyrolysis in the waste mass.
- The aluminum dross waste (APW) produced ammonia and hydrogen gas, as well as water, and caused pyrolytic reactions in the waste, resulting in the creation of carbon monoxide and other VOCs.
- Significant hydrogen production may occur in elevated temperature landfills without APW, such as Bridgeton Landfill in Missouri. The April 2016 Bridgeton Landfill Monthly Data submission revealed hydrogen concentrations in wells as high as 42 percent, elevated carbon monoxide levels, and decreased methane production.
- Carbon monoxide is typically a byproduct of incomplete combustion and may indicate a subsurface oxidation (SSO) event where MSW is smoldering beneath the landfill surface.
- Carbon monoxide may also be produced through reactions that generate hydrogen.
- The area near well series has been of interest for a number of years. At one time, this area was under close observation following a large, shallow subsurface oxidation (SSO) event that may have been related to the acceptance of APW; however, it was never determined that this event was a direct result of the exothermic reactions occurring in the subsurface.
- The SSO that occurred in this area was treated as a different event compared to the deeper reaction(s) occurring within the subsurface of the AWR.
- This SSO event was observed as an effort to mitigate the oxygen intrusion.

Other Data

There are several ways to increase the degree of certainty in determining the magnitude of a SET Event. Without all the available data, the operator or regulator must evaluate primary indicators such as temperature, LFG gas data, CO, H₂, and physical signs of a SET Event. If other reports or data are available, the operator should analyze this data and compare it to the primary tool. Other data would include FLIR imagery with reference temperature scale, settlement, leachate and gas chemical characteristics, fissures, slope stability reports, additional temperatures from liquid pumps in wells, 2D and 3D temperature modeling, isopatch modeling, odors and emissions, leachate outbreaks and generation, and individual LFG gas plots. The CCL is using the isopatch software to track the settlement every quarter, as shown in **Figure 6**. They also track

the settlement bi-monthly in the Cover Inspection Reports. The maps show the settlement area growth of more than 5 feet. **Figure 7** shows the most current settlement map.

The CCL Settlement and Fissure Reports also align with the TMP temperature spikes data in grids. CCL's consultant, Geo-Logic Associates, provided a summary map of the recently occurring fissures in February 2025 (see **Figure 8**). Significant fissures and areas where the soil collapsed were documented in Grids 146, 147, 148, and 154. CalRecycle also reviewed FLIR data from October 2024; however, CCL has refused to provide the temperature layer on each photo. All data should be available.

CalRecycle staff received the requested raw gas monitoring data (i.e., methane, carbon dioxide, oxygen, balance gas, pressure, flow, temperature, and field notes) for the years 2024 and 2025 on March 26, 2024, and additional comparison of well-to-well data over time for methane and temperatures or individual SET Events cannot be provided at this time. However, another way to evaluate whether the landfill is operating and maintaining air pollution control equipment and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions is to analyze the Semi-Annual and NESHAP Reports required by the EPA. As shown in Table 4, from the second semi-annual period of 2023 to 2024, the number of reported well readings for oxygen levels above 5 percent, temperatures exceeding 131°F (55°C), and positive pressure increased significantly. The percent change from 2023 to 2024 for wells with oxygen above 5 percent increased by 55 percent, wells with high temperatures increased by 41 percent, and wells with positive pressure rose by 33 percent. This metric indicates that the SET Event is intensifying in magnitude from July 2023 to December 2024, rather than decreasing.

Table 4. Summary of NSPS Reporting Requirement for Chiquita Canyon Landfill

NSPS Reports	Wells Above 5% Oxygen	Wells Above 131/145°F	Wells Under Positive Pressure
2023 Second Semi-Annual	>100	>115	>220
2024 First Semi-Annual	>110	>95	>280
2024 Second Semi-Annual	>225	>195	>330

Soil Reaction Break/Barrier Plan

On November 26, 2024, CCL submitted the third Soil Reaction Break/Barrier Plan. This revision has no proposed barrier and relies on the removal of gas and leachate as a control and containment strategy. The CCL has reported that over 77 million gallons of leachate were removed from January 2024 to February 2025. CCL has not provided any technical thermodynamic analysis demonstrating that removing the leachate or gas has contained the reaction. Only two TMPs have shown any significant decreases greater than 20°F (11°C) and both of those TMPs experienced significant temperature increases within the past six months. There are multiple areas on the landfill where the distance between the gas extraction wells exceeds 150 feet. Specifically, CalRecycle staff estimate that the boundary of the reaction area, where Geo-Logic has documented multiple fissures and cracks, is located to the east of and around Tank Farm #9 and TMP-17. The new reaction boundary has significant distances without extraction wells, extending from CV-2327 to CV-2322, CV-2464, CV-2454, CV-2449, CV-2442, and CV-144, as well as from CV-2305 to CV-2316.

CalRecycle staff is not aware of any published studies indicating that the removal of gas and liquid has contained a reaction similar to CCL. The removal of gas and leachate is critical, given the pressure and generation rate; however, as far as containing a SET Event, CalRecycle does not recognize this as a containment strategy.

Lastly, CalRecycle had requested CCL evaluate if there was any potential internal barrier, such as a haul road, cell separation, fire break, or other feature, that would prevent the SET Event from impacting the entire 190 acres of the main landfill. Based on CCL analysis, there is no internal barrier that could prevent the reaction from spreading to the entire facility.

Review Documents

While CalRecycle has not performed a complete review of the unedited 2024 and 2025 LFG data the CCL has just submitted, the evaluation of the Barrier Plan and reaction boundary is based on the following information and reports:

- Three versions of the Soil Reaction Break/Barrier Plan.
- Vertical Injection Barrier Plans.
- East fill proposals and correspondence.
- Two site visits, one on November 2, 2023, and the other on May 23, 2024.
- Hydrogen, carbon monoxide, VOCs reports and data.
- ERMAC meetings with CCL.
- Technical Memorandum from Dr. Stark, dated February 26, 2025, "Comments on the November 26, 2024 Revised Soil Reaction Break/Barrier Plan and February 20, 2025 Waste Temperature Data for the

Chiquita Canyon Landfill Subsurface Elevated Temperature (SET) Event.”

- Eight years of Chiquita Canyon Landfill Semi-Annual New Source. Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Reports.
- Five years of Annual Rule 1150.1 Compliance Plan reports, Chiquita Canyon Landfill.
- Four years of Surface Emission Monitoring reports, Chiquita Canyon.
- Raw LFG data from 2022 to 2025.
- Landfill gas migration reports.
- Downwell temperature monitoring reports
- Lorenz pump temperature reports.
- Weekly TMP reports.
- Weekly Fissure and Settlement reports.
- Slope stability reports.
- Settlement reports
- Leachate metric reports.
- Elevated Temperature Landfill Causation Investigation report.
- SCAQMD orders.
- Reaction Committee reports.
- Odor reports.
- LFG designs and maps.
- FLIR Imagery.
- LEA orders, correspondence, temperature and settlement reviews, and general technical review.
- Other letters, correspondence, LFG laboratory reports, and other data files.
- Experience with other SET Events and smolder in the US and abroad.
- The letter from Dr. Stark, which provides additional details on the cover specifications, is included in Attachment C.

Evaluation

Based on the information above, the CCL has experienced the following conditions:

- Significant emissions and odors that have impacted the community of Val Verde and surrounding areas from 2023 to 2025. According to the SCAQMD, the CCL has received a total of 1,493 complaints and 16 Notices of Violations in 2025.
- The interim cover has experienced significant damage from settlement, leachate outbreaks, slope instability, and fissures.
- Leachate is currently being extracted at a rate of 228,624 gallons per day.
- The facility has had several leachate outbreaks and releases.
- The facility is treating a portion of the leachate for hazardous levels of benzene.

- 13 gas wells have observed geysering of leachate.
- Wellhead and downwell temperature differentials have been severe. Two wells have observed differentials over 100°F, and six had readings over 40°F.
- Temperatures have reached the maximum detectable limit of 250°F in the Lorenz Pumps for gas wells CV-2301, CV-2303, and CV-24017.
- Temperatures in TP-3 and TP-9 have remained constant (+/- 5°F) at 222°F and 233°F respectively.
- Temperatures in four TPs (TP-8, TP-10, TP-11, TP-15) have shown or are exhibiting shallow temperature spikes above 160°F in the shallow probes.
- TMP-14 is demonstrating a shallow SET Event.
- Temperatures in six TMPs (TP-6, TP-13, TP-14, TP-17, TP-19, TP-20) have been or are currently trending upwards since installation in April 2024.
- Five new TMPs (TP-26, TP-29, TP-30, TP-31, TP-32) temperatures are above 160°F, with the highest being TP-31 with 185°F at 190ft below the surface. TP-31 is located over 600 ft away from the CCL-defined reaction boundary.
- Nine wellhead temperature have exceeded 200°F and 83 have exceeded 170°F since 2023.
- Multiple LFG wells have been replaced due to integrity issues resulting from temperatures exceeding 140°F.
- Two slope instability incidents have occurred on the west slope.
- The facility is experiencing a decrease in methane production in the reaction area and along the boundary, with many gas wells now operating at less than 15 percent.
- The facility is observing CO above 1,500 ppmv, H₂ above 2 percent, and elevated VOC levels in the reaction and boundary areas.
- NSPS reporting data has increased significantly from July 2023 to December 2024. Wells with oxygen levels above 5 percent increased by 55 percent, temperatures exceeding 131°F increased by 41 percent, and positive pressure at the wellhead rose by 33 percent.
- Accelerated settlement continues to be documented by the CCL in the weekly reports and isopatch survey.
- Temperatures exceeding 140°F have affected the service life of a portion of the liner. Further data is required to perform a more comprehensive study.

Based on the documented conditions summarized above, CalRecycle staff conclude the following:

- The submitted barrier plan will not contain or control the reaction. There is no proposed barrier to prevent the reaction from consuming the entire facility.
- The reaction area is expanding, and the current containment strategy has

failed. Install 40 to 60-mil thick tan or green HDPE-EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile over the approximately 100 acres outside the current geomembrane cover. Weld it to the existing 30-mil thick white HDPE geomembrane or place it in a suitable anchor trench. Submit a construction and quality assurance/quality control (QA/QC) plan for the installation.

- The independent SET Events are developing due to the current GCCS operations.
- While the removal of leachate and pressurized gas is critical, this is not a satisfactory containment method.
- Leachate Tank Farm nine must be relocated off the top deck to an area not impacted by the SET Event now or in the future.
- The expansion of the SET Event into Cell 8A must be prevented by connecting the previously constructed soil barrier to the west and eastern edges of Cell 8A. This soil barrier should provide a thermal block and remove any waste connection from Cells 6 to 8A. It is critical to prevent this expansion to 8A for two primary reasons. If a soil buttress must be constructed to stabilize the slope from the SET Event, this is the only area large enough to build a buttress. We must also allow the landfill to maintain a disposal area for self-generating waste in cell 8A.
- Install five new TMPs, as shown in Attachment A.

If you have any comments or questions, please contact Todd Thalhamer at (916) 341-6356 or email Todd.Thalhamer@Calrecycle.ca.gov.

Sincerely,



Todd Thalhamer, P.E.
Senior Waste Management Engineer
Engineering Support Branch

Attachments

A - Proposed Location of New TMPs for Chiquita Canyon Landfill

B - TMP Data from April 2024 to March 2025

C - Dr. Stark Memo February 26, 2025, Comments on November 26, 2024 Revised Soil Reaction Break/Barrier Plan

Cc Via Email:

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Enrique Casas, Los Angeles Regional Water Quality Control Board
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Thanne Berg, Department of Toxic Substances Control (thanne.berg@dtsc.ca.gov)
Laura Friedli, United States Environmental Protection Agency
(friedli.laura@epa.gov)

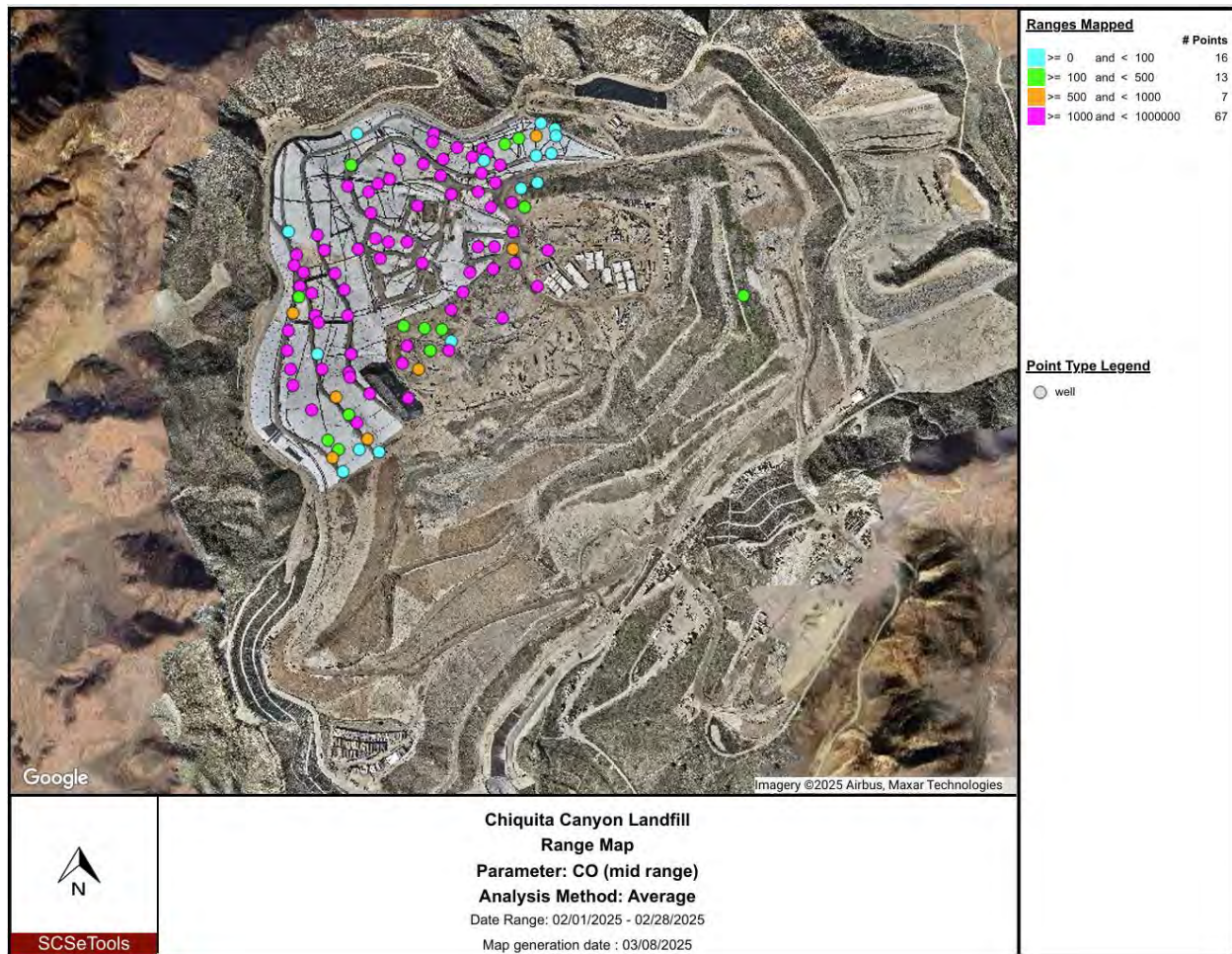


Figure 1. Chiquita Canyon Landfill CO Range Map, March 8, 2025. (Source: SCSe Tools)

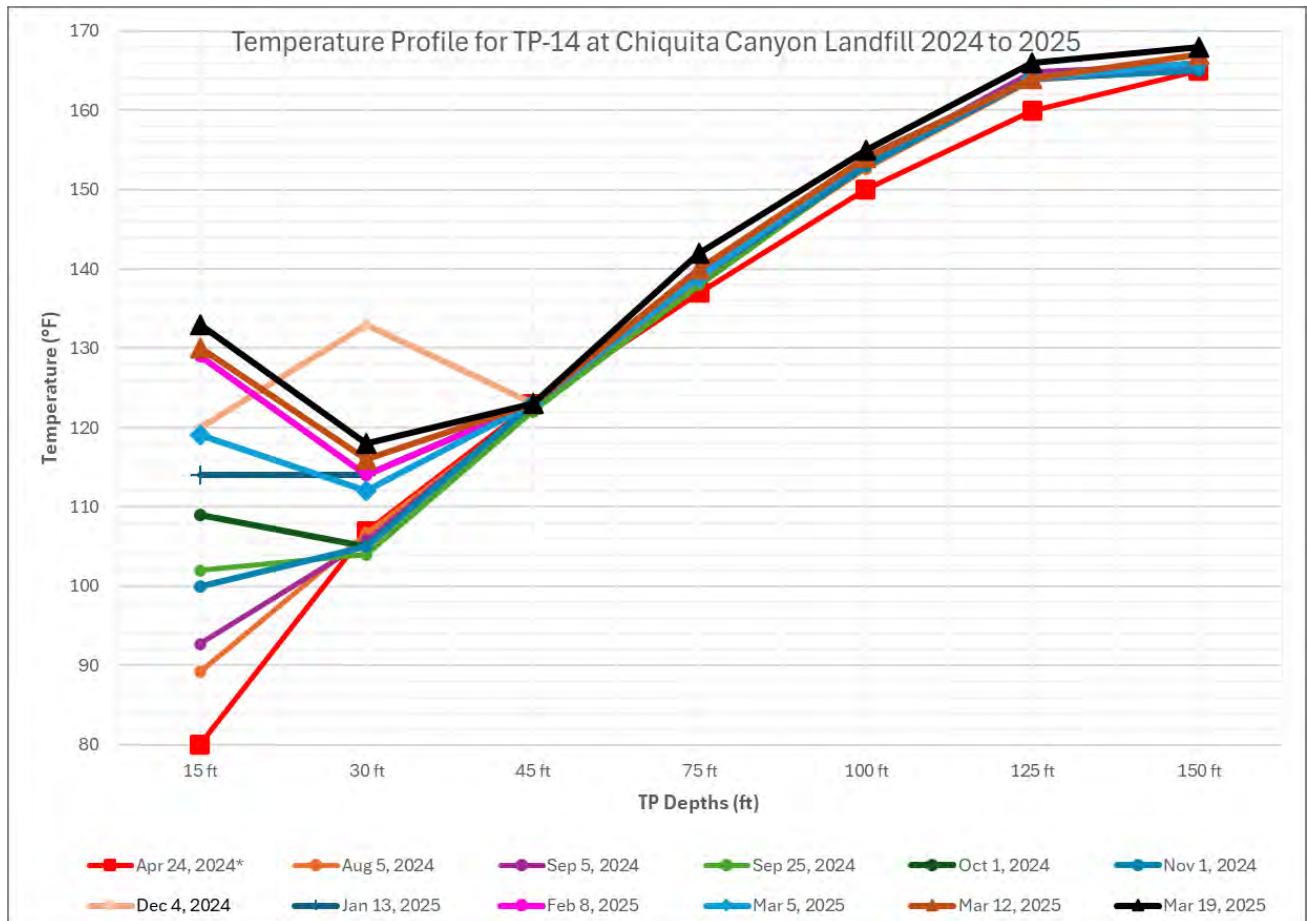


Figure 2. TMP-14 Temperature Profile Demonstrating a Shallow SET Event Developing at Chiquita Canyon, April 24, 2024, to March 19, 2025. (Source: SCS Engineers TMP Data)

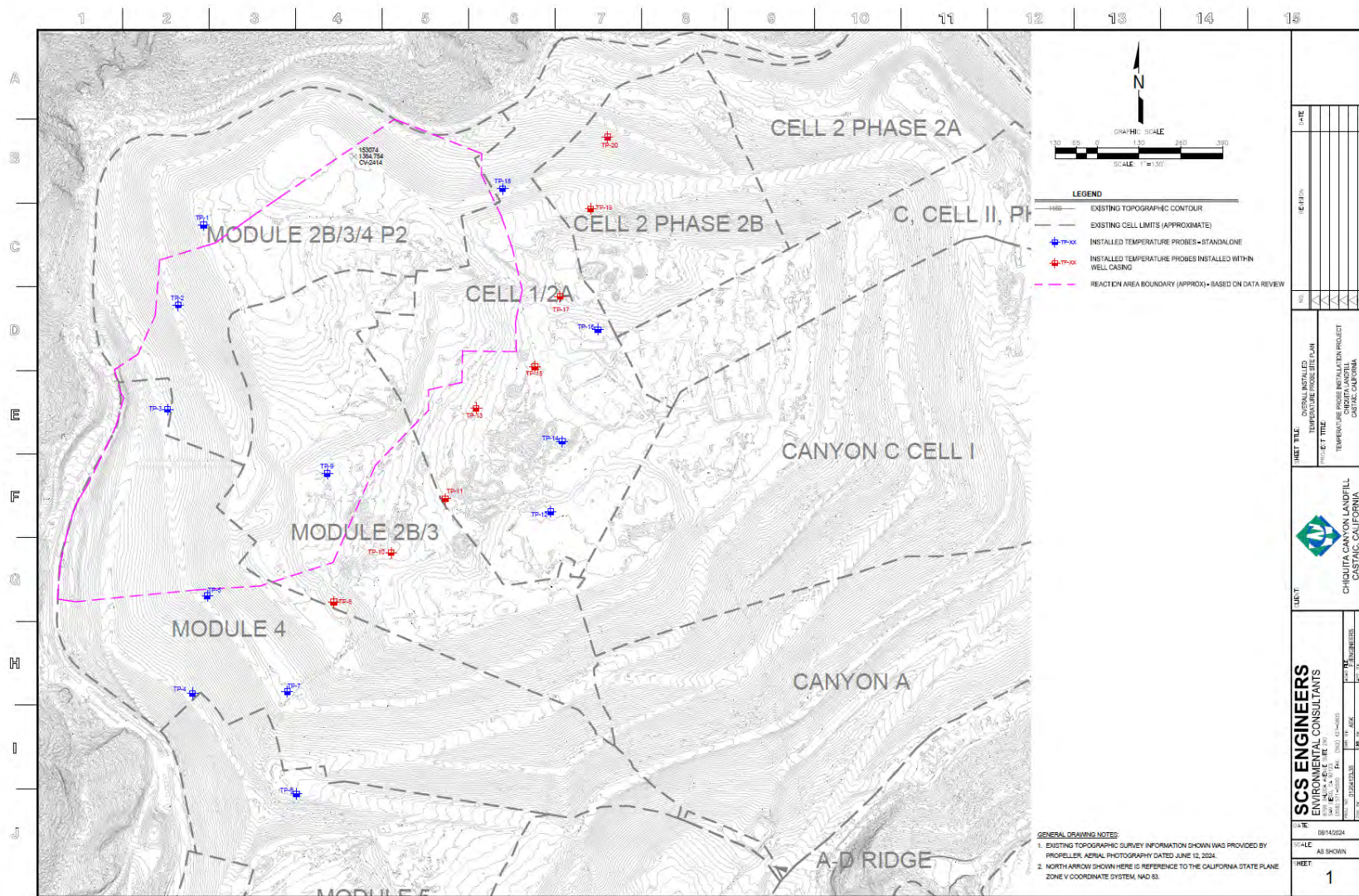


Figure 3. TMP Installation Map for Chiquita Canyon, 2024. (Source: SCS Engineers TMP Data December 2024)

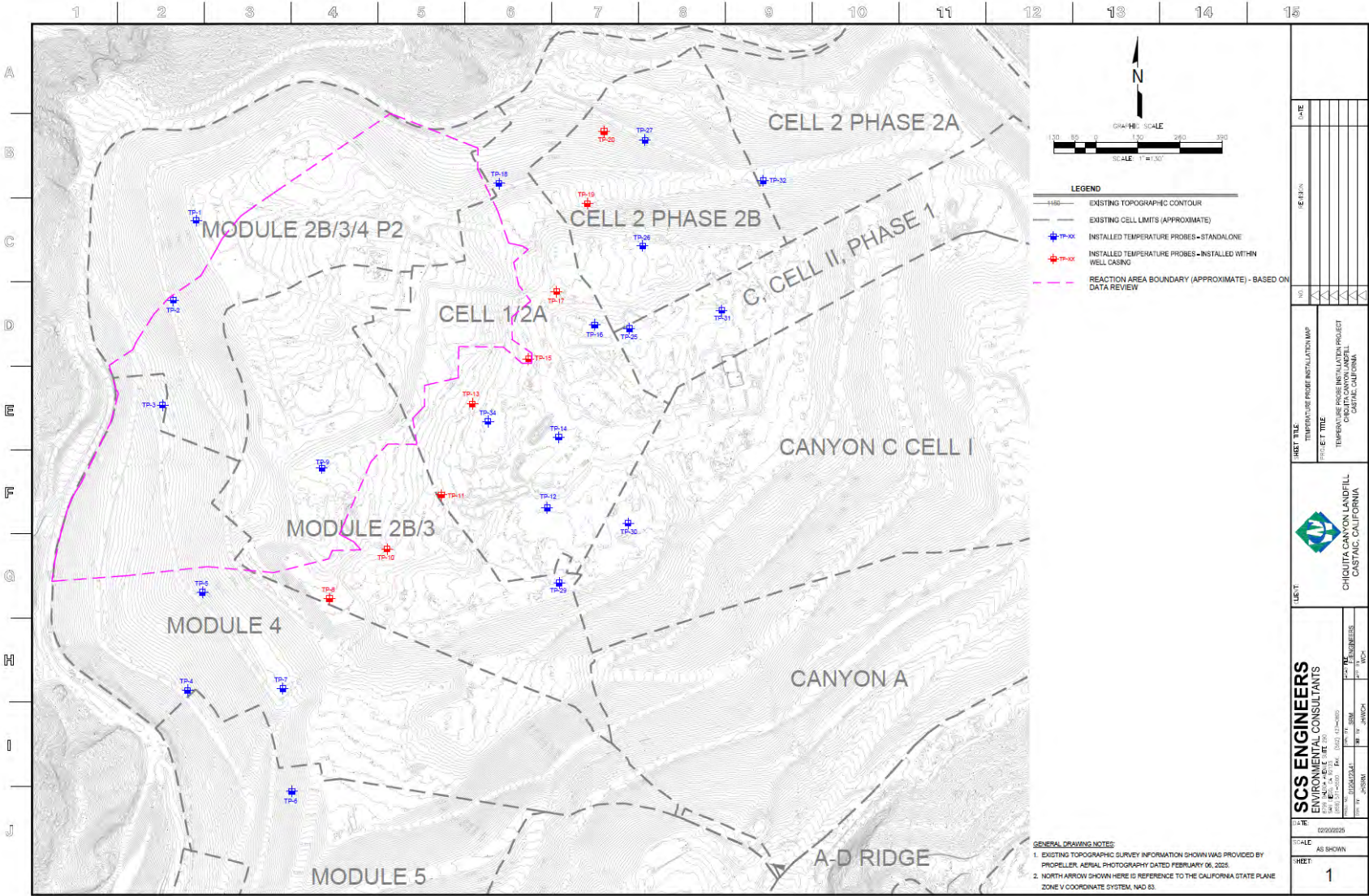


Figure 4. Revised TMP Installation Map Chiquita Canyon for 2025. (Source: SCS Engineers TMP Data March 2025)

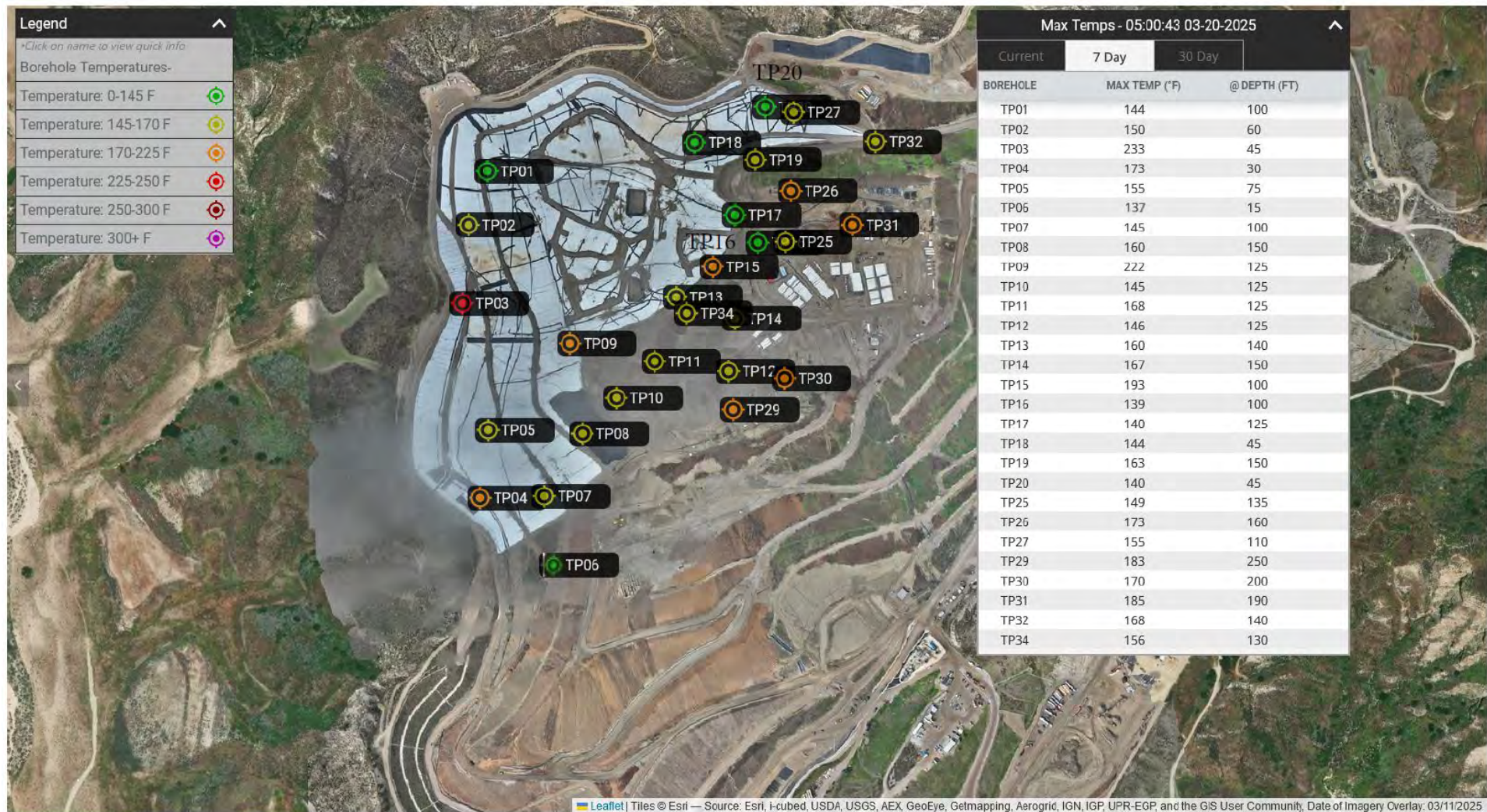


Figure 5. Maximum Vertical Temperature Map for TMPs for Chiquita Canyon for 2025. (Source: SCS Engineers TMP Data March 2025)

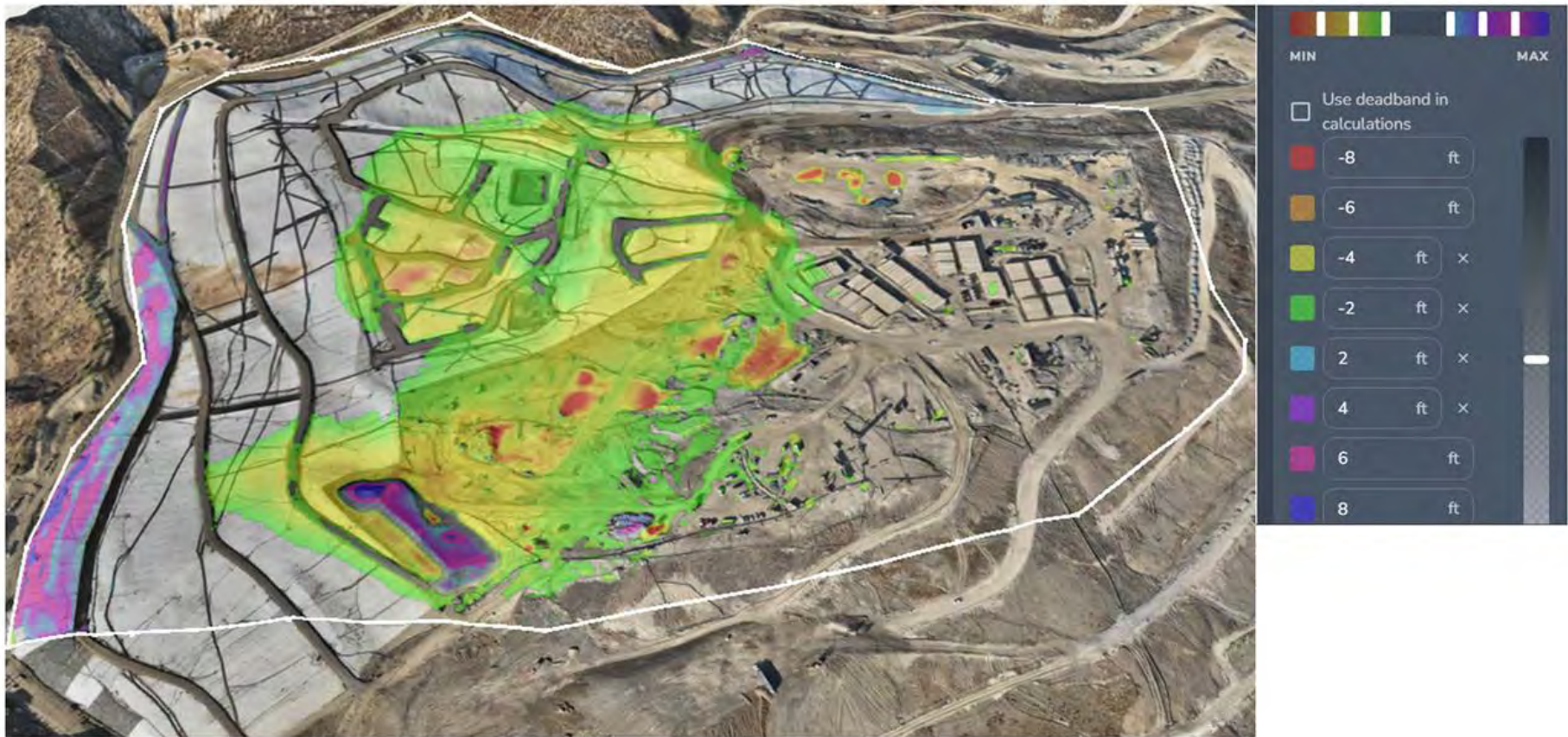


Figure 6. CCL Isopatch Settlement Map, January 3, 2025 Survey Image. October 2, 2024 vs January 3, 2025. (Source: CCL February 2025)



Figure 7. CCL settlement map showing the settlement area growth between 2/26/25 (in green) and 3/11/25 (in red). These polygons show the areas that have settled more than 5 feet. (Source: Bi-weekly Cover Reports by CCL).

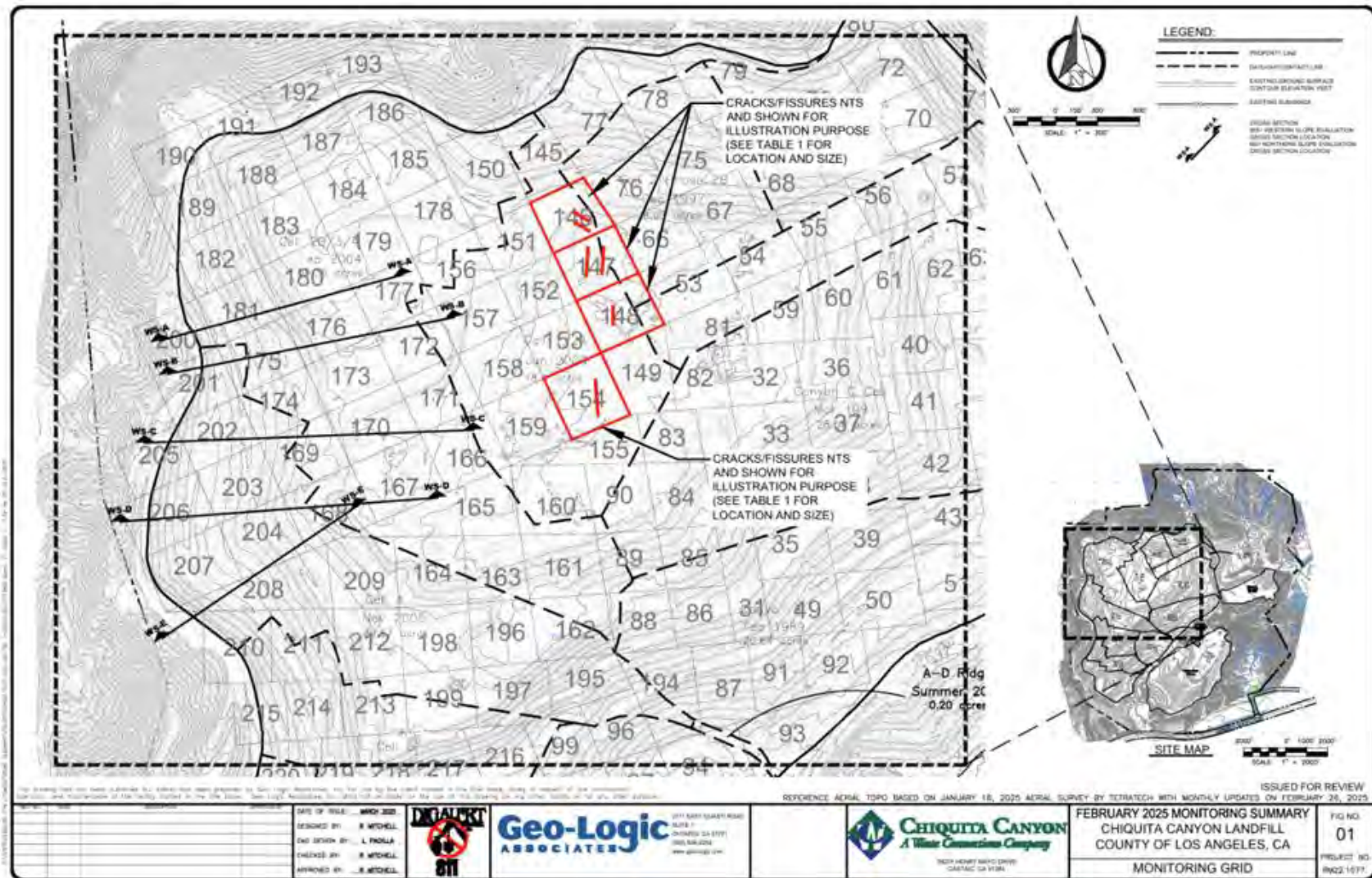
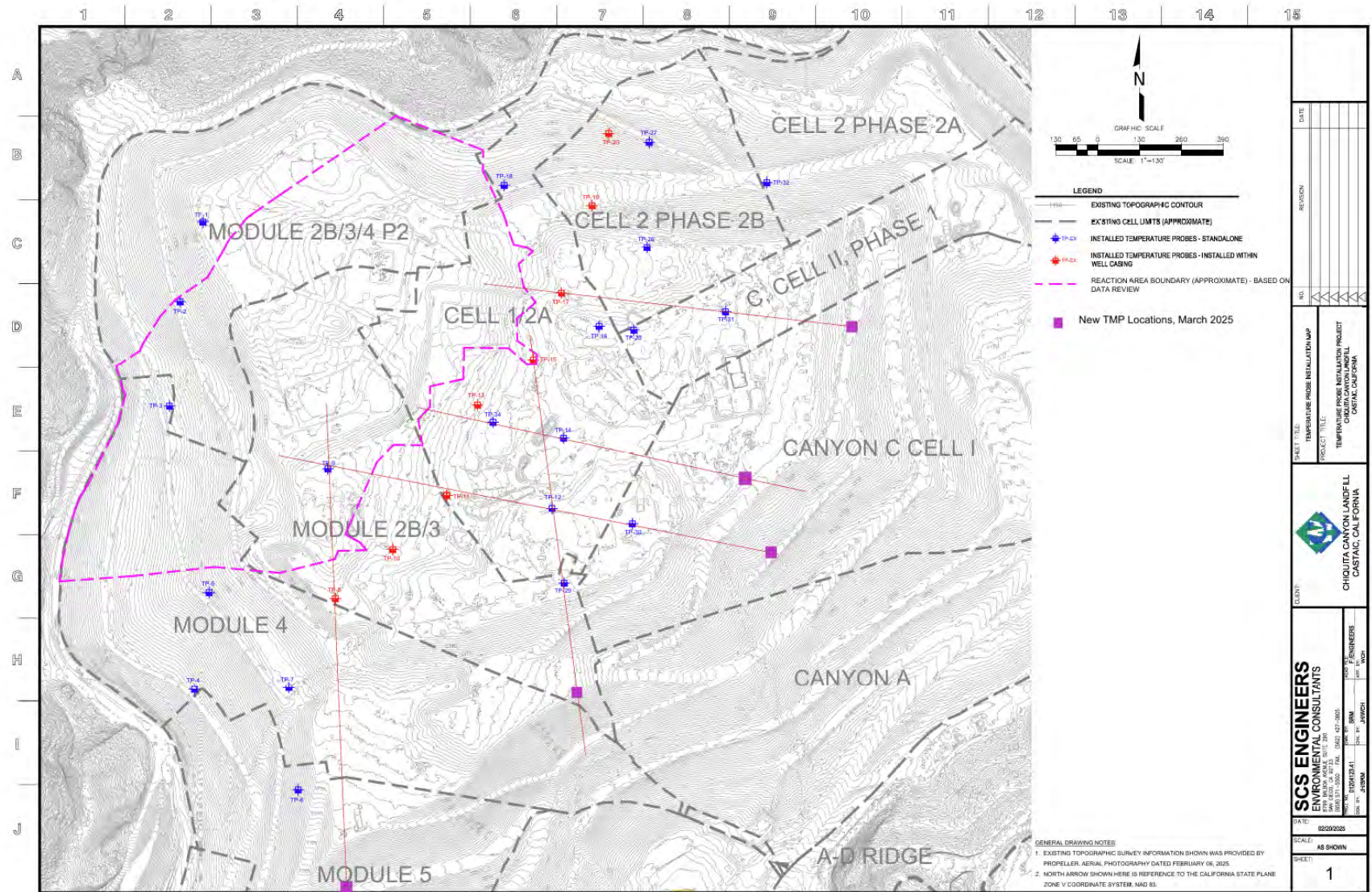


Figure 8. Fissure and Crack Monitoring Report for February 2025. (Source: Geo-Logic Associates)

Attachment A

Proposed Location of New TMPs for Chiquita Canyon Landfill

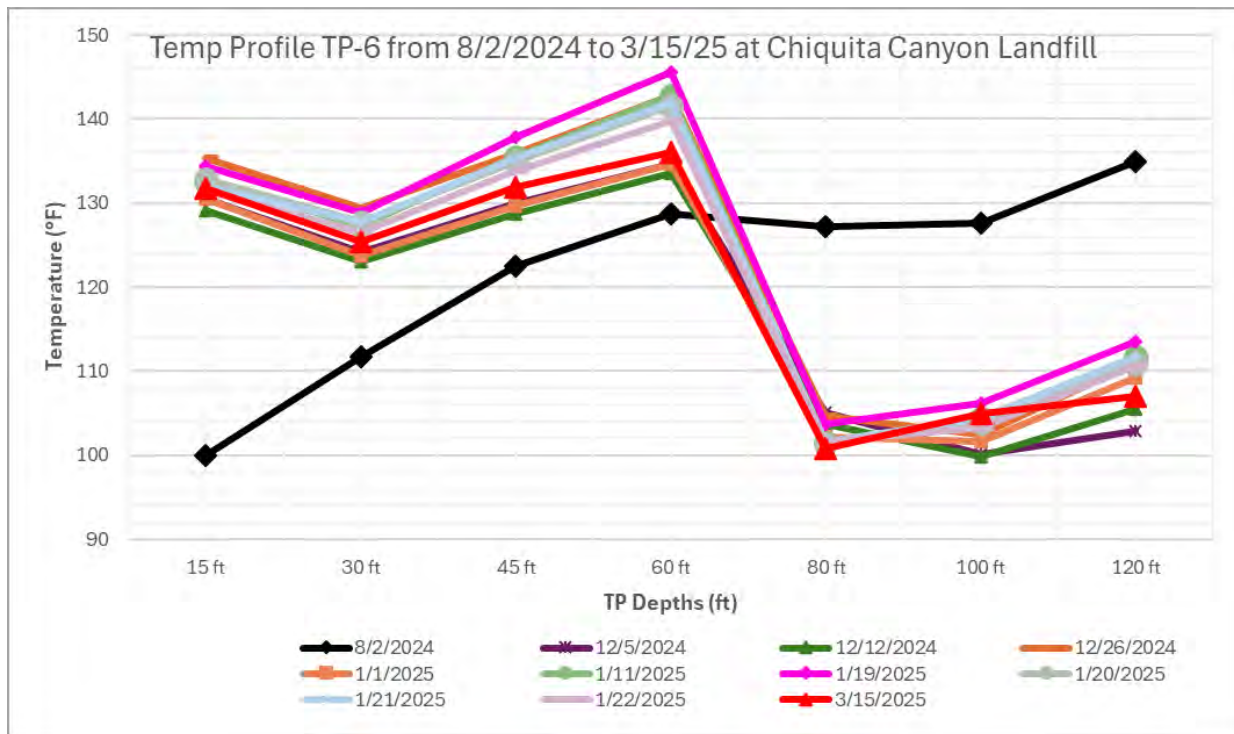
New TMPs for Chiquita Canyon Landfill, March 2025



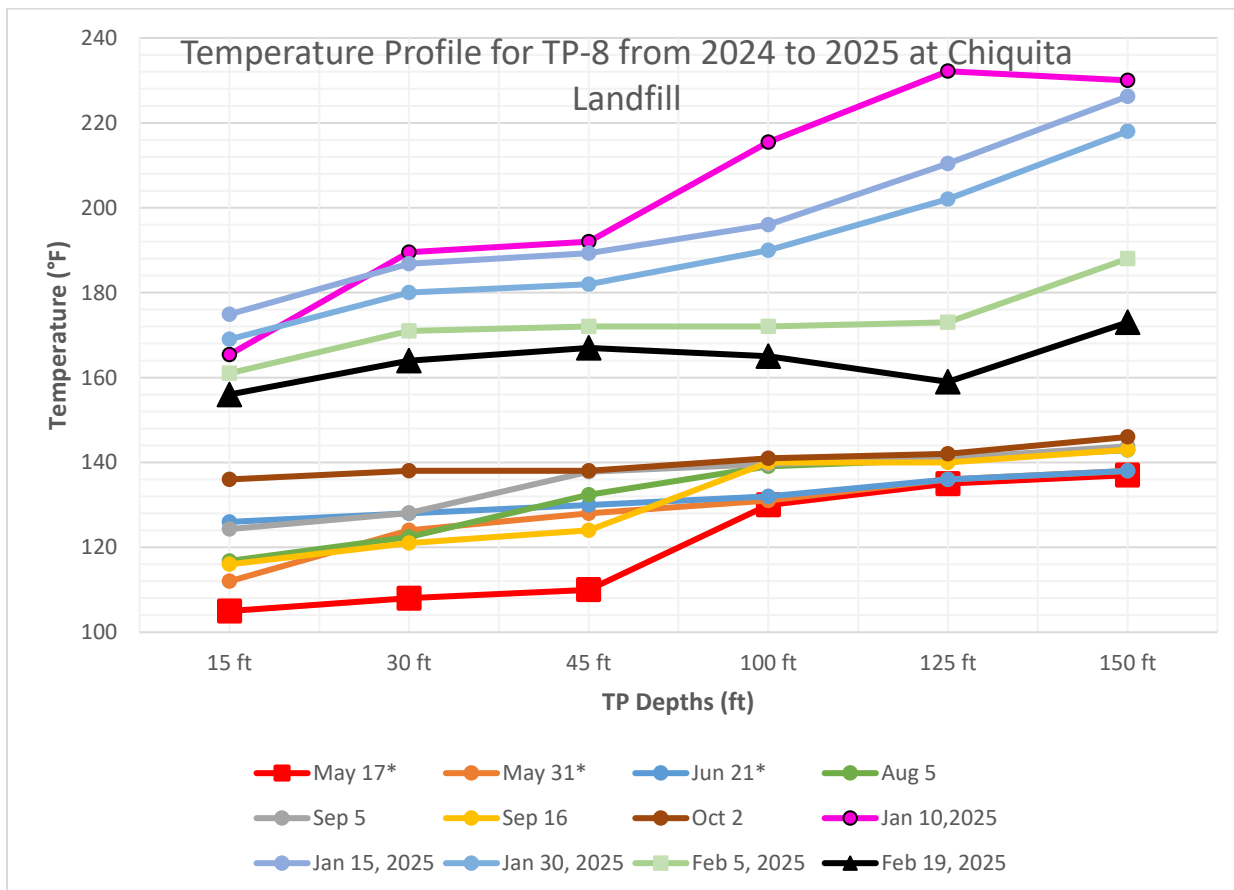
Attachment B

Chiquita Canyon Landfill TMP Profiles with Significant Changes
April 2024 to March 2025

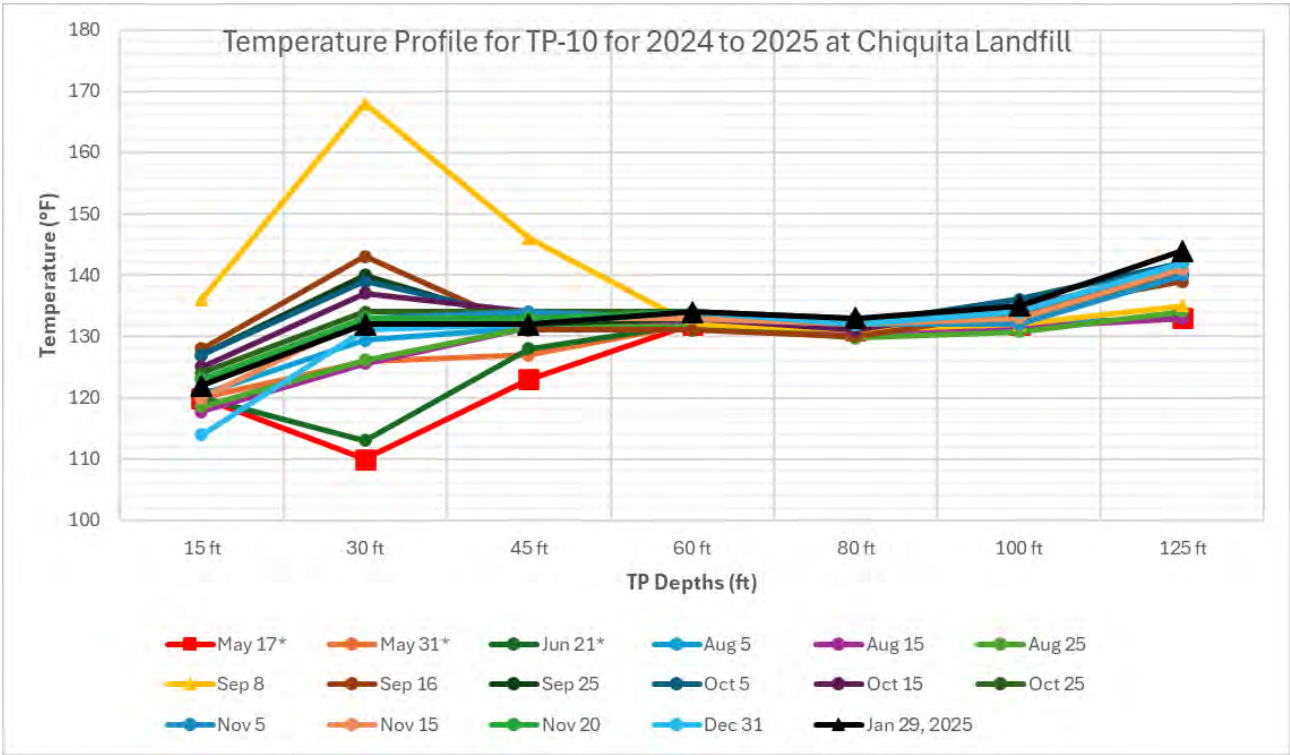
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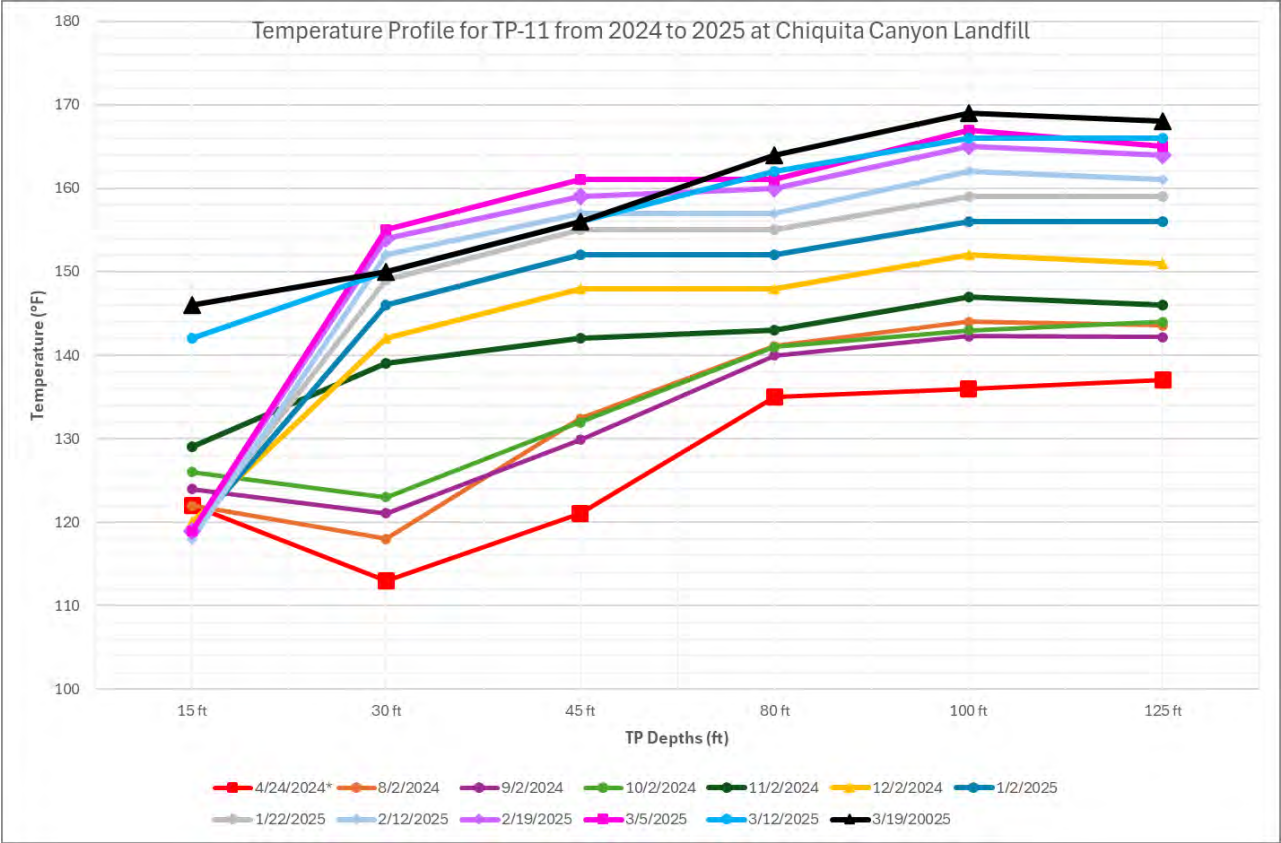
TP-8



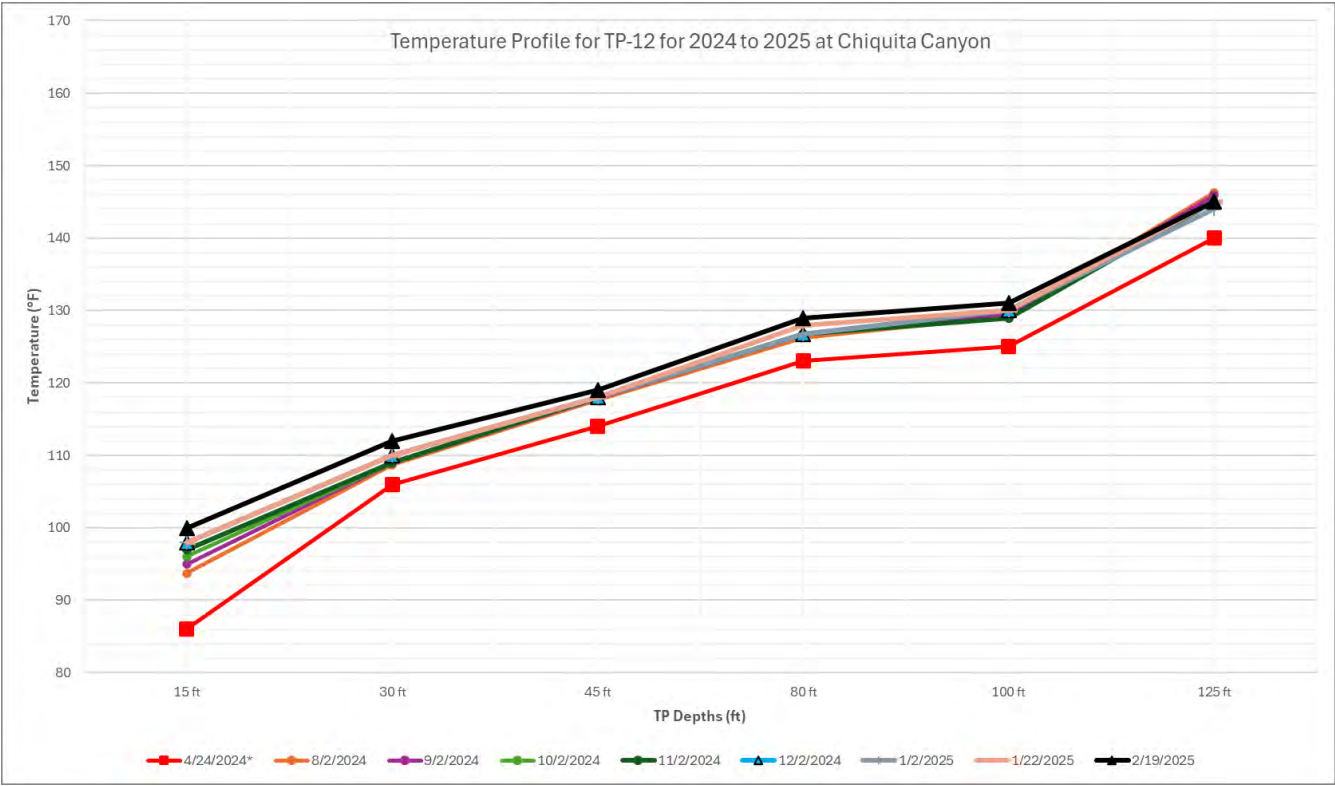
TP-10



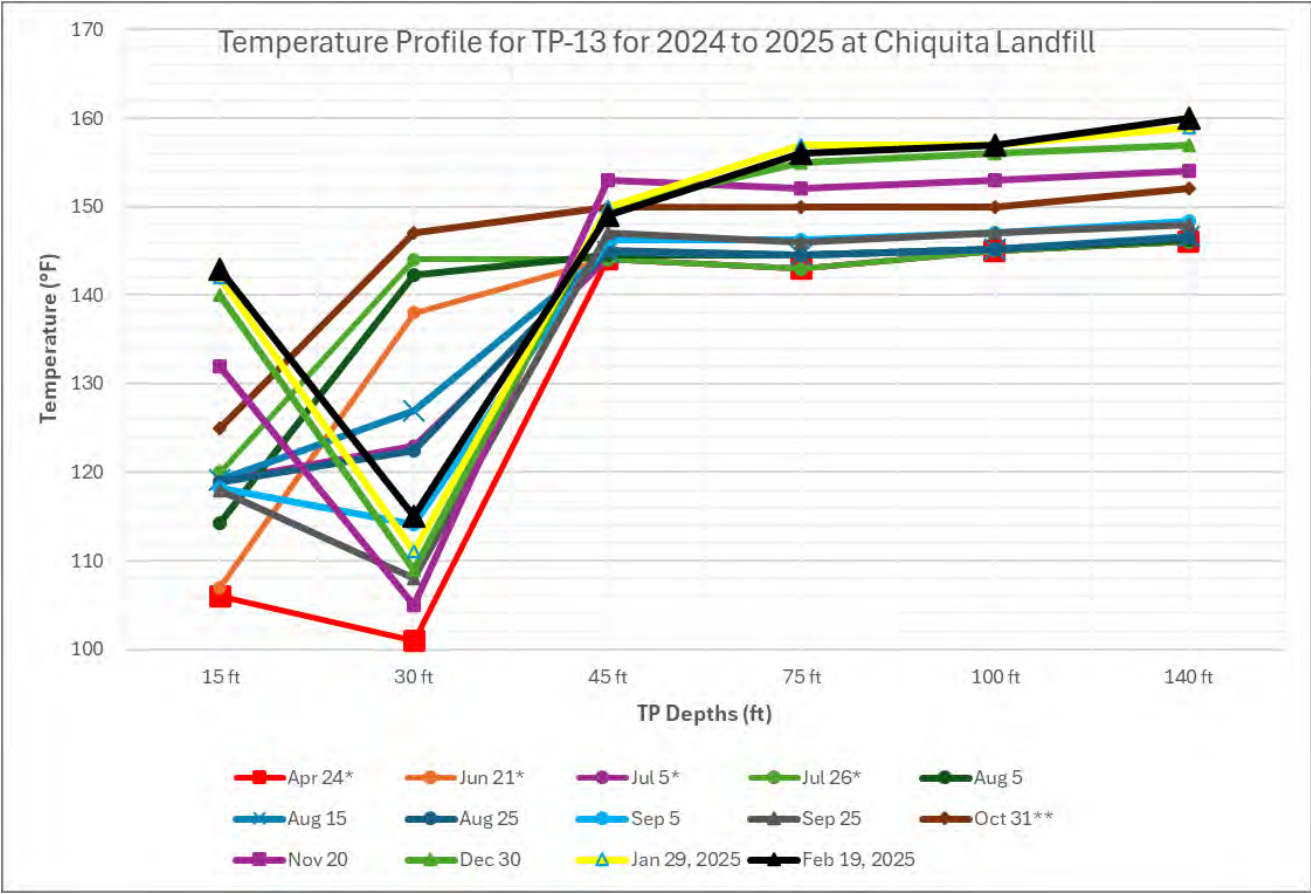
TP-11



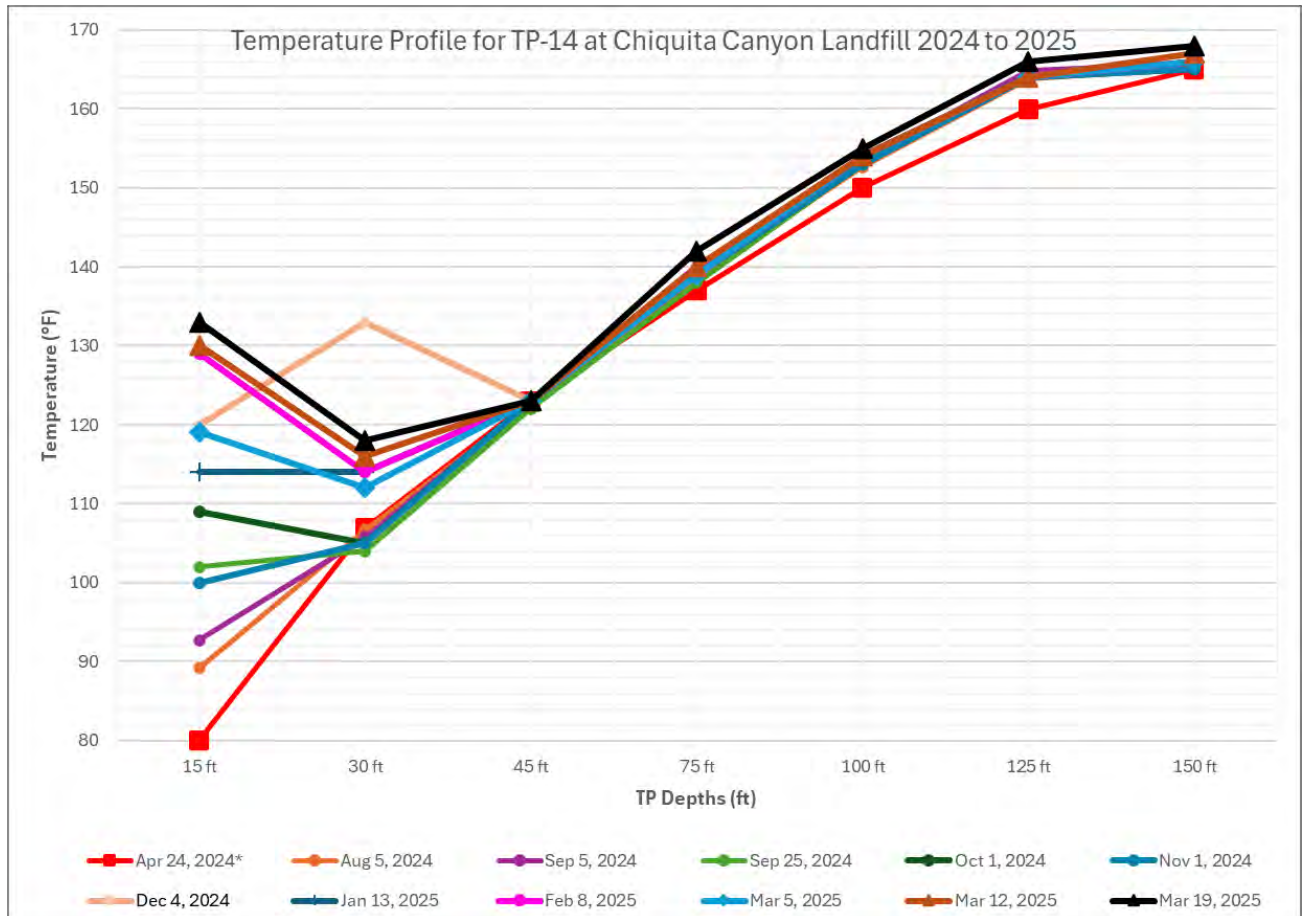
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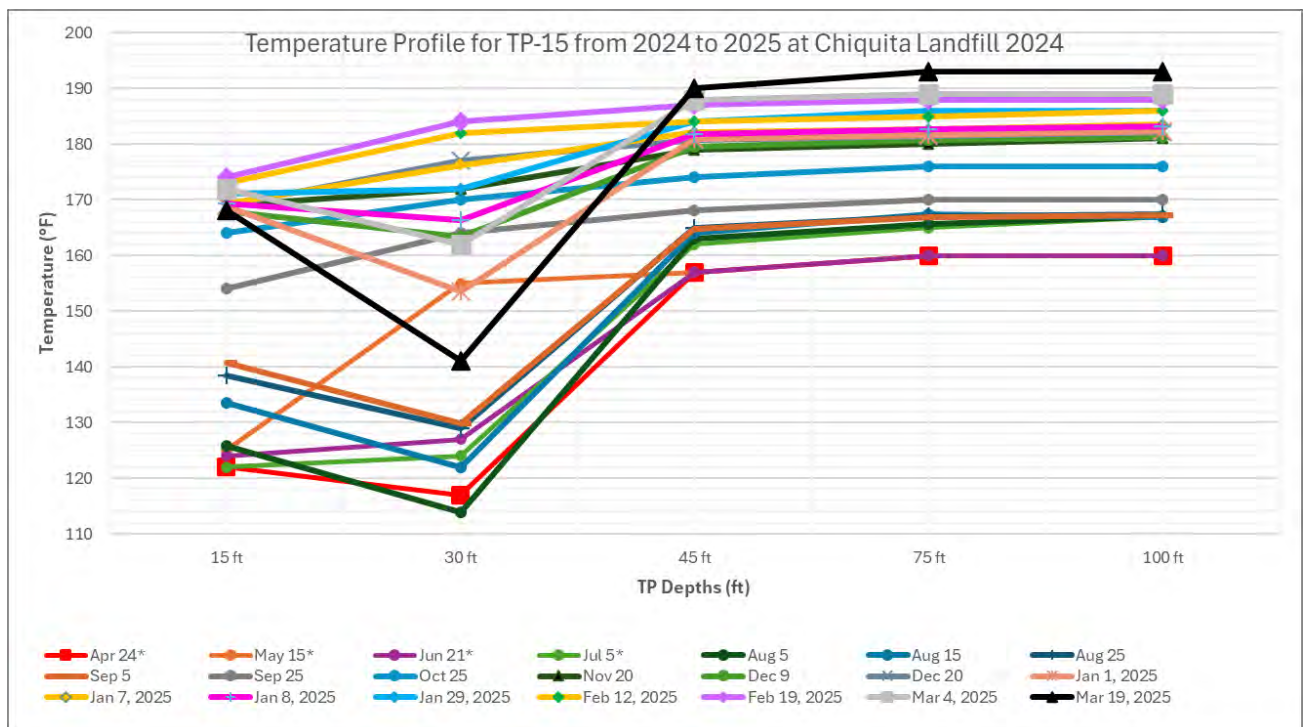
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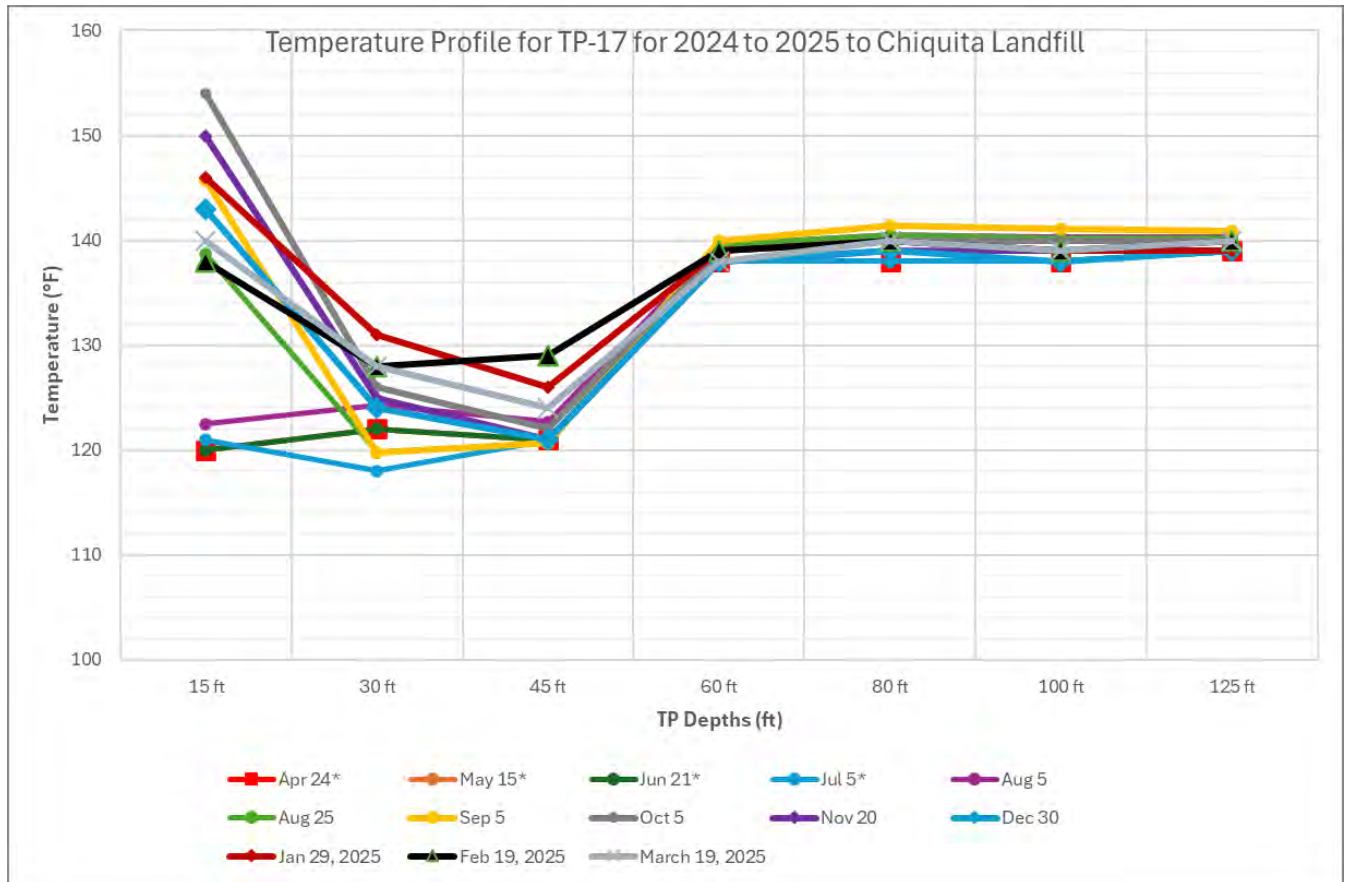
TP-14



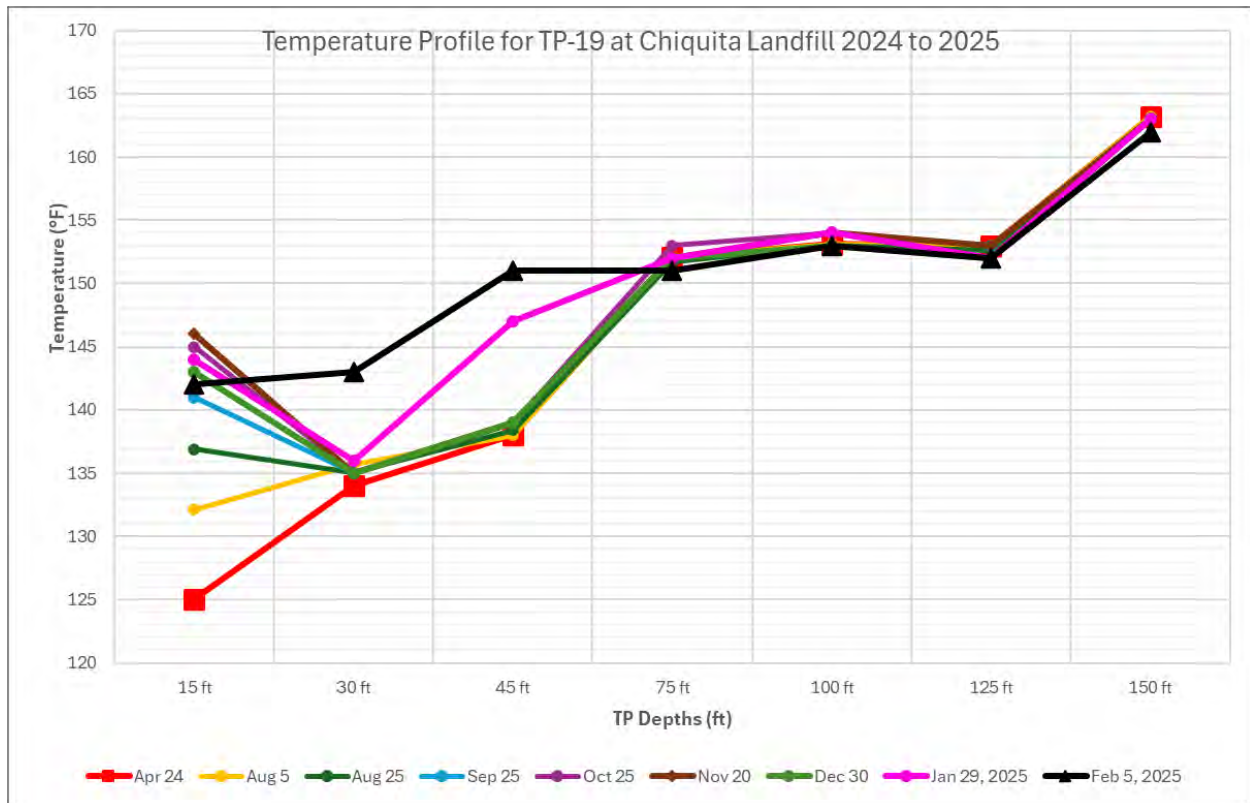
TP-15



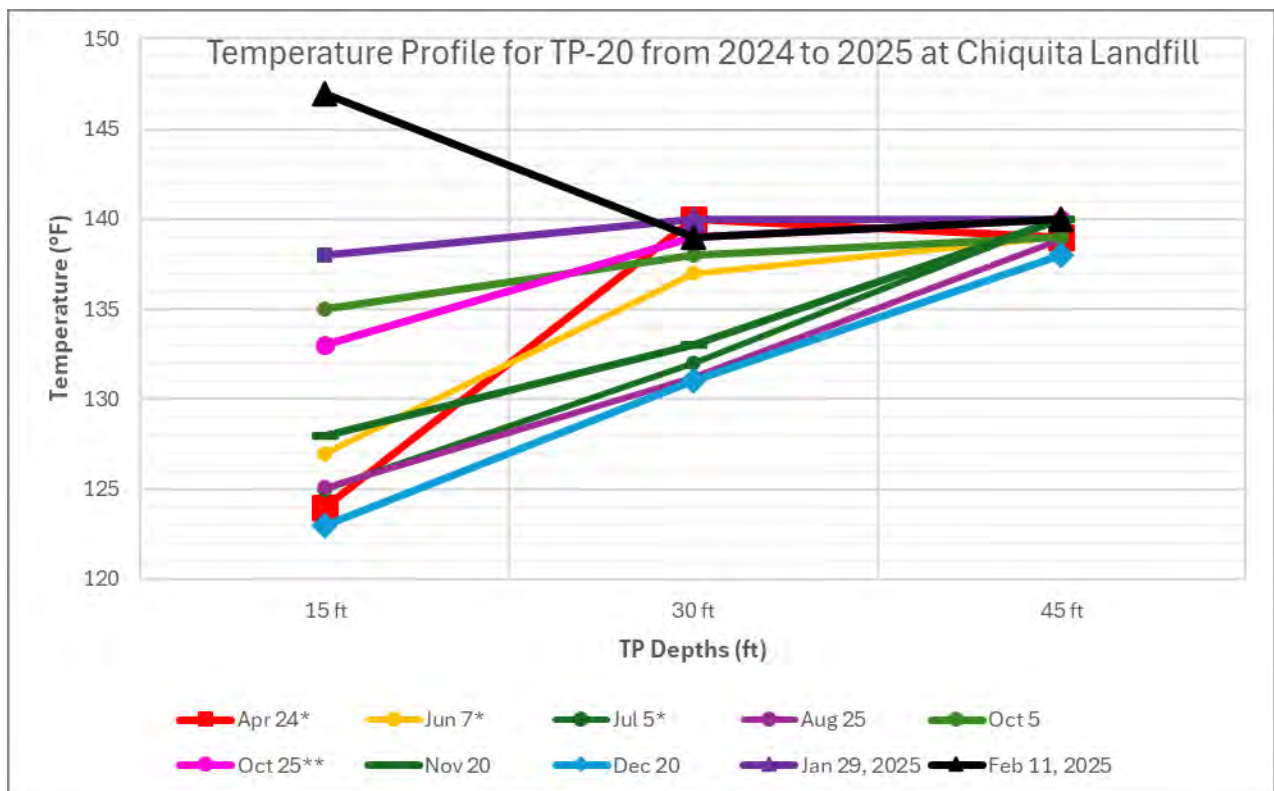
TP-17



TP-19



TP-20



Attachment C

Technical Memorandum from Dr. Stark dated February 26, 2025

TIMOTHY D. STARK, Ph.D., P.E., BC.GE

Stark Consultants, Inc., 401 W. Indiana Avenue, Urbana, Illinois, 61803; tstark32@gmail.com; (217) 840 - 8263

To: Mr. Matthew Dwyer
Senior Project Manager
Regional Manager
Engineering/Remediation Resources Group, Inc. (ERRG, Inc.)
9727 Business Park Drive, Suite A
Sacramento, CA 95827
matthew.dwyer@errg.com

From: Timothy Stark, Ph.D., P.E., BC.GE, Dist.M.ASCE

Date: February 26, 2025

RE: Comments on November 26, 2024 Revised Soil Reaction Break/Barrier Plan and February 20, 2025 waste temperature data for Chiquita Canyon Landfill Subsurface Elevated Temperature (SET) Event

Pursuant to your request and Task Order #1 under my contract with ERRG, I have reviewed the November 26, 2024 Revised Soil Reaction Break/Barrier Plan¹, waste temperature data provided by SCS dated February 20, 2025², and the weekly tracking of fissures and tension cracks in the impacted area dated February 17, 2025³ and submitted by the Chiquita Canyon Landfill (CCL) operated by Waste Connections, Incorporated to the Legal Enforcement Agency (LEA) on February 25, 2025.

Landfill Location and Description:

The CCL is located at 29,201 Henry Mayo Drive, Castaic, California, in northern Los Angeles County. This facility is a Class III non-hazardous municipal solid waste (MSW) landfill. The 639-acre landfill site began accepting waste in 1972. The landfill can receive up to 12,000 tons of MSW per day. The average daily tonnage in 2021 was reported to be 6,412 tons. The CCL only accepts non-hazardous solid waste for disposal, including municipal solid waste, green waste for composting or recycling, construction and demolition debris, and e-waste for recycling. The facility is prohibited from accepting hazardous waste that is ignitable, corrosive, reactive, or toxic. The landfill also does not accept biohazardous waste, household hazardous waste, radioactive materials, incinerator ash, sludge, automobile shredder fluff, or liquid waste.

The landfill site is a former limestone quarrying and crushing operation which began in 1939 and ended in 1988. The quarrying resulted in two quarry pits, the North Quarry Pit and the South Quarry Pit, which were excavated to a maximum depth of 240 feet below ground surface (bgs). The north and south quarry portions cover an area of approximately 52 acres.

¹ SCS Engineers, Revised Soil Reaction Break/Barrier Plan: Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, November 26, 2024, 198 p.

² SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

³ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

Landfilling began in the North Quarry Pit in 1974 and continued in this area until 1985. In 1985, the landfill underwent expansion to the southwest into the area known as the South Quarry Pit. This continued until August 2005 when the landfill stopped accepting waste to reduce the potential for birds to interfere with nearby airport operations. The total waste thickness is approximately 320 feet which means about 80 feet is above ground surface and about 240 feet is below ground surface. The landfill accepted approximately 17,000,000 in-place cubic yards of waste, including commercial, and municipal solid wastes.

The permitted landfill disposal footprint totals 257 acres and is comprised of three separate areas designated as “Primary” Canyon, “Canyon B,” and the Main Canyon (including Canyons A, C, D and subsequent fill modules). Currently, 231 acres of the footprint have been used for disposal. All areas except the Primary Canyon have geosynthetic bottom liner systems and leachate collection and removal systems. Leachate is collected and trucked off-site, but condensate from the gas extraction wells is injected into the flare.

Revised Barrier Plan:

The Revised Barrier Plan states a:

“discrete portion of the waste mass in the northwestern section of the Landfill is experiencing elevated temperature landfill (ETLF) conditions. ETLF conditions can generally be characterized as when the typical waste decomposition processes and corresponding methanogenesis associated with anaerobic digestion of organic solid waste materials disposed in a landfill are impeded because of heat accumulation. As a result, certain abiotic (non-biological) processes and chemical reactions within the buried wastes occur instead.”

Even though SCS Engineers (SCS) claims the Subsurface Elevated Temperature (SET) Event only is impacting a “discrete portion of the waste mass”, they review five options for isolating and containing the SET Event to impede heat flow into other adjacent portions of the waste mass. These five options are:

- (1) Air Break through avoidance of placement of additional waste lifts overlying existing buried wastes.
- (2) Air Break through excavation to “cut out” existing buried wastes.
- (3) Soil Barrier through placement of soil layer atop existing landfill surface.
- (4) Soil Barrier through excavation and backfilling of a deep trench.

5) Inert Material Barrier through Borehole Drilling, Dewatering, and Flowable Fill Injection.

SCS concludes an air break through avoidance of additional waste placement (option #1) or excavation (option #2) are “implausible” and thus are not being pursued by CCL. In addition, SCS deemed option #4 (soil barrier through excavation and backfilling) “implausible”, and the technology involved in introducing an inert material for Option #5 “uncertain”. As a result, options #4 and #5 are not being pursued by CCL.

Option #3 was deemed by SCS to be the “most plausible and may accomplish the desired objective without incurring substantial environmental and safety risks.” Option #3 simply involves placing additional soil over the top of the landfill, i.e., to create a thicker soil cover. This option will be less effective for controlling odors and emissions from CCL than a geomembrane cover (discussed below) because of many issues including inadequate soil compaction especially on the sideslopes, differential settlement causing cracks in the soil cover, and creation of desiccation cracks during the hot and dry months.

The Revised Soil Reaction Break/Barrier Plan⁴ was issued on November 26, 2024, which is important because CCL claims:

“CCL has implemented extensive mitigation measures that reduce the likelihood that CCL will need to construct any form of the various reaction break concepts, including CCL’s proposed additional mitigation measures. Previous experience at other ETLF landfills demonstrates that landfill reactions and resulting odors have been mitigated by best management practices, including increased gas extraction and liquid removal (e.g., through expanding systems and providing adequate LFG control capacity and leachate disposal capacity). Another best management practice is to improve cover integrity, which reduces infiltration of precipitation and limits the amount of excess liquids available to sustain various chemical reactions. Implementing these measures will help slow the reaction, impede the spread of the reaction to new areas, and mitigate impacts.”

“Further, Chiquita is constantly monitoring the landfill for signs of potential ETLF conditions so that it can react quickly in the event of changing conditions. CCL and SCS are confident that implementation of the best management practices developed by the landfill industry and EPA to contain and manage the reaction will succeed in slowing the propagation of the reaction area. Other landfills that have experienced widespread ETLF heating events during the past approximately 15 years have

⁴ SCS Engineers, Revised Soil Reaction Break/Barrier Plan: Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, November 26, 2024, 198 p.

successfully utilized these tools to contain those events. Continued application of the current mitigation measures will result in cooling of the buried wastes, which enable methanogenesis to ultimately be re-initiated within a large section of the affected waste mass. This in turn will mitigate and abate the detrimental impacts, such as odors, being experienced by surrounding off-site communities.”

Unfortunately, the waste temperature data released on February 20, 2025⁵ shows these “best management practices” have not “helped slow the reaction, impede the spread of the reaction to new areas, and mitigate impacts” as claimed by CCL and SCS above, as discussed in the next section. In summary, the removal of “hot” gas and leachate has not been successful in containing the SET Event.

Summary of Recent Temperature Data

SCS presents Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁶ An aerial image of CCL with a table of maximum temperatures is included in the subject SCS Report and reproduced in **Figure 1**. I have placed the maximum waste temperature from the table in **Figure 1** adjacent to some of the gas extraction wells to facilitate understanding the extent of the SET Event, especially on the east side of CCL. **Figure 1** shows waste temperatures of 183°F and 185°F at the eastern side of the top deck of the CCL. This means the SET Event has migrated from the western slope (TP03) to the eastern side of the CCL (TP31). Expansion of the SET Event has the following implications:

- Elevated temperatures (185°F to 189°F) surround the leachate tank farm (see red arrow in **Figure 1**). This area is going to undergo significant settlement, if it has not already started to do so, due to thermal breakdown of the buried waste. This settlement will cause differential movement of the leachate tanks, which could result in a leachate release. As a result, I recommend the leachate tank farm be moved off the top deck and to a site off the CCL and on native soil because the SET Event continues to expand.
- Waste temperatures of 183°F and 185°F are already present on the eastern side of the top deck of the CCL. As a result, it is not possible to “isolate and contain” this SET Event using a north-south vertical barrier as previously discussed. Thus, the only option for controlling odors and emissions is to cover the area with a geomembrane (discussed below) over which the temperature monitoring probes (TPs) have been installed. This means the geomembrane should cover from the west to the east side of the CCL and from the north

⁵ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

⁶ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

end to just south of TP06 shown in **Figure 1**. In other words, the exposed geomembrane cover would cover about 183 acres and leave only about 13 acres at the southern end of the CCL uncovered for current disposal operations.

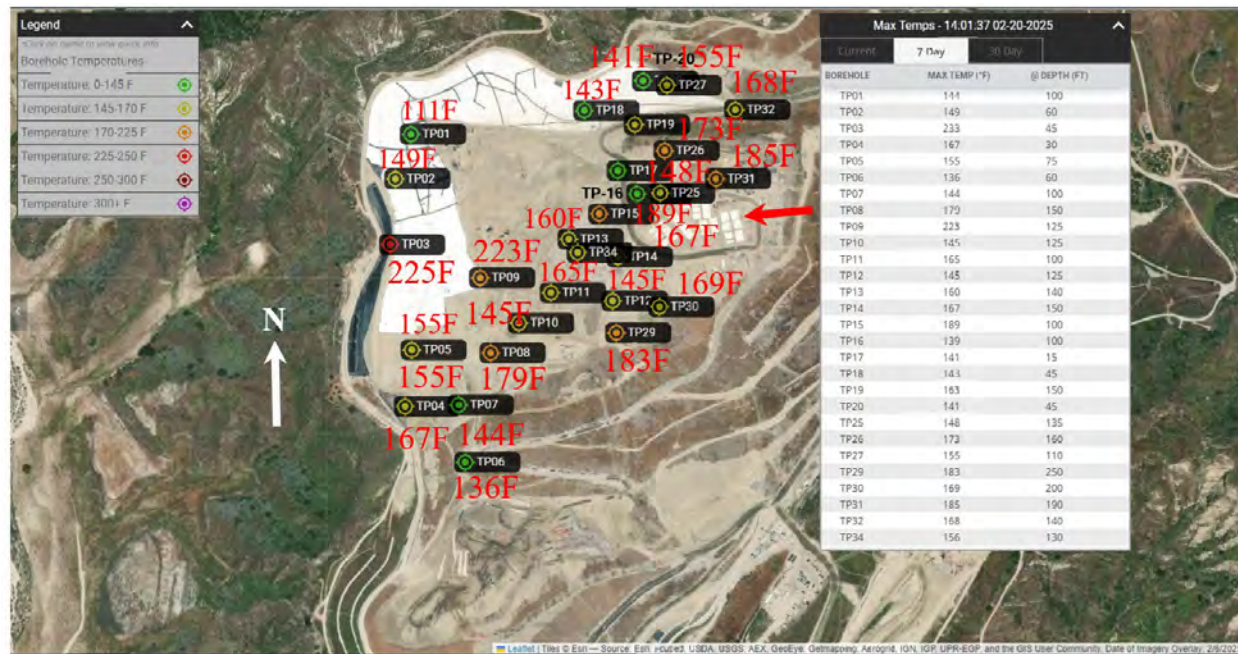


Figure 1. Temperature profiles over six weeks from 1/9/2025 to 2/19/2025 from SCS report dated February 20, 2025.

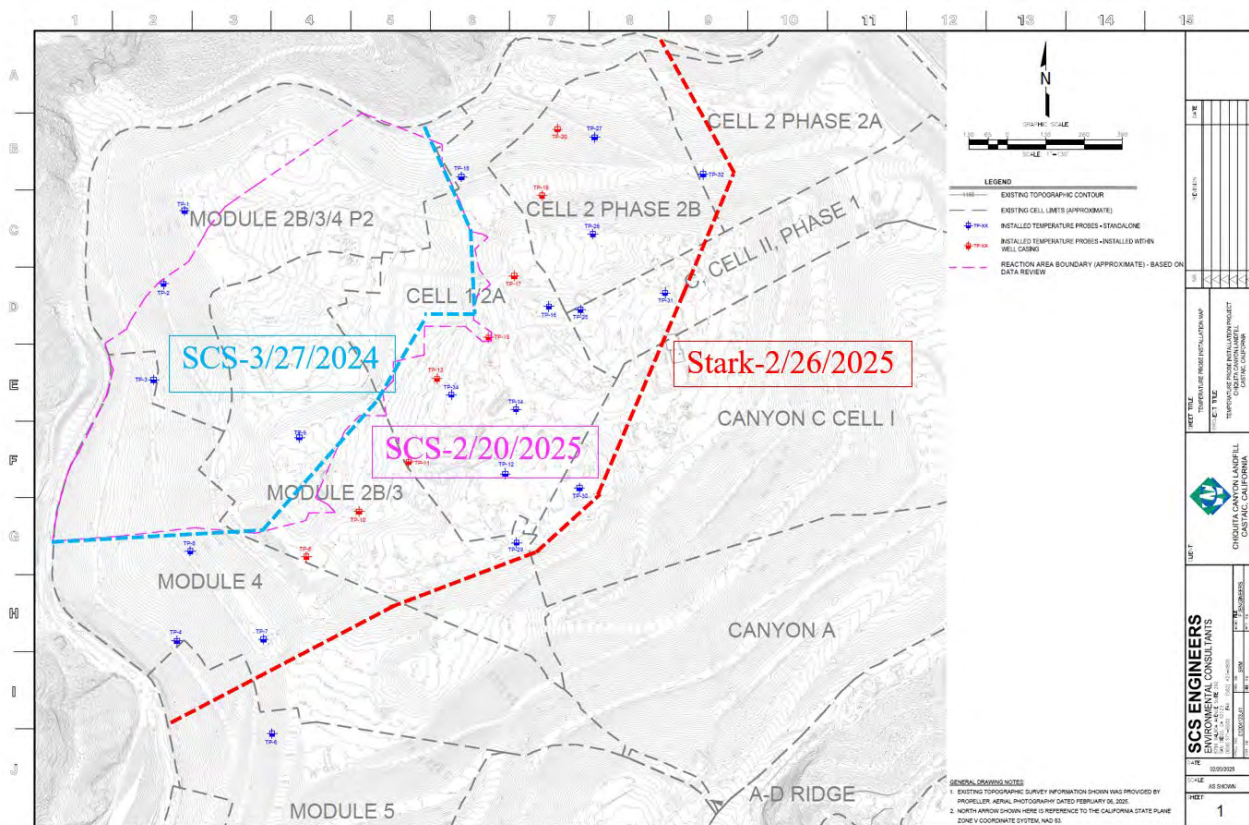
Figure 2 presents Sheet #1 from the SCS Report that presents the Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁷ The dashed pink line represents the extent of the SET Event as determined by SCS on February 20, 2025. This extent is slightly larger than the dashed blue line, which represents the extent of the SET Event on March 27, 2024 as reported by SCS in the initial Soil Reaction Break/Barrier Plan.⁸ **Figure 2** also presents my extent of the SET Event as of February 26, 2025 (see dashed red line) based on the Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁹ **Figure 2** shows the western slope and entire top deck of the CCL is now part of the

⁷ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

⁸ SCS Engineers, Soil Reaction Break/Barrier Plan, Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, March 27, 2024, 17 p.

⁹ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

SET Event, which is a significant increase over the extent reported by SCS on March 27, 2024¹⁰ and February 20, 2025.¹¹ Based on **Figure 2**, SCS believes the SET Event only covers about 28 acres as of February 20, 2025 whereas my extent of the SET Event covers about 90 acres.



¹⁰ SCS Engineers, Soil Reaction Break/Barrier Plan, Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, March 27, 2024, 17 p.

¹¹ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

Weekly Fissures and Tension Cracks Report Dated February 17, 2025

CCL also presented their 4050 – Chiquita Reaction Area Tracking of Fissures and Tension Cracks weekly report on February 17, 2025¹². This report presents: (1) observations of new fissures and tension cracks, which are usually due to landfill settlement and/or slope instability, (2) exposed geomembrane tears and defects, and (3) other geosynthetic cover issues.

This weekly report dated February 17, 2025¹³ confirms that settlement has started to occur around the leachate tank farm, which reinforces the recommendation above that the tanks should be moved off the top deck and to a site off the CCL and on native soil. In particular, Area #148, which is just north of the tank farm (see red dot in **Figure 3**), experienced opening of significant fissures and tensions cracks that have been remediated but are likely to reappear as additional buried waste undergoes thermal breakdown. Area #154, which is located just south of the tank farm (see **Figure 3**), also recently experienced fissuring and tension crack development. Even more concerning is Area #147 experienced a significant sinkhole, which indicates a significant thermal breakdown of buried waste that resulted in a void developing below the interim soil cover. Area #147 is the next grid area north of Area #148.

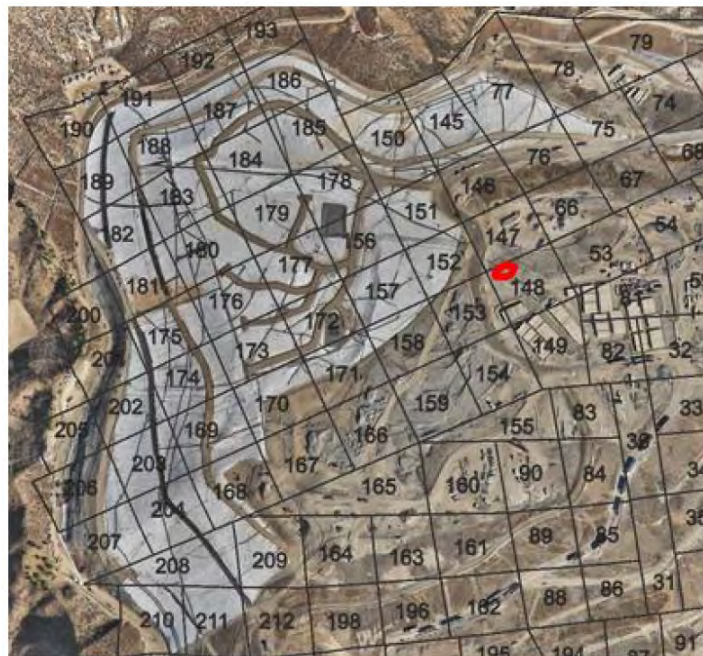


Figure 3. Red dot shows location for fissures and tension cracks identified in weekly CCL report dated February 17, 2025¹⁴.

¹² Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹³ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁴ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

Figure 4 shows a tension crack in Grid #148 near the leachate tank farm on the top deck of the CCL. This photograph also reinforces the recommendation above that the tanks should be moved off the CCL. This photograph was taken during a South Coast Air Quality Management District (SCAMD), Inspection of the CCL on February 27, 2025.



Figure 4. Photograph of tension crack in Grid #148 near leachate tanks on top of CCL dated February 27, 2025¹⁵.

¹⁵ South Coast Air Quality Management District (SCAMD), Inspection Report - Chiquita Canyon Landfill, by Larry Israel, Gerardo Vergara, and Christin Ojeda, February 27, 2025, 21 p.

The weekly report dated February 17, 2025¹⁶ also discusses recent tears and defects in the exposed 30 mil thick white HDPE geomembrane cover. In particular, this weekly report presents photographs of four significant tears in the exposed geomembrane. For example, **Figure 5** presents two of these tears, which were repaired using an extrusion welded patch. Unfortunately, the location of these two tears is not identified in the weekly report dated February 17, 2025¹⁷. This indicates the 30-mil thick white HDPE geomembrane may be deteriorating in the presence of the SET Event temperatures and related activities and equipment, which is discussed below.



Photo 1



Photo 2

Figure 5. Photographs of exposed geomembrane tears identified in weekly CCL report dated February 17, 2025¹⁸.

The weekly report dated February 17, 2025¹⁹ also discusses other “Geosynthetic Cover” issues. In particular, this report presents fourteen photographs illustrating “instability under the cover”.

¹⁶ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁷ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁸ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁹ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

For example, **Figure 6** presents two of these photographs, which show settlement under the geomembrane due to thermal breakdown of the buried waste.



Photo 3



Photo 4

Figure 6. Photographs of other exposed geomembrane issues identified in weekly CCL report dated February 17, 2025²⁰.

Temporary Exposed Geomembrane Cover

Given the west side and top deck of the CCL are experiencing elevated temperature, I unfortunately think the only remedial option is to cover the entire landfill north of TP06 or north of the red and blue dashed line shown in **Figure 7**. The elevated temperatures have not manifested themselves on the eastern slope yet, but I anticipate leachate outbreaks could start occurring because elevated temperatures (183°F and 185°F as shown in **Figure 1**) are present at the crest of the eastern slope.

Currently, CCL is using a 30-mil thick high-density polyethylene (HDPE) geomembrane with a white reflective and textured surface. This geomembrane was manufactured by Solmax and shipped in 22.5 ft wide rolls from Canada to the CCL. An Ethylene Vinyl Alcohol (EVOH) geomembrane has been found to be better at containing odors and omissions during other long-term SET Events, e.g., Bridgeton Landfill. EVOH geomembranes are manufactured as a “sandwich” with the outside layers comprised of HDPE with an inner layer of semi-crystalline thermoplastic resin that resists odor and gas transmission.

Bridgeton Landfill near St. Louis has been experiencing a SET Event since 2011 and is covered with green colored 60 mil thick EVOH geomembrane. Given there is no mechanism to “isolate and contain” the CCL SET Event, I am anticipating this facility will continue to generate odors and emissions for many years to come. As a result, I recommend the CCL consider installing an

²⁰ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

exposed EVOH geomembrane over the area to the north of the red and blue dashed line shown in **Figure 7**.

The exposed EVOH geomembrane could consist of a tan (easier to UV stabilize, reduces heat, and better matches dry surroundings) or green (less visible during wet periods) 40 or 60 mil thick EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile. A tan EVOH geomembrane color is recommended because there are a number of tan geomembranes that have been in exposed for a number of years, so a suitable UV stabilized formulation is available.

The EVOH geomembrane should be continuously seamed and continuously tied into the existing exposed 30 mil HDPE geomembrane cover along the top deck. The EVOH geomembrane can be welded to the existing 30 mil thick HDPE exposed geomembrane because the outside layers are comprised of HDPE and thus can be welded with traditional HDPE welding equipment. As the existing 30-mil thick exposed white HDPE geomembrane deteriorates with time, it should be replaced with the selected EVOH geomembrane.

The selected EVOH geomembrane (GM) should have a life span of about 10 years due to the large amount of waste that is being impacting by the SET Event. Given the long and steep slopes, a double-sided textured EVOH GM may be required. However, to facilitate walking on the EVOH GM, the exposed side should probably be textured. The EVOH GM also should be able to withstand a temperature of about 180°F because TP15 is showing a waste temperature of 175°F at a depth of only 15 feet. Finally, the EVOH GM should exhibit a methane permeance of less than 2.5×10^{-13} m/s obtained using ASTM D1434²¹ to control benzene and other emissions.

The total area proposed for the EVOH geomembrane cover is about 100 acres, i.e., the area not covered with the 30-mil thick white HDPE geomembrane. The nonwoven geotextile underlying the EVOH geomembrane will be installed on a prepared subgrade and provide a cushion and gas and liquid transmission layer under the geomembrane. Alternatively, a geonet with two heat-bonded nonwoven geotextiles could underlie the EVOH geomembrane and provide a higher transmissivity than a geotextile.

The EVOH geomembrane could be installed by deploying the manufactured rolls across the top deck and down the sideslopes. The perimeter edge of the new EVOH geomembrane cover will either be welded to the existing 30 mil thick white HDPE geomembrane or anchored along the perimeter of the CCL. Of course, the CCL should design appropriate long-term ballasting for the existing HDPE geomembrane and the proposed EVOH geomembrane because of the long duration of other SET Events. The EVOH geomembrane should be installed by an experienced contractor

²¹ ASTM D1434-23, Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting, ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428, <https://compass.astm.org/document/?contentCode=ASTM%7CD1434-23%7Cen-US&proxycl=https%3A%2F%2Fsecure.astm.org&fromLogin=true>.

and crews in accordance with CCL project specifications and an accompanying QA/QC Plan. Given the long-term application of the EVOH geomembrane, the installation should be monitored in accordance with the QA/QC Plan by an experienced third-party engineering firm. A final certification report should be prepared under the direction of a certified engineer and be submitted to the CCL and proper local authority, e.g., Los Angeles Regional Water Quality Control.

Pipe penetrations of the HDPE and EVOH geomembrane cover should be sealed utilizing a suitable pipe boot and pipe clamp or seal. These boots can be the source of significant odor release and/or oxygen intrusion so these pipe boots and seals should be inspected and monitored regularly for vapor emissions so defects due to total and differential can be remediated quickly.

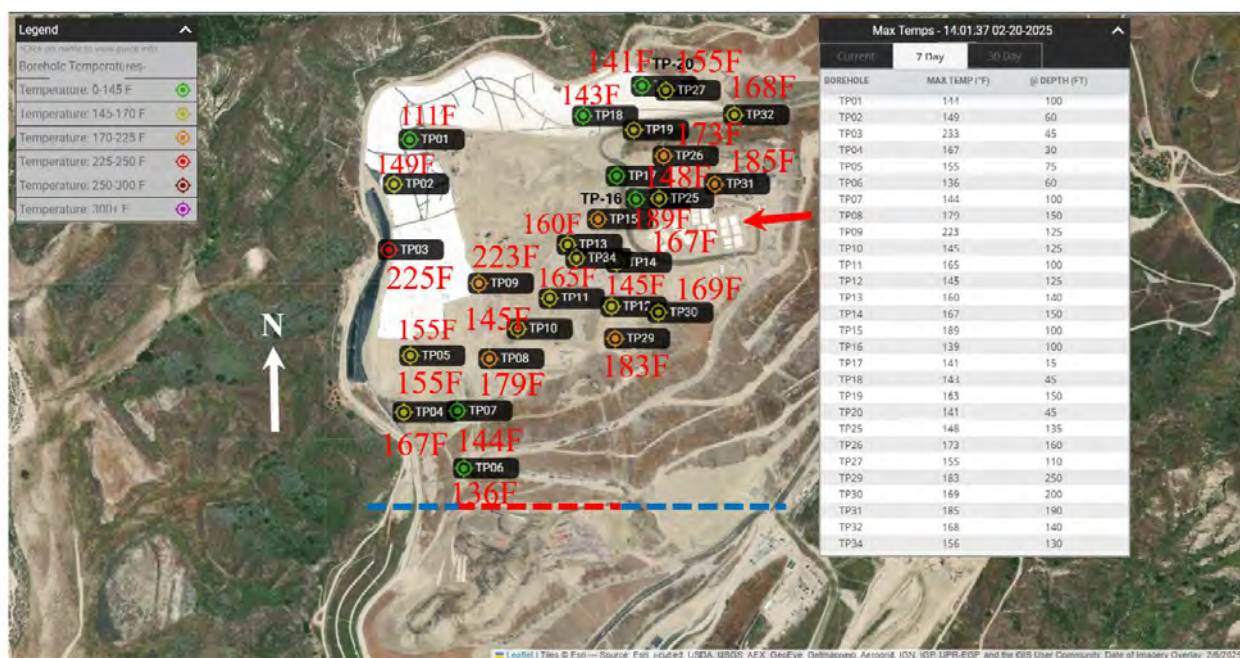


Figure 7. Extent of elevated temperatures on February 26, 2025 and location of a possible vertical barrier to isolate southernmost 13 acres.

Proposed Vertical Barrier

This section discusses installing a thermal barrier south of TP06 (see dashed red and blue line in **Figure 7**). A thermal barrier is recommended along the dashed red and blue line in **Figure 7** for at least the following reasons:

- CCL is using the approximately 13 acres south of the dashed red and blue line in **Figure 7** for disposal operations so elevated temperatures should be prevented from reaching this area, so the landfill continues to have an area to dispose of on-site wastes.
- Ensure continued ingress and egress from the CCL.
- Reduce the amount of waste that can be consumed by the SET Event and thus reduce the duration of odors and emissions to the surrounding communities.
- Maintain stability of the southern sideslope.

The red dashed line in **Figure 7** roughly delineates the location of a thermal barrier already constructed by CCL. The extent and depth of the thermal barrier are not known, so I request this information be provided by CCL. The blue dashed lines in **Figure 7** indicate the existing thermal barrier should be extended east and west so the SET Event cannot go around or under the existing thermal barrier.

If the existing thermal barrier does not extend to near below the leachate level, vertical elements can be used to create a vertical thermal barrier to prevent the SET Event from impacting the southernmost 13 acres of the CCL. The vertical elements involve excavating a vertical shaft using a three or four-foot bucket auger drill rig, which is being used to install gas extraction wells at CCL. These vertical elements would be constructed along the dashed red and blue lines in **Figure 7**. After excavating the shaft, it could be backfilled with a soil-bentonite or soil-cement mix. The shafts would be tangent, i.e., touching, or overlapped (see **Figure 7**) to create a continuous barrier across the toe of the southern sideslope to prevent the SET Event from consuming the southernmost 13 acres. If heat transfer calculations require a wider thermal barrier, a second row of vertical elements could be constructed north or south of the initial row (see **Figure 7**). The secondary row would be tangent to the initial row and be centered at each intersection of the initial row as shown below (see **Figure 7**).

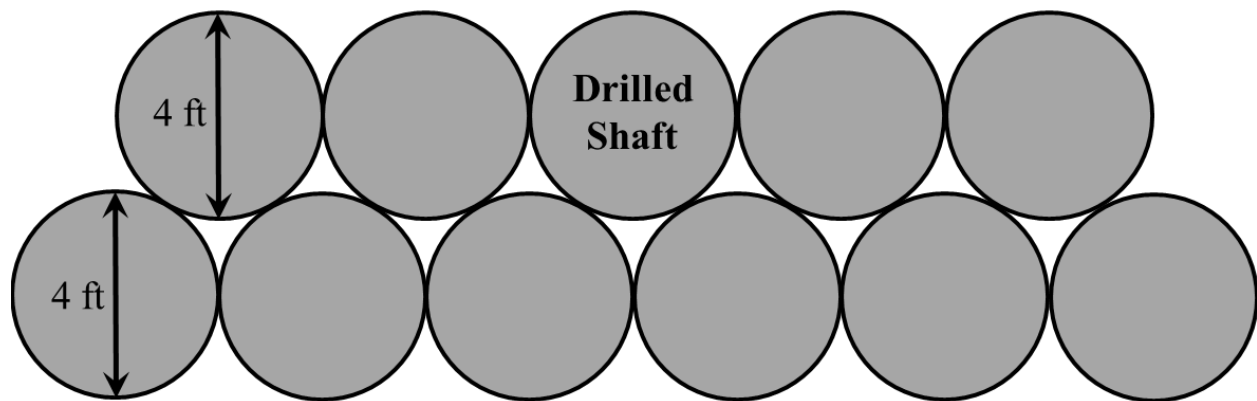


Figure 8. Possible configurations of 3 to 4 ft diameter vertical elements to comprise a heat barrier system south of TP06 to isolate southernmost 13 acres.

Summary

This section summarizes the main findings and recommendations presented in this report:

1. SET Event has expanded to the east side of the top deck of the CCL,
2. Leachate Tank Farm should be relocated off the top deck because the CCL is undergoing settlement under the tanks,
3. Due to the movement of the SET Event, the Tank Farm should be relocated to a site off the CCL and on native soil,
4. Given the extent of the SET Event, install 40 or 60 mil thick tan or green HDPE EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile over the approximately 100 acres currently exposed and weld it to the existing 30-mil thick white HDPE geomembrane or place it in a suitable anchor trench,
5. Submit a Request For Information (RFI) regarding the current extent and depth of the thermal barrier installed near the southern end of the CCL (see red dashed line in **Figure 7**), and
6. Expand the current thermal barrier so it reduces the potential for the SET Event to impact the southernmost 13 acres of the CCL.



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March 19, 2025

Via Electronic Correspondence

Mr. Steve Cassulo, District Manager
steven.cassulo@wasteconnections.com
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

SUBJECT: LEA RESPONSE TO CHIQUITA CANYON LANDFILL'S REQUEST TO RELOCATE TP-33 FROM PROPOSED TMPs IDENTIFIED IN REVISED SOIL REACTION BREAK/BARRIER PLAN AND RECENT WEEKLY REPORTING OF INSTALLATION OF TMPs- CHIQUITA CANYON LANDFILL (SWIS NO. 19-AA-0052)

Dear Mr. Cassulo,

The Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), is responding to Chiquita Canyon Landfill's (CCL) *Response to LEA Letter Regarding Removal of TP-33 from Proposed TMPs Identified in Revised Soil Reaction Break/Barrier Plan* (Request), dated January 29, 2025, in which CCL requests the removal of TP-33 from the proposed well list.

On December 30, 2024, the LEA issued a letter approving the proposed relocations for temperature monitoring probes (TMPs) TP-21, TP-22 and TP-23 and provided an alternate location for TP-33 (see enclosed LEA letter and figure). In response, CCL submitted a letter dated January 29, 2025, reaffirming its request to remove TP-33 from the proposed well list, stating that, among other reasons, the installation of TP-33 would be redundant because there are several other TMPs located in the adjacent area that could serve the same purpose.

The LEA, in collaboration with the California Department of Resources Recycling and Recovery (CalRecycle), has reviewed the Request and continues to require the installation of TP-33. Given the recent movement of the reaction, which now includes TP-15 and the area north of TP-17, TP-33 will provide critical temperature data to assess the magnitude of the reaction.



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Fifth District

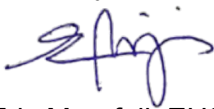
Furthermore, the TMP weekly update as of March 12, 2025 notes that CCL suspended the installation of TP-22 and TP-23 until October 2025. This delay is not acceptable. CCL must proceed with the installation of TP-22 and TP-23 to their maximum reach/depth without further delay. According to CalRecycle, past Subsurface Elevated Temperature (SET) Events at other landfills have shown that leachate pumping alone is insufficient to lower liquid levels enough for borings to reach above the liner. Data from these locations are critical for tracking the movement of the reaction and determining the next steps.

In addition, all TMP installations must follow previous instructions regarding depth requirements. CCL changed TMP depths for the newly installed TMPs without notification or submittal of an updated plan, which is not acceptable. TMPs must be installed at the following depths: 15 feet, 30 feet, 45 feet, and 75 feet. Beyond 75 feet, additional TMP depths must be determined using the equation $[(\text{Max Boring Depth} - 75\text{ft})/4]$ rounded up to the nearest tenth or fifth. For example, if the maximum boring depth is 200 feet, the additional TMP depths must be 105 feet, 135 feet, 165 feet, and 200 feet.

Given these concerns, the LEA requires that TP-33 be installed as previously directed and that TP-22 and TP-23 be completed without further delay. Temperature monitoring remains a critical component of the compliance order, and deviations from installation requirements compromise the ability to effectively assess and respond to reaction conditions.

If you have any questions or need clarification, please contact Eric Morofuji at emorofuji@ph.lacounty.gov or (213) 668-2206.

Sincerely,



Eric Morofuji, EHS III
Solid Waste Management Program
Local Enforcement Agency (LEA)

Enclosed: LEA letter with figure dated December 30, 2024

Cc: (Via Electronic Correspondence Only)

- 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
- Ken Habaradas, Los Angeles County LEA
- Karen Gork, Los Angeles County LEA
- Renee Jensen, LEA Counsel (rjensen@fwhb.com)
- Blaine McPhillips, Senior Deputy County Counsel
- Emiko Thompson, Los Angeles County Department of Public Works

- Alex Garcia, Los Angeles County Department of Regional Planning
- Ai-Viet Huynh, Los Angeles County Department of Regional Planning
- Wes Mindermann, CalRecycle (wes.mindermann@calrecycle.ca.gov)
- Todd Thalhamer, CalRecycle (todd.thalhamer@calrecycle.ca.gov)
- Janelle Heinzler, CalRecycle (janelle.heinzler@calrecycle.ca.gov)
- Jeff Lindberg California Air Recourses Board (jeff.lindberg@arb.ca.gov)
- Jack Cheng, South Coast Air Quality Management Board (jcheng@aqmd.gov)
- Larry Israel, South Coast Air Quality Management Board (lisrael@aqmd.gov)
- Enrique Casas, Los Angeles Regional Water Quality Control Board (enrique.casas@waterbaords.ca.gov)
- Joel Jones, United States Environmental Protection Agency (Jones.Joel@epa.gov)
- Linda Lye, California Environmental Protection Agency (linda.lye@calepa.ca.gov)



BARBARA FERRER, Ph.D., M.P.H., M.Ed.
Director

MUNTU DAVIS, M.D., M.P.H.
County Health Officer

ANISH P. MAHAJAN, M.D., M.S., M.P.H.
Chief Deputy Director

NICHOLE QUICK, M.D., M.P.H.
Deputy Director for Health Protection

LIZA FRIAS, REHS
Director of Environmental Health

SCOTT ABBOTT, REHS, M.P.A.
Assistant Director of Environmental Health

5050 Commerce Drive
Baldwin Park, California 91706
TEL (626) 430-5374 • FAX (626) 813-3000

www.publichealth.lacounty.gov/eh/

December 30, 2024

Via Electronic Correspondence

Nicole Ward
nicole.ward@wasteconnections.com
Assistant District Manager
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

SUBJECT: LEA APPROVAL OF THE REVISED TEMPERATURE MONITORING PROBE (TMP) LOCATIONS WITH A REQUIREMENT TO RELOCATE TMP-33 – CHIQUITA CANYON LANDFILL (SWIS NO. 19-AA-0052)

Dear Ms. Ward,

On December 24, 2024, the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), received Chiquita Canyon, LLC's (CCL) letter dated December 24, 2024, notifying the LEA of the revised locations for Temperature Monitoring Probes (TMPs) TP-21, TP-22 and TP-23, and the proposed removal of TP-33. The installation of TMPs is part of compliance with Milestone 1A-1 of the LEA Compliance Order dated June 6, 2024.

The LEA, in collaboration with California Department of Resources Recycling and Recovery (CalRecycle), has reviewed the letter and approves the proposed relocations for the TMPs, TP-21, TP-22 and TP-23.

Regarding TP-33, the LEA requires that it be relocated within the reaction zone near TMPs TP-13, TP-15, TP-17, and TP-19, where temperature spikes have been observed. The approximate location is indicated by the red box of the figure below. This area provides sufficient space for the setup of a sonic drill for the TMP installation. Revise the drill schedule to include the installation of TP-33 at this location.



BOARD OF SUPERVISORS

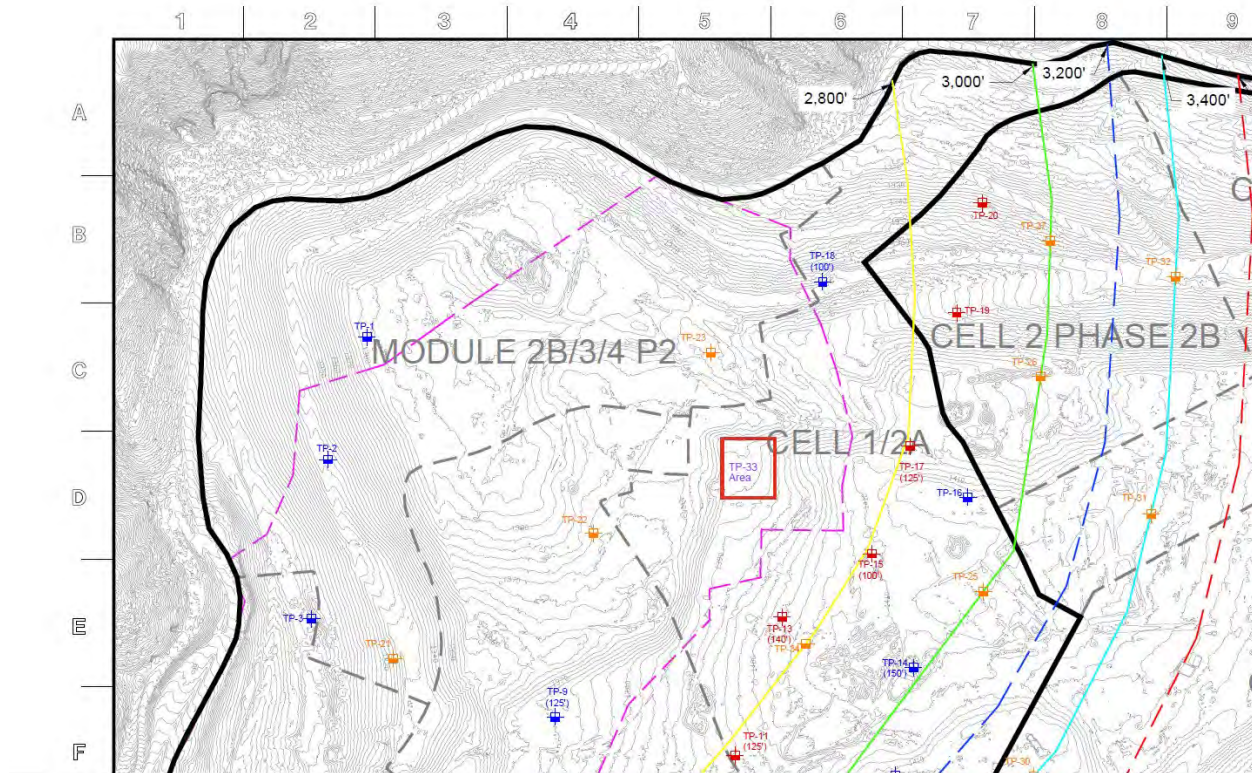
Hilda L. Solis
First District

Holly J. Mitchell
Second District

Lindsey P. Horvath
Third District

Janice Hahn
Fourth District

Kathryn Barger
Fifth District



Prioritize the installation of TMPs and provide weekly status updates as directed in the LEA's letter to CCL dated December 24, 2024, regarding Milestone 1A-1.

If you have any questions or require clarification, please contact Eric Morofuji at emorofuji@ph.lacounty.gov or (213) 668-2206.

Sincerely,

Karen Gork, Chief EHS
Solid Waste Management Program
Local Enforcement Agency (LEA)

Cc: (Via Electronic Correspondence Only)

- Steve Cassulo, Chiquita Canyon LLC (steven.cassulo@wasteconnections.com)
- 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

- Ken Habaradas, Los Angeles County LEA
- Eric Morofuji, Los Angeles County LEA
- Renee Jensen, LEA Counsel (rjensen@fwhb.com)
- Blaine McPhillips, Senior Deputy County Counsel
- Emiko Thompson, Los Angeles County Department of Public Works
- Alex Garcia, Los Angeles County Department of Regional Planning
- Ai-Viet Huynh, Los Angeles County Department of Regional Planning
- Wes Mindermann, CalRecycle (wes.mindermann@calrecycle.ca.gov)
- Todd Thalhamer, CalRecycle (todd.thalhamer@calrecycle.ca.gov)
- Janelle Heinzler, CalRecycle (janelle.heinzler@calrecycle.ca.gov)
- Jeff Lindberg California Air Recourses Board (jeff.lindberg@arb.ca.gov)
- Jack Cheng, South Coast Air Quality Management Board (jcheng@aqmd.gov)
- Larry Israel, South Coast Air Quality Management Board (lisrael@aqmd.gov)
- Enrique Casas, Los Angeles Regional Water Quality Control Board (enrique.casas@waterbaords.ca.gov)
- Joel Jones, United States Environmental Protection Agency (Jones.Joel@epa.gov)
- Linda Lye, California Environmental Protection Agency (linda.lye@calepa.ca.gov)

From: [Steve Cassulo](#)
To: [Nicole Ward](#); [Amanda Froman](#); [Ken Habaradas](#); [John Perkey](#)
Cc: [Robert Ragland](#); [Liza Frias](#); [Nichole Quick](#); [Shikari Nakagawa-Ota](#); [Karen Gork](#); [Eric Morofujii](#); [Renee Jensen](#); [Blaine McPhillips](#); [Emiko Thompson](#); [Alex Garcia](#); [Wes.Mindermann@CalRecycle.ca.gov](#); [Jeff.Lindberg@arb.ca.gov](#); [Jcheng@aqmd.gov](#); [lisrael@aqmd.gov](#); [Holybee.Tyler@epa.gov](#); [Relon.MarkAnthony@epa.gov](#); [Friedli.Laura@epa.gov](#); [Todd.Thalhamer@Calrecycle.ca.gov](#); [Casas.Enrique@Waterboards](#); [Phillip Chen](#); [Steven Jareb](#)
Subject: RE: Chiquita Canyon Landfill – TMP Temperature Submittal
Date: Thursday, March 27, 2025 7:30:59 PM
Attachments: [image001.png](#)
[Borehole Profiles Six Week Maximum - 3-26-25.pdf](#)
[Daily Maximum Temp Borehole Report Test - 3-26-25.xlsx](#)

CAUTION: External Email. Proceed Responsibly.

Dear Mr. Habaradas,

In accordance with the LEA's June 6, 2024 Compliance Order and related LEA correspondence, Chiquita Canyon, LLC (Chiquita) submits the attached weekly temperature graphs of all temperature monitoring probes (TMPs) with weekly maximum trends plotted over six weeks from February 13, 2025, through March 26, 2025, with a map of the maximum temperatures recorded in the past week and the below narrative on recorded temperature data. We included a separate map demonstrating the locations of the 28 temperature monitoring probes in relation to the reaction area boundary because the real time data monitoring software that is used to display the probe data is not able to import a geolocated boundary delineated in CAD.

From March 20, 2025, through March 26, 2025, there was one recorded temperature increase and one temperature decrease that triggered the notification limits set forth in the LEA's October 4, 2024 letter. This increase and decrease appear to be issues with the thermocouple or data head and are being evaluated as possible anomaly/outlier data.

Additionally, as of February 7, 2025, eight new TMPs (TMP-25, TMP-26, TMP-27, TMP-29, TMP-30, TMP-31, TMP-32, and TMP-34) have been installed and are online. None of these eight new TMPs indicate reaction temperatures occurring outside of the currently delineated data-driven reaction area boundary, and the three TMPs that were able to be drilled to within 20 feet of the liner (TMP-27, TMP-31, and TMP-32) show significantly cooler temperatures at the deepest thermocouple, as expected due to the cooling from the underlying earth. This data further supports the previous conclusions of cooler temperatures near the liner and the liner's integrity being uncompromised by elevated temperatures.

Chiquita provides the following updates:

- TP-04
 - 30-foot thermocouple showed an increase in maximum temperature of 34°F from 168°F to 202°F from March 19th to March 21st, and then a decrease in maximum temperature of 35°F from 202°F to 167°F from March 21st to March 23rd. No other thermocouples of TP-04 showed a change of temperature during this time and we believe the thermocouple is beginning to fail. A team will be on site the week of April 7

to evaluate this thermocouple for accuracy and possible replacement.

- TP-06
 - 15-foot thermocouple indicated 0°F reading beginning on March 16th indicating a possible sensor failure. During the installation of the new temperature probes throughout the week of April 7, field crews will be onsite to evaluate all thermocouples for TP-06 for accuracy and possible replacement. These 0°F readings led to an error in TP-06 3/21/25-3/26/25 data points in the attached PDF. We were unable to show the 140 feet data for TP-06 in the attached PDF and will remedy this issue in next week's submittal.
- TP-15
 - 30-foot thermocouple remained consistent with previous temperature decreases.

We also included an Excel file of the daily maximum temperatures with any high temperatures that triggered the above notification limits highlighted, as requested in the LEA's September 3, 2024 letter.

No other sensors showed major sustained increases or decreases in temperature within the landfill per the LEA's reporting limits and no other sensors showed an anomaly, outlier, data gap, or malfunction, as discussed above. In the past week there was no other recorded temperature increases in the TMP field of greater than 10°F within 7 days or less, greater than 20°F within 14 days or less, or greater than 30°F within 21 days or less.

As stated in Chiquita's response to the LEA's September 3, 2024 and October 4, 2024 adjustments of the temperature notification criteria, we do not believe these notification limits correspond to actual conditions present in a reaction landfill. Temperature is a primary factor in determining the reaction area, but increases in temperature from relatively cool temperatures to normal landfill temperatures are not indicative of reaction area movement. As stated in CalRecycle's response to the soil barrier reaction plan received September 24, 2024, presence of in-situ waste temperatures in excess of 230°F would be criteria indicative of a reaction; increases in shallow temperatures below this CalRecycle-suggested threshold are not indicative of a reaction. Additionally, all data and evidence at the landfill continue to show that reaction conditions are present and there is no "smoldering" event as suggested in CalRecycle's September 25, 2024 response that was used as a basis for the LEA's October 4, 2024 letter.

We will continue to update the LEA weekly on the TMP readings and to notify the LEA by e-mail within 24 hours of any recorded temperature change in the TMP field of greater than 20°F within 24 hours or less.

As requested in the LEA's December 24, 2024 letter, Chiquita is also providing the below update on the installation of the additional TMPs. Chiquita submitted on January 29, 2025 a response to the LEA's December 24, 2024 letter regarding the deletion of TP-33, and received a response from the LEA on March 19, 2024, which Chiquita is reviewing.

As of 3/26/2025 – Status of TMP installation:

Chiquita has been diligently working to install the additional temperature probes as part of the LEA’s June 6, 2024 Compliance Order and related LEA correspondence. To accomplish this, Chiquita contracted first with a sonic drill rig which was able to install the first 10 additional temperature probes, 25, 26, 27, 28, 29, 30, 31, 32, 34, and 35. During these drilling events many locations collapsed due to the presence of liquids saturating the waste and preventing drilling to the full planned depth. As such the Sonic Drill Rig was mobilized off-site. To be able to install the remaining four locations (temperature probes 21, 22, 23, and 24), three of which are located inside the most concentrated area of the Elevated Temperature Landfill (“ETLF”) conditions, Chiquita contracted with a “mud rotary” style drill rig, in part based on their reputation from other area landfills.

In drilling temperature probe locations with this mud rotary rig, Chiquita achieved good progress in drilling through the reaction zone and post-reacted material, regularly achieving depths below the suspected/anecdotal reaction zone. Mud rotary drilling was successful, for example, in allowing TMP-24 to drill to within 25 feet of the liner system. However, to “set” the casing for the temperature probe, this style of drill rig must remove the drill stem from the hole, a process that involves de-coupling every 20-foot segment of drill stem. After the drill stem is removed from the hole, the rig then pushes the casing down hole, a process that again involves coupling every 20-foot segment of pipe. These processes take time, which in practice resulted in the borehole wall losing integrity and the drilled hole closing back up, which then does not allow the casing to be completed to the depth drilled. In drilling one location alone (TMP-21), Chiquita notes that the borehole closed back up and reaction material flowed back into the borehole for the entire suspected reaction zone length three separate times. For this reason, the temperature probe was only able to be set at 110 feet below ground surface, which is just above the anecdotal reaction zone.

As a result of the foregoing and the LEA’s March 19, 2024 correspondence, Chiquita is evaluating the installation of the remaining two temperature probes (TMP-22 and TMP-23).

The thermocouple sensors for TMP 21 and 24, along with TMP 28 and TMP 35, have been ordered with installation anticipated by April 4, 2025. The following is an anticipated completion date chart for receiving and installing temperature sensor equipment onsite.

Task	Corresponding Temperature Probe	Estimated Completion Date
Receipt of temperature sensors and remote telemetry heads for first 8 TMPs	25, 26, 27, 29, 30, 31, 32, and 34	Completed (1/24/2025)
Installation of temperature sensors and telemetry heads for first 8 TMPs	25, 26, 27, 29, 30, 31, 32, and 34	Completed (2/7/2025)
Estimated receipt of temperature sensors and remote telemetry heads for remaining 4 TMPs	21, 24, 28, and 35	Completed 3/19/2025

Installation of temperature sensors and telemetry heads for remaining 4 TMPs	21, 24, 28, and 35	4/11/2025
--	--------------------	-----------

Steve Cassulo
District Manager
661-371-9214

From: Steve Cassulo <Steven.Cassulo@WasteConnections.com>
Sent: Thursday, March 20, 2025 6:03 PM
To: Nicole Ward <nicole.ward@wasteconnections.com>; Amanda Froman <Amanda.Froman@WasteConnections.com>; Ken Habaradas <khavaradas@ph.lacounty.gov>; John Perkey <John.Perkey@WasteConnections.com>
Cc: RRagland@ph.lacounty.gov; LFrias@ph.lacounty.gov; NQuick@ph.lacounty.gov; sota@ph.lacounty.gov; KGork@ph.lacounty.gov; emorofuji@ph.lacounty.gov; rjensen@fwhb.com; BMcphillips@counsel.lacounty.gov; ETHOMP@dpw.lacounty.gov; agarcia@planning.lacounty.gov; Wes.Mindermann@CalRecycle.ca.gov; Jeff.Lindberg@arb.ca.gov; Jcheng@aqmd.gov; lisrael@aqmd.gov; Holybee.Tyler@epa.gov; Relon.MarkAnthony@epa.gov; Friedli.Laura@epa.gov; Todd.Thalhamer@Calrecycle.ca.gov; Casas, Enrique@Waterboards <Enrique.Casas@waterboards.ca.gov>; Phillip Chen <pchen@planning.lacounty.gov> <PChen@planning.lacounty.gov>; sjareb@planning.lacounty.gov
Subject: RE: Chiquita Canyon Landfill – TMP Temperature Submittal

[EXTERNAL SENDER: Use caution with links/attachments]

Dear Mr. Habaradas,

In accordance with the LEA's June 6, 2024 Compliance Order and related LEA correspondence, Chiquita Canyon, LLC (Chiquita) submits the attached weekly temperature graphs of all temperature monitoring probes (TMPs) with weekly maximum trends plotted over six weeks from February 6, 2025, through March 19, 2025, with a map of the maximum temperatures recorded in the past week and the below narrative on recorded temperature data. We included a separate map demonstrating the locations of the 28 temperature monitoring probes in relation to the reaction area boundary because the real time data monitoring software that is used to display the probe data is not able to import a geolocated boundary delineated in CAD.

From March 13, 2025, through March 19, 2025, there were no recorded temperature increases and one temperature decrease that triggered the notification limits set forth in the LEA's October 4, 2024 letter.

Additionally, as of February 7, 2025, eight new TMPs (TMP-25, TMP-26, TMP-27, TMP-29, TMP-30,

SolidWasteBoreholeMaximum TemperatureProfilesOver6Weeks

for 2/13/2025 to 3/26/2025

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- TP-15
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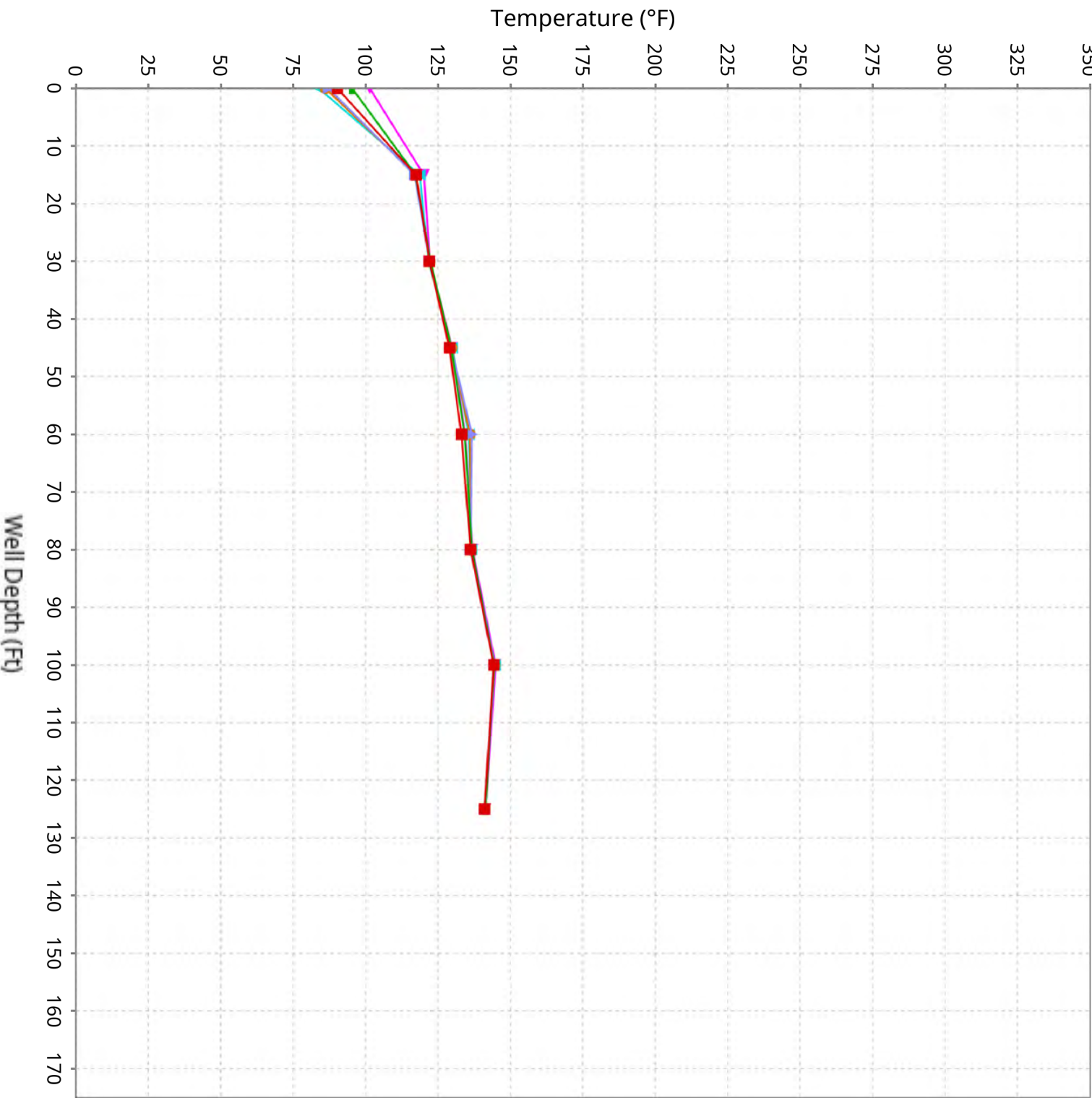
SCS ENGINEERS

07224053.00 | March 27, 2025

274 Granite Run Drive
Lancaster, PA 17601
717-550-6330

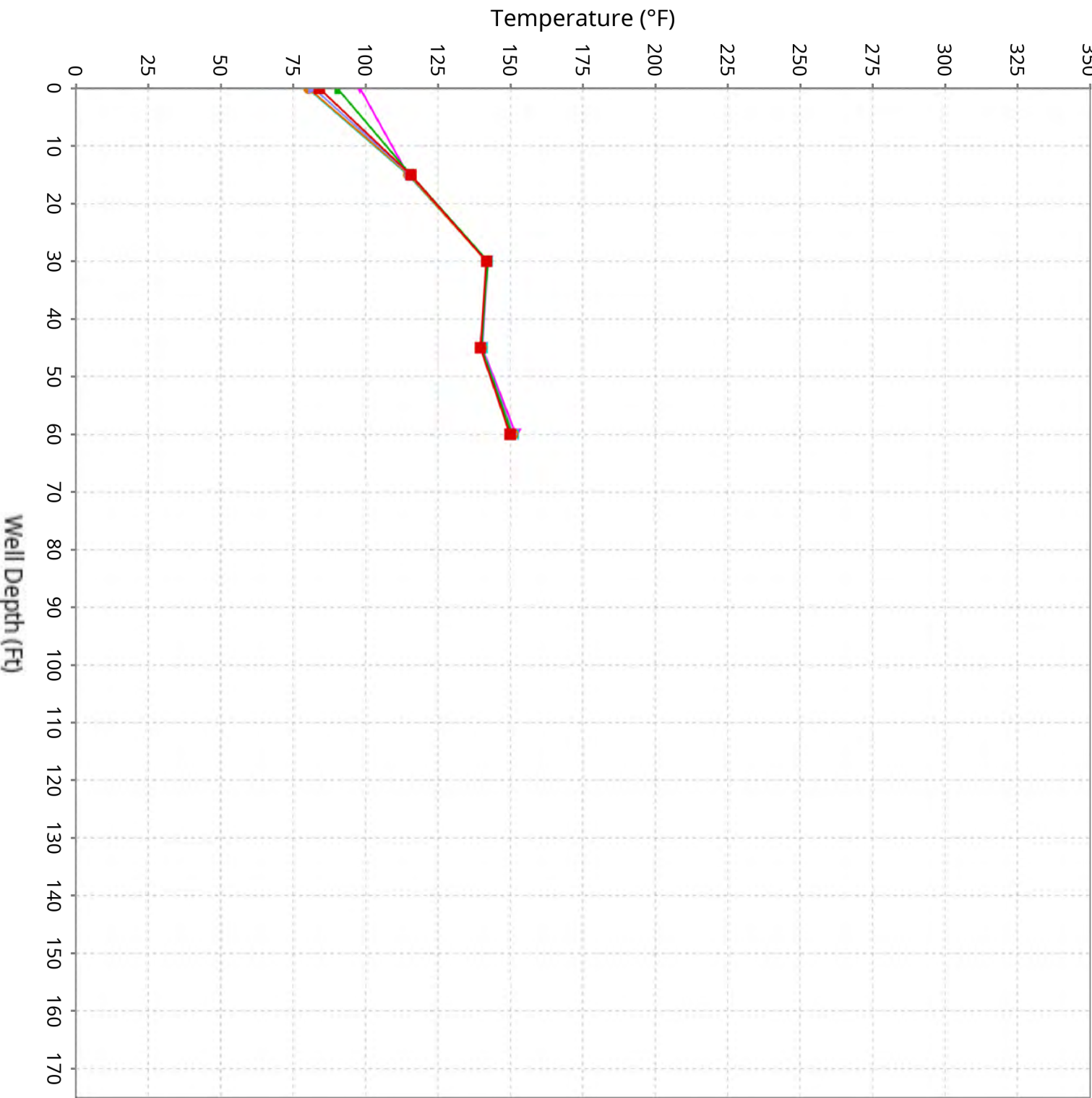
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-1

Maximum data for 2/13/2025 to 3/26/2025



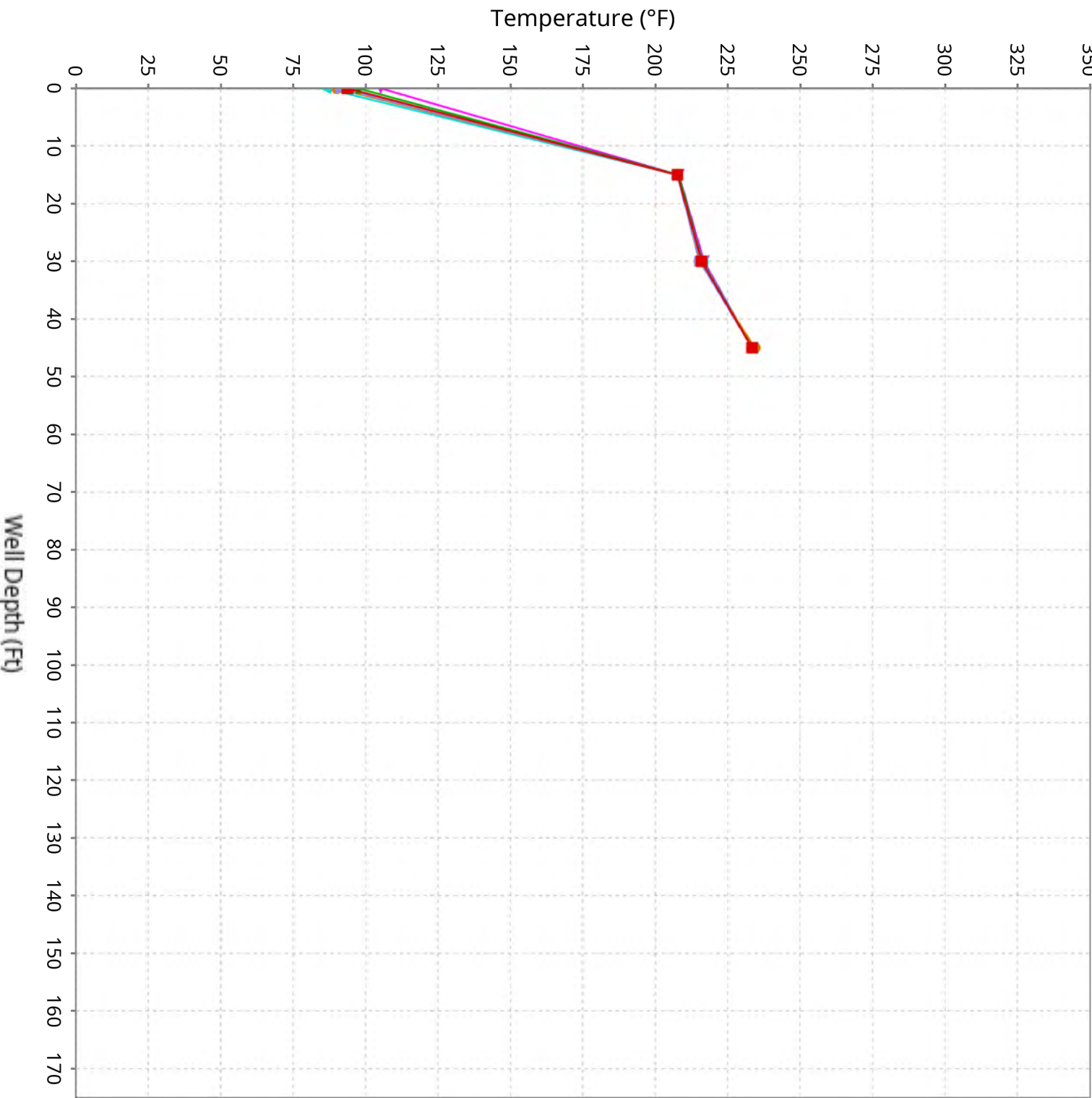
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-2

Maximum data for 2/13/2025 to 3/26/2025



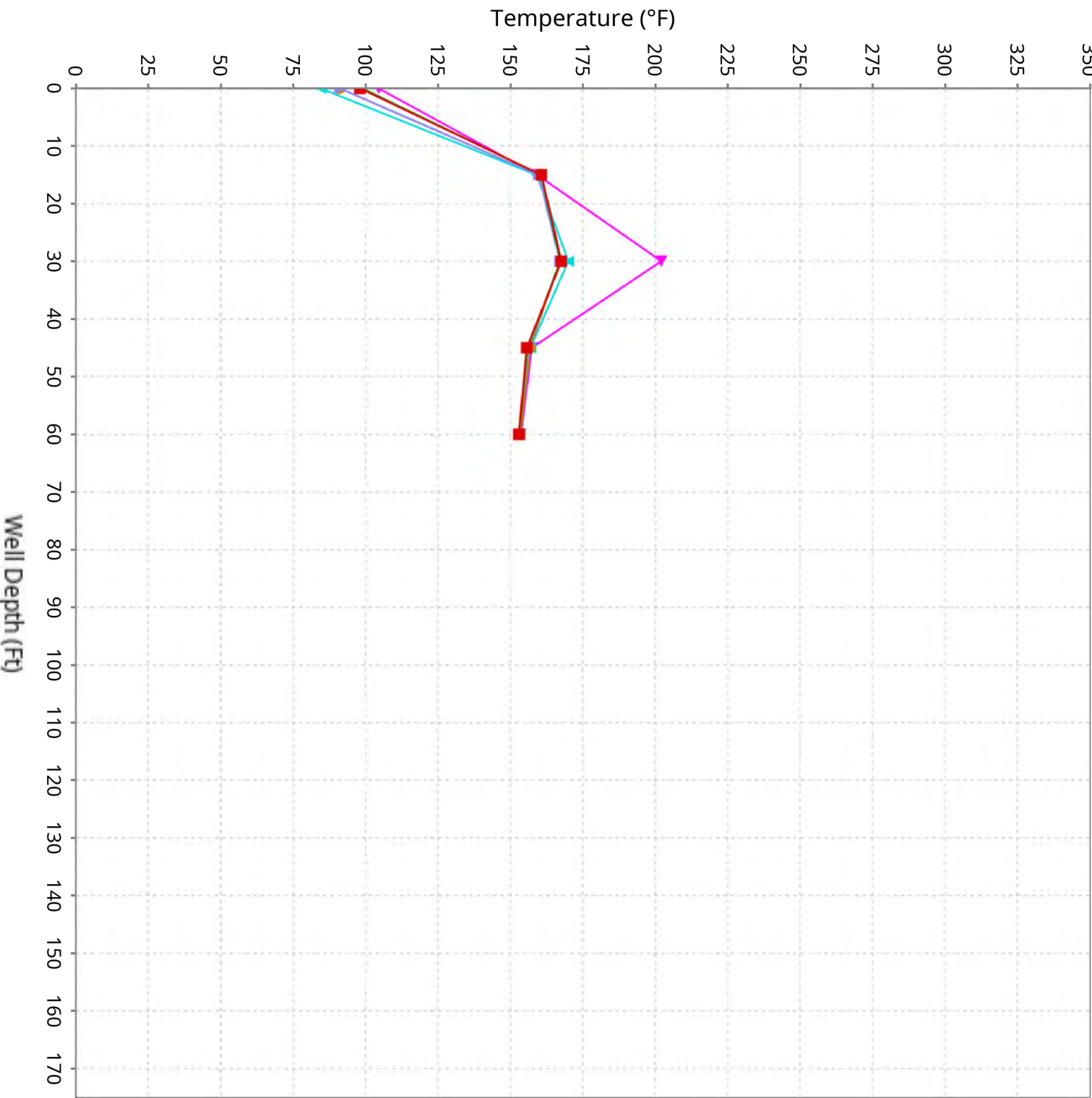
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-3

Maximum data for 2/13/2025 to 3/26/2025



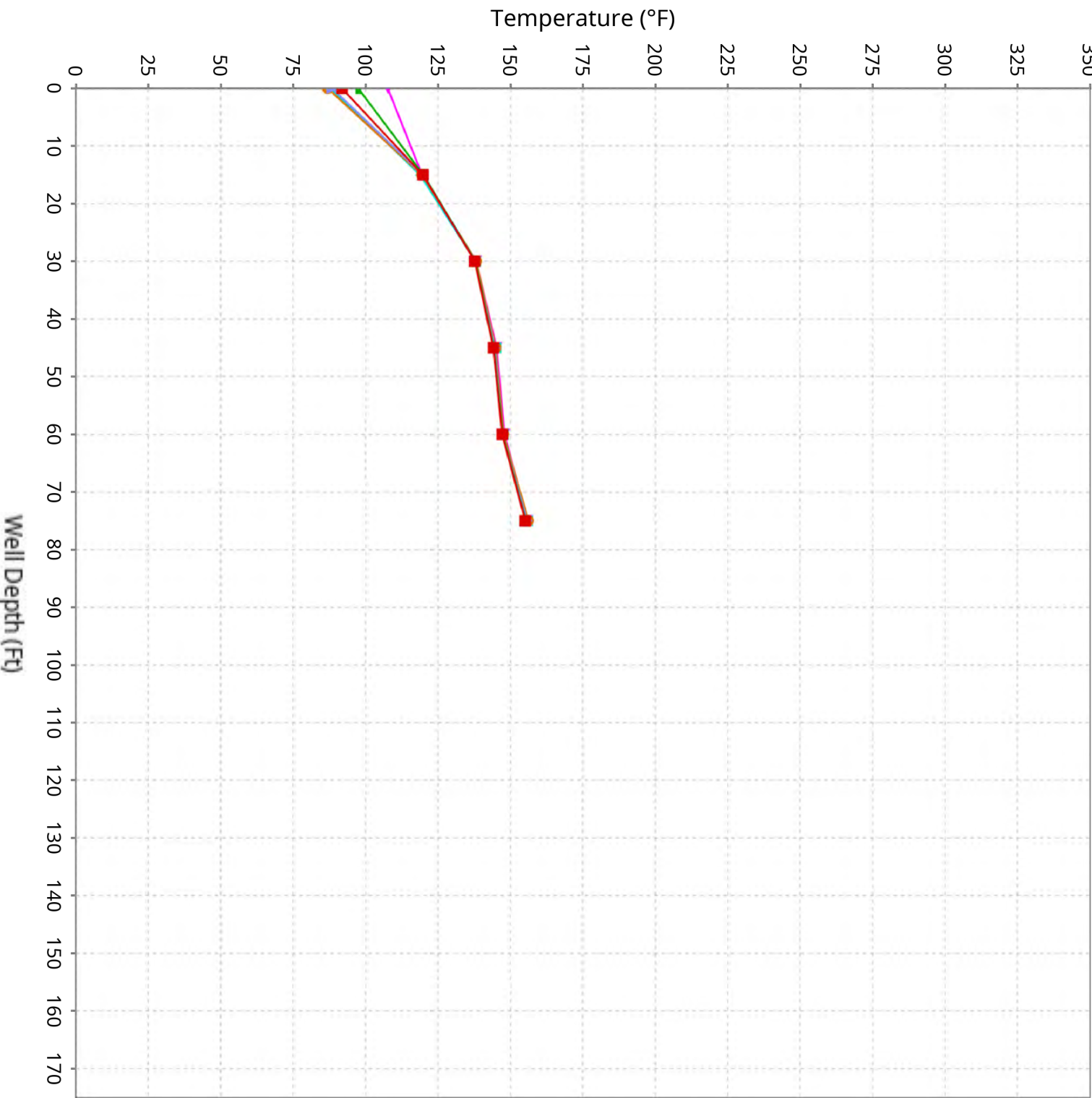
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-4

Maximum data for 2/13/2025 to 3/26/2025



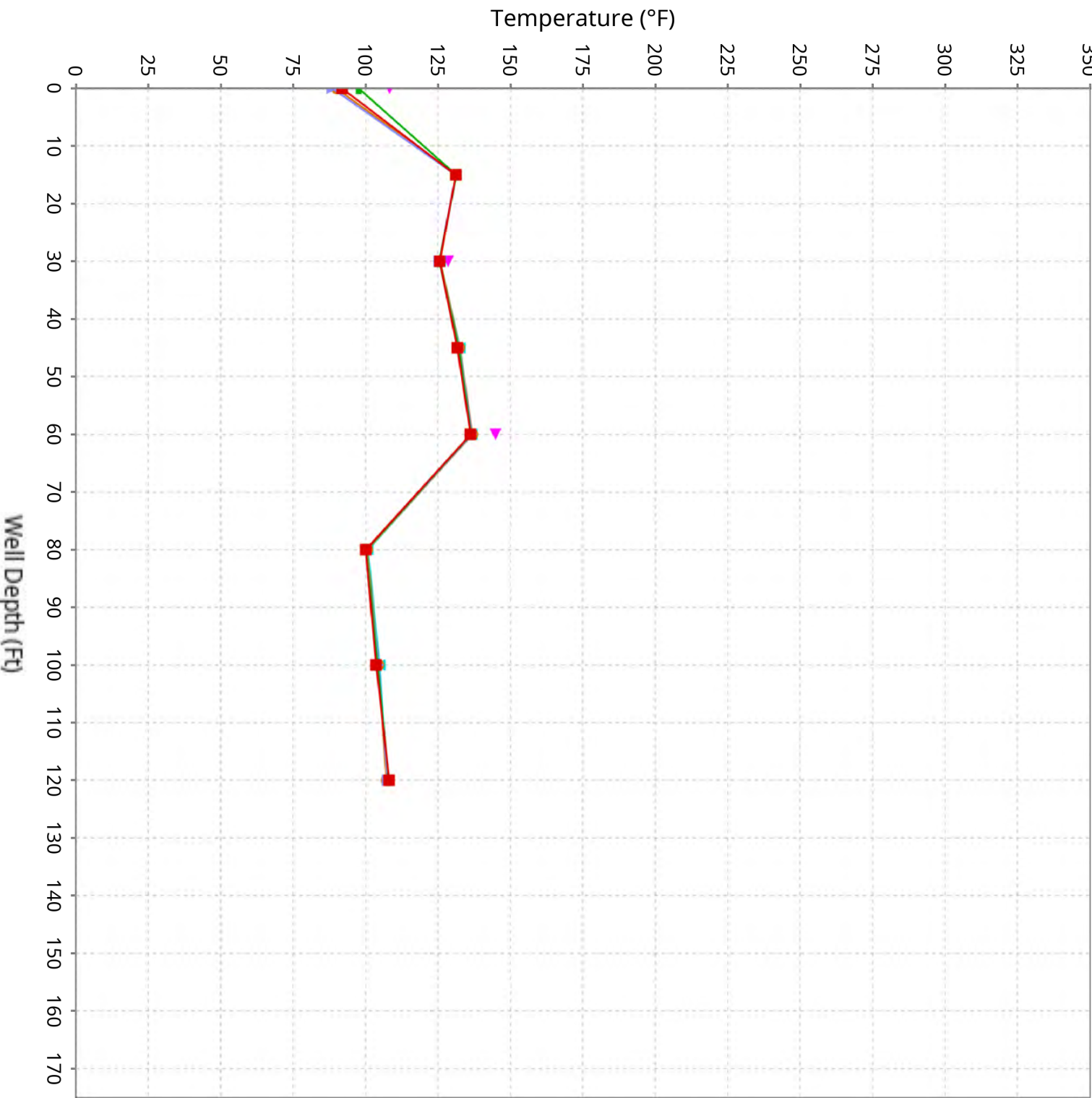
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-5

Maximum data for 2/13/2025 to 3/26/2025



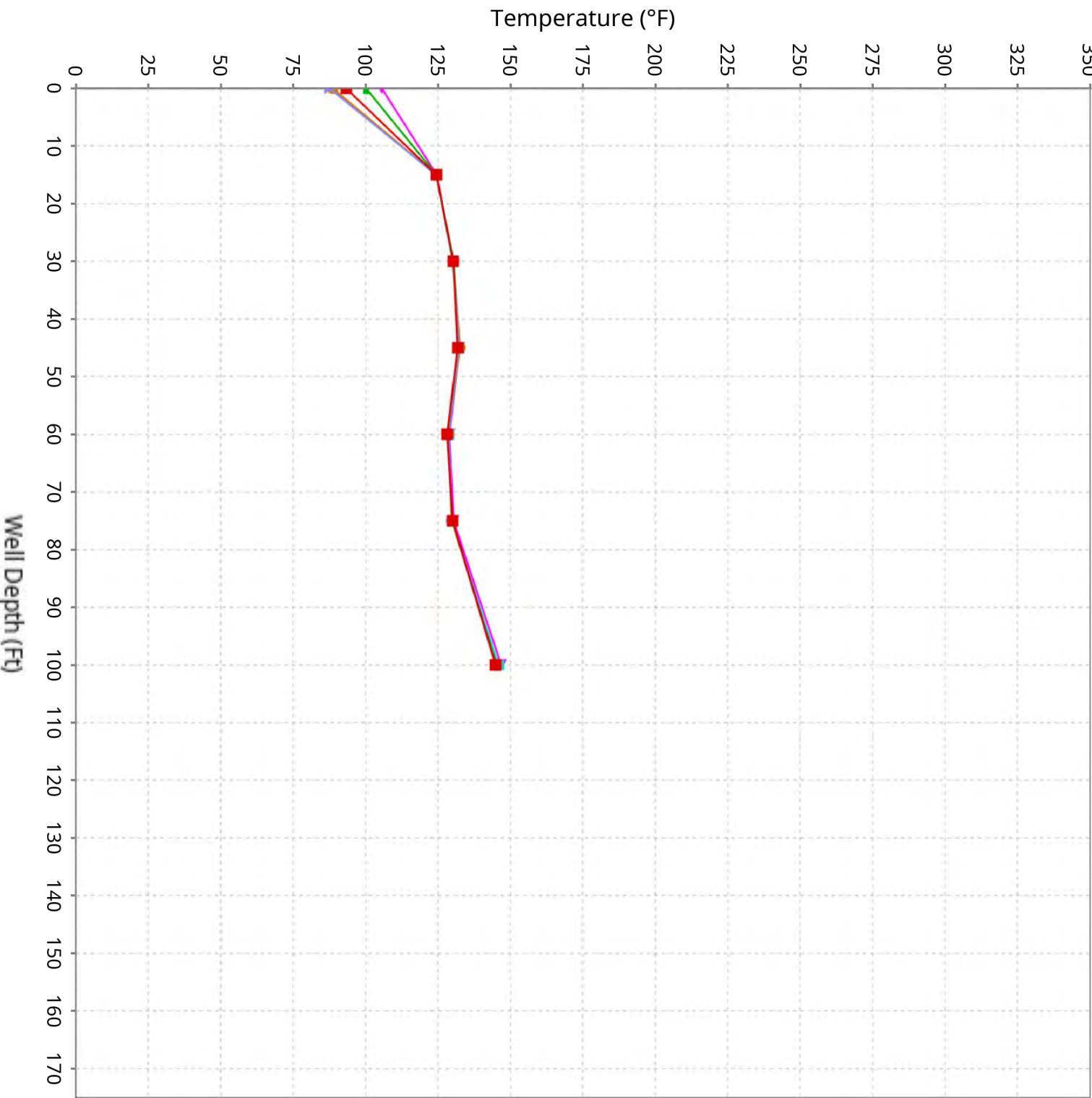
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-6

Maximum data for 2/13/2025 to 3/26/2025



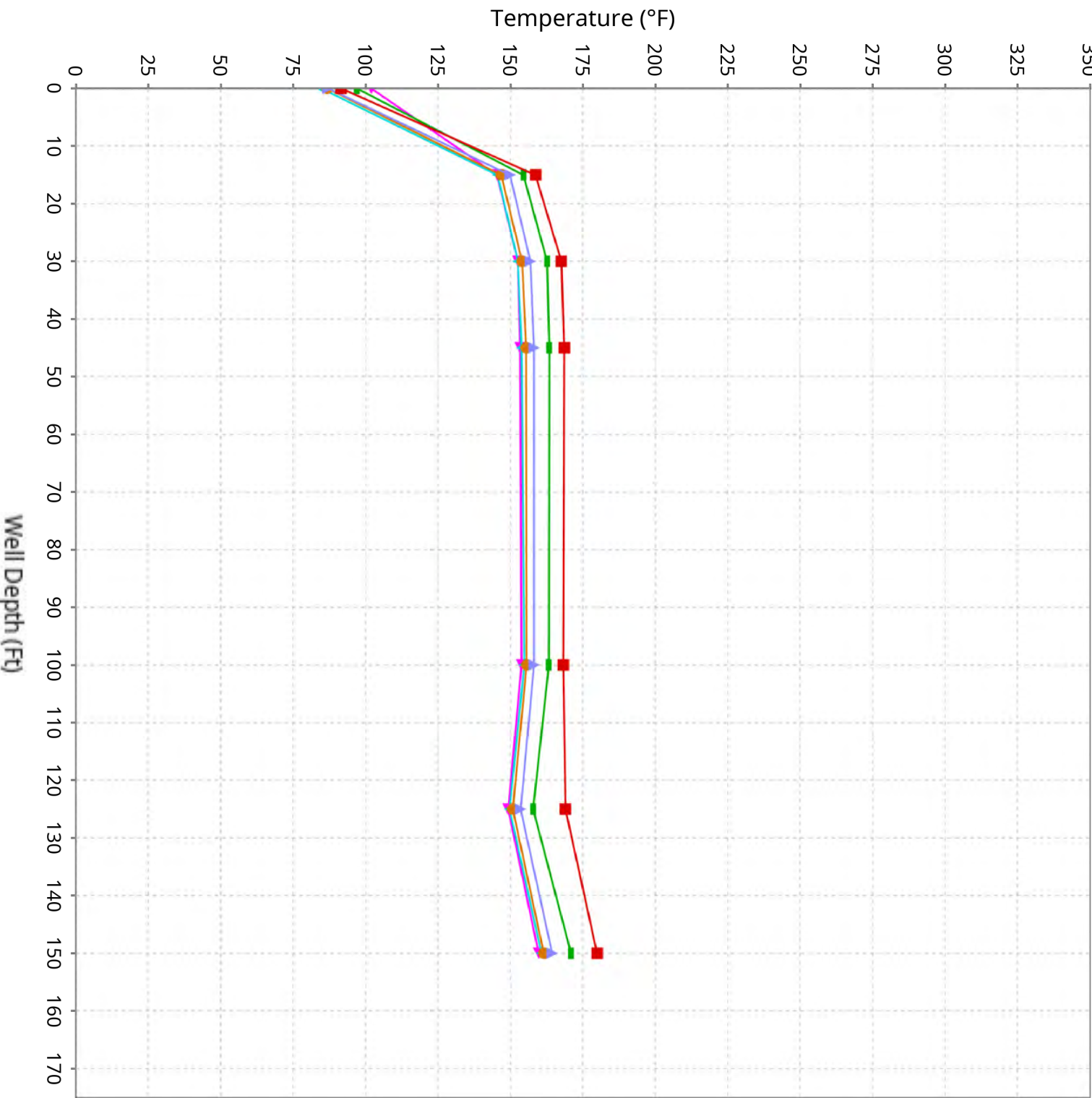
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-7

Maximum data for 2/13/2025 to 3/26/2025



Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-8

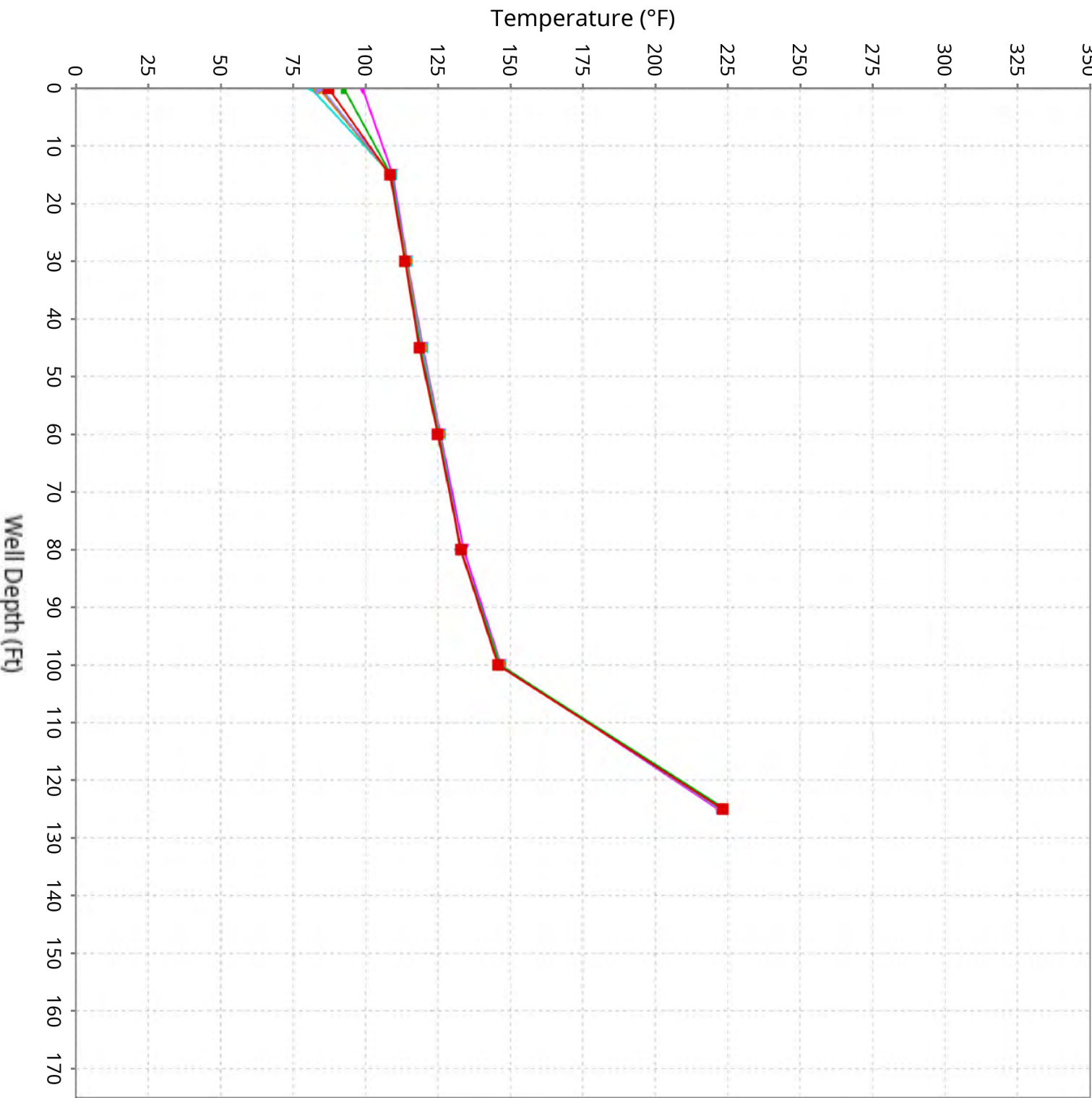
Maximum data for 2/13/2025 to 3/26/2025



2/13/25-2/20/25 2/20/25-2/27/25 2/27/25-3/6/25 3/6/25-3/13/25 3/13/25-3/20/25 3/21/25-3/26/25

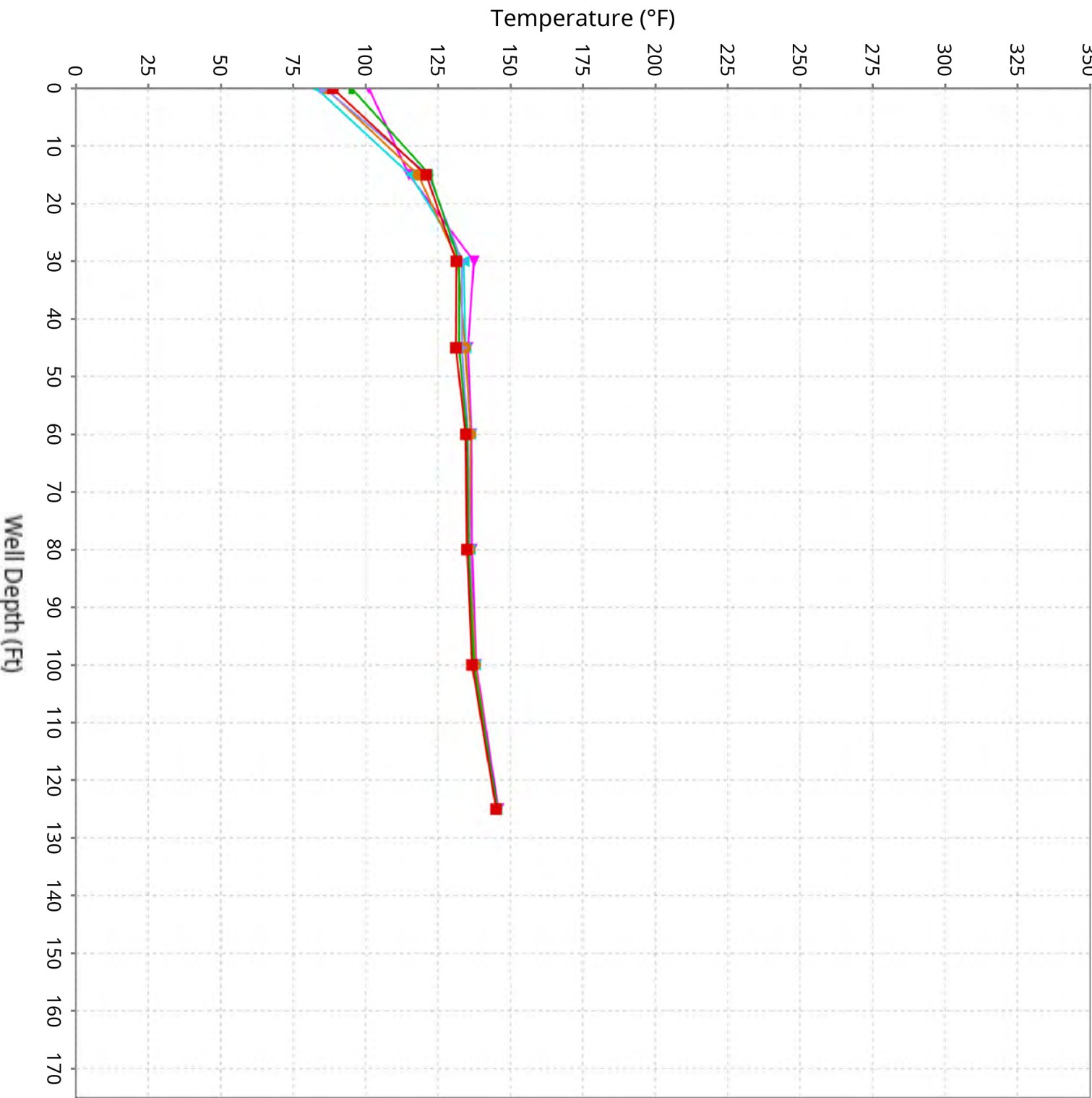
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-9

Maximum data for 2/13/2025 to 3/26/2025



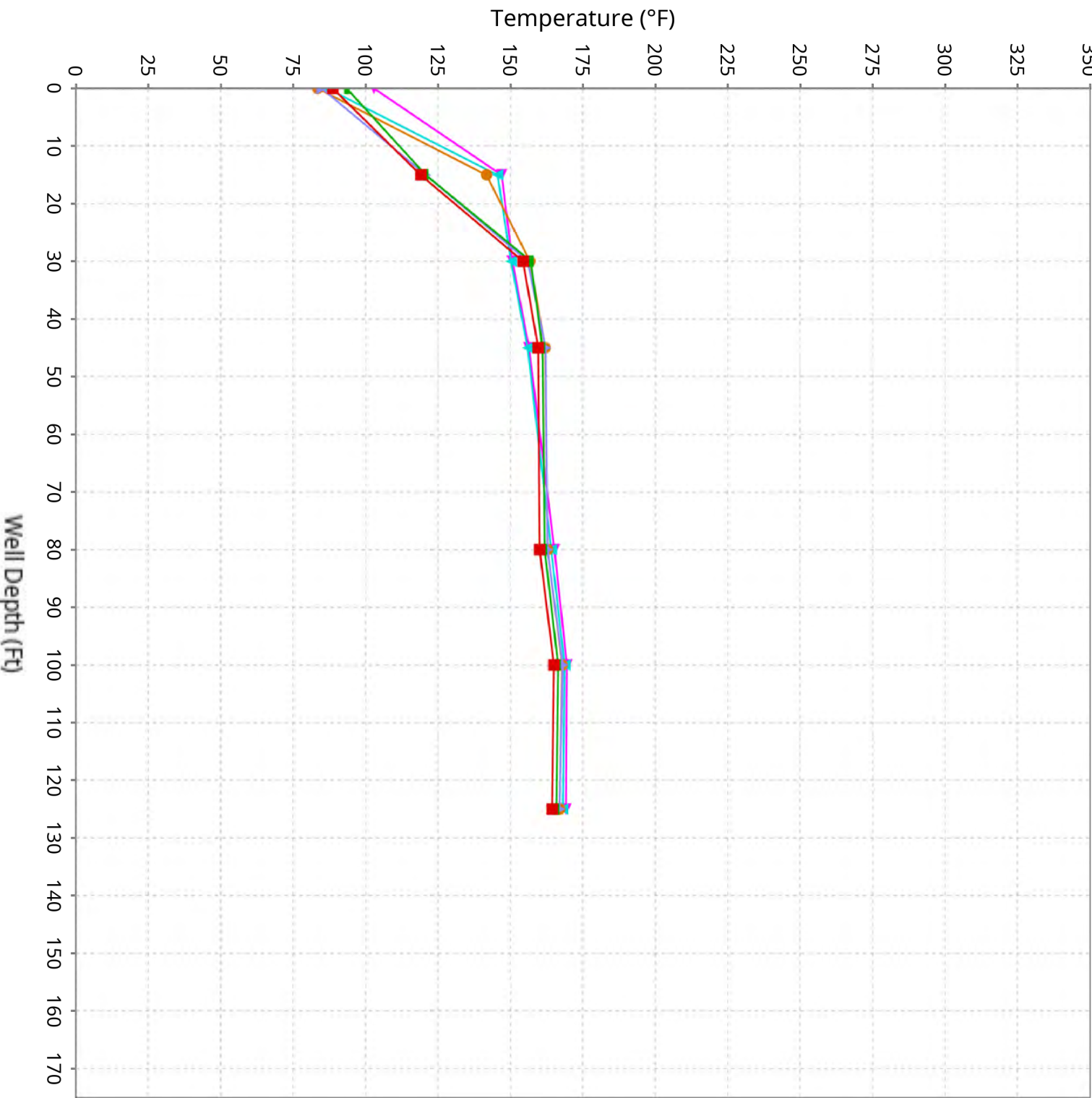
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-10

Maximum data for 2/13/2025 to 3/26/2025



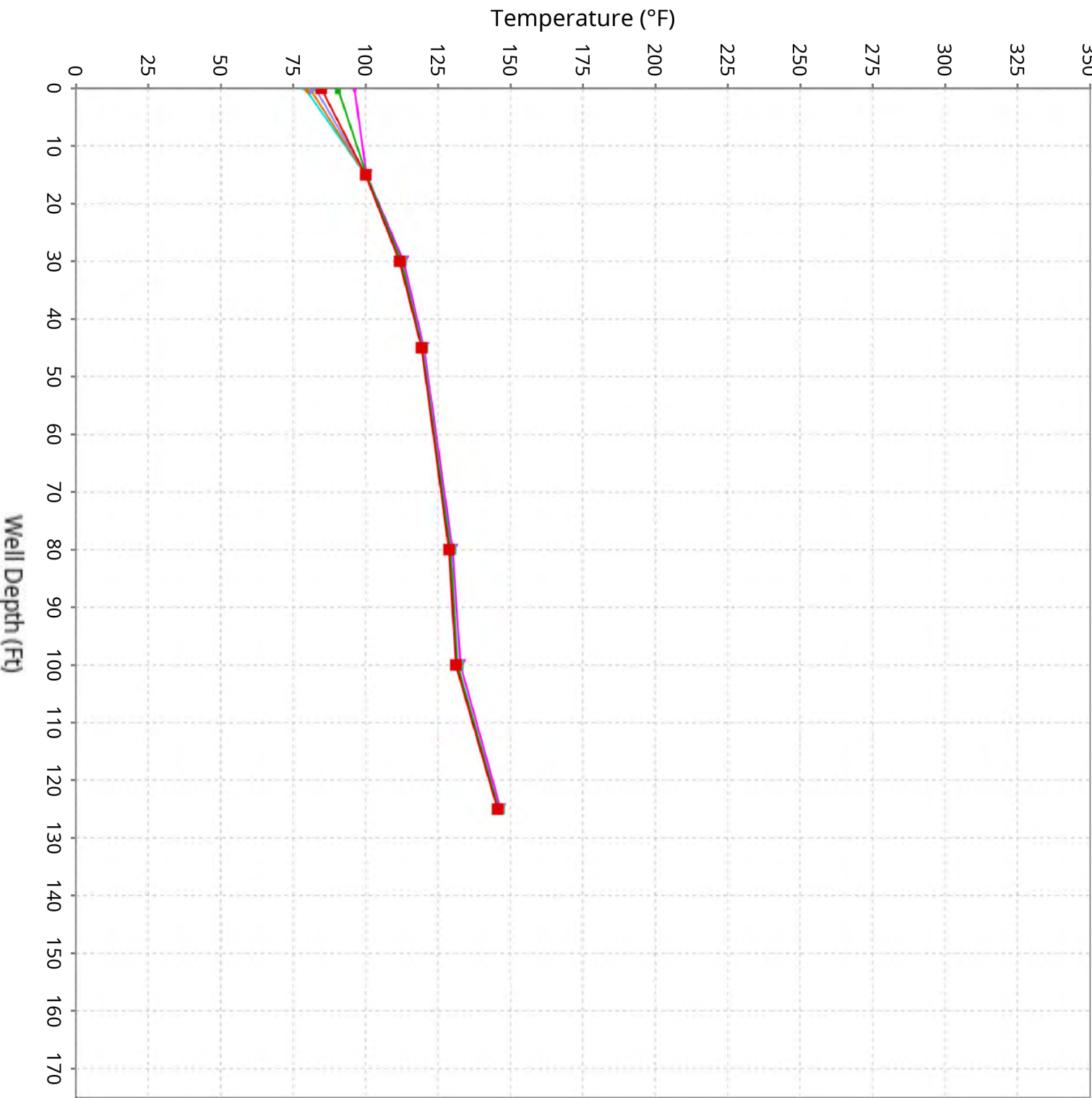
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-11

Maximum data for 2/13/2025 to 3/26/2025



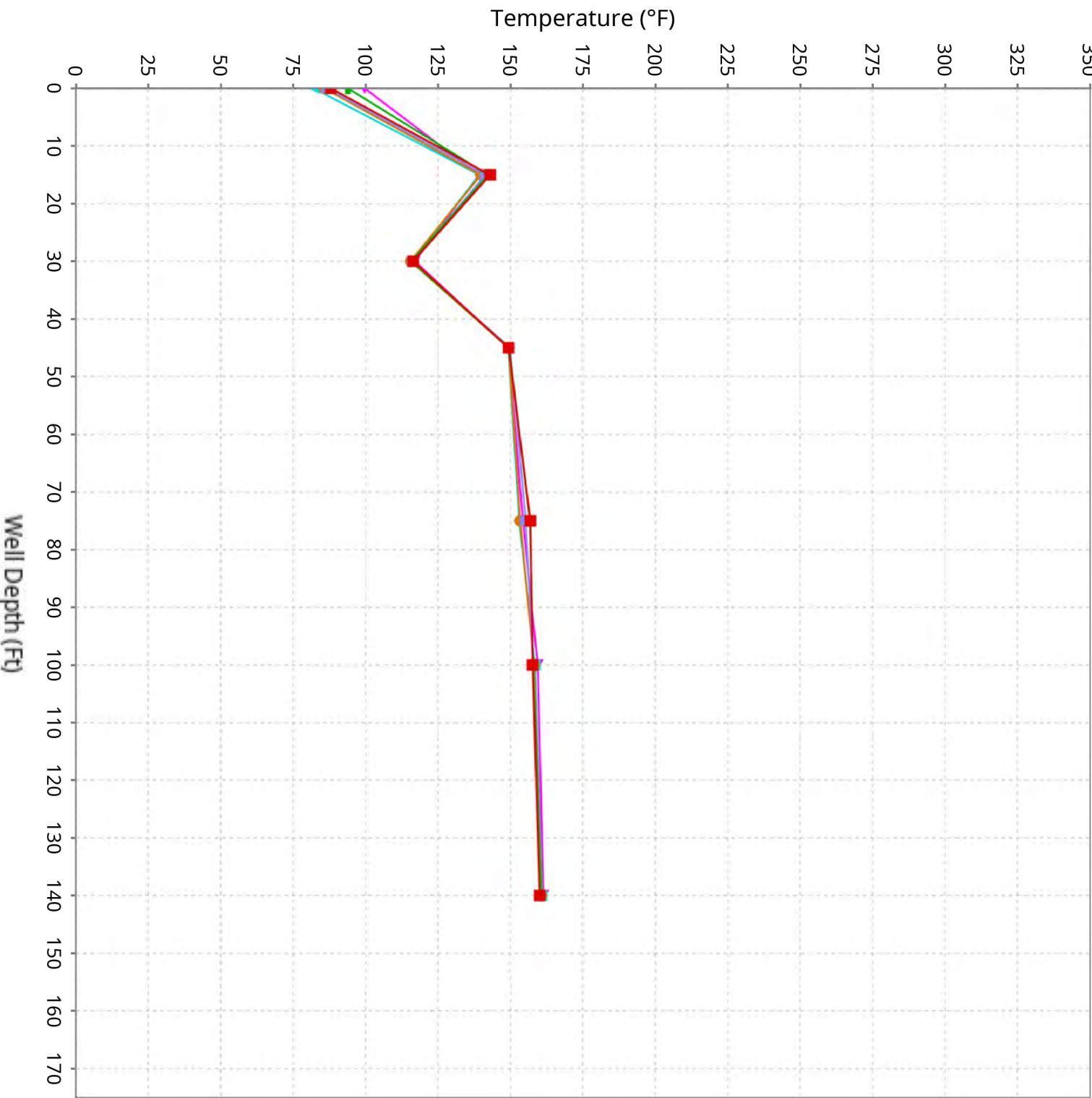
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-12

Maximum data for 2/13/2025 to 3/26/2025



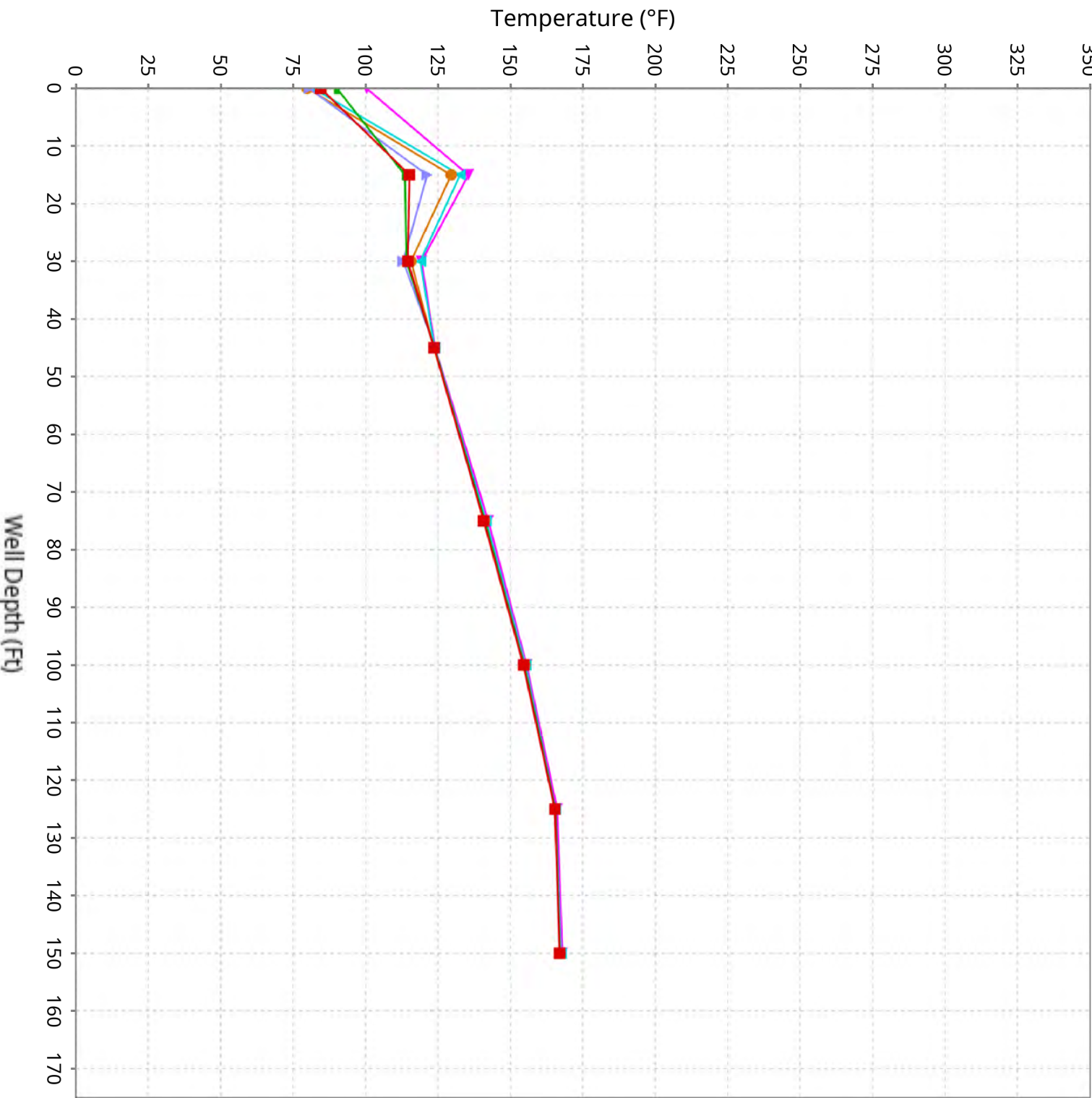
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-13

Maximum data for 2/13/2025 to 3/26/2025



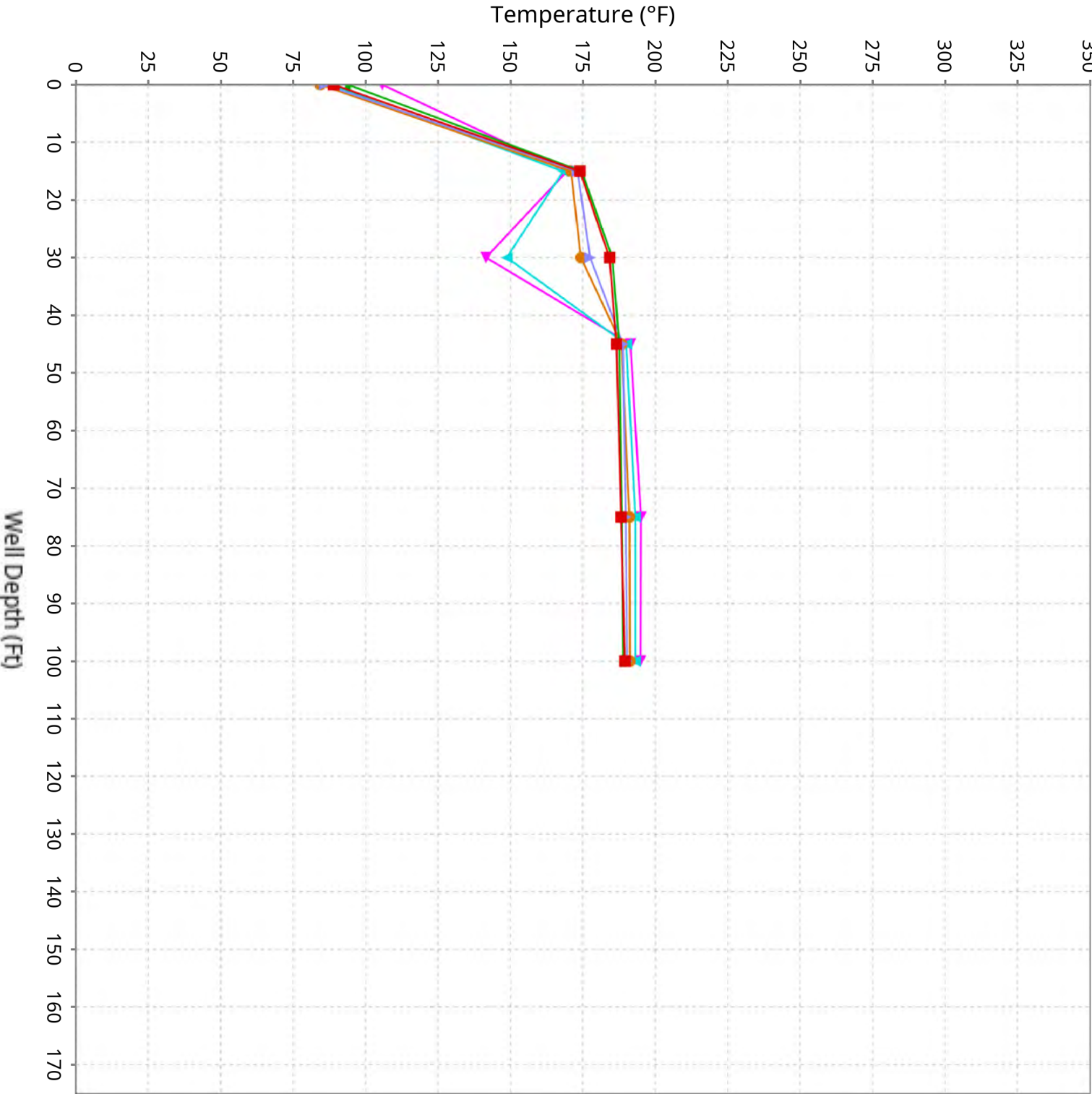
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-14

Maximum data for 2/13/2025 to 3/26/2025



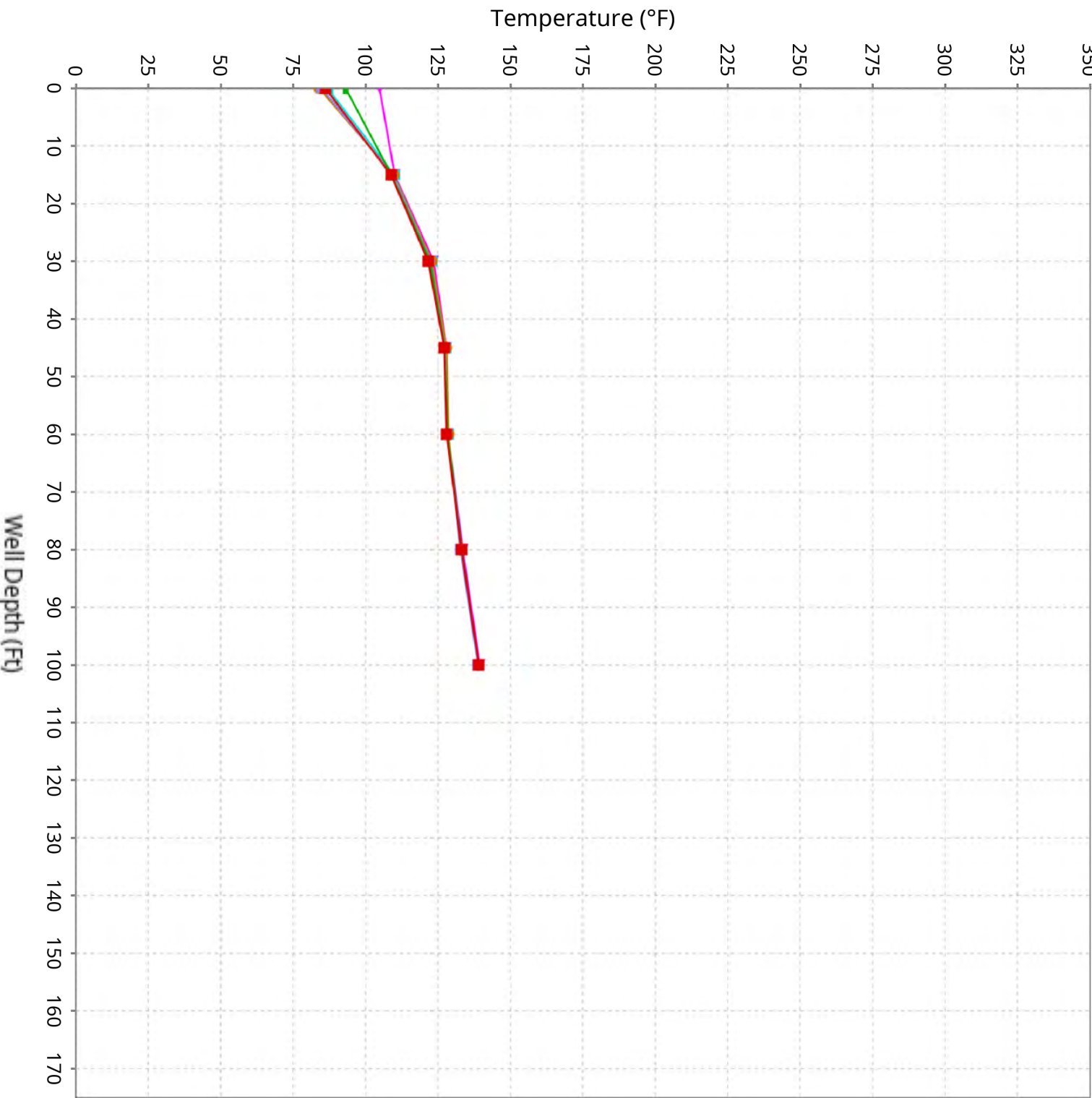
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-15

Maximum data for 2/13/2025 to 3/26/2025



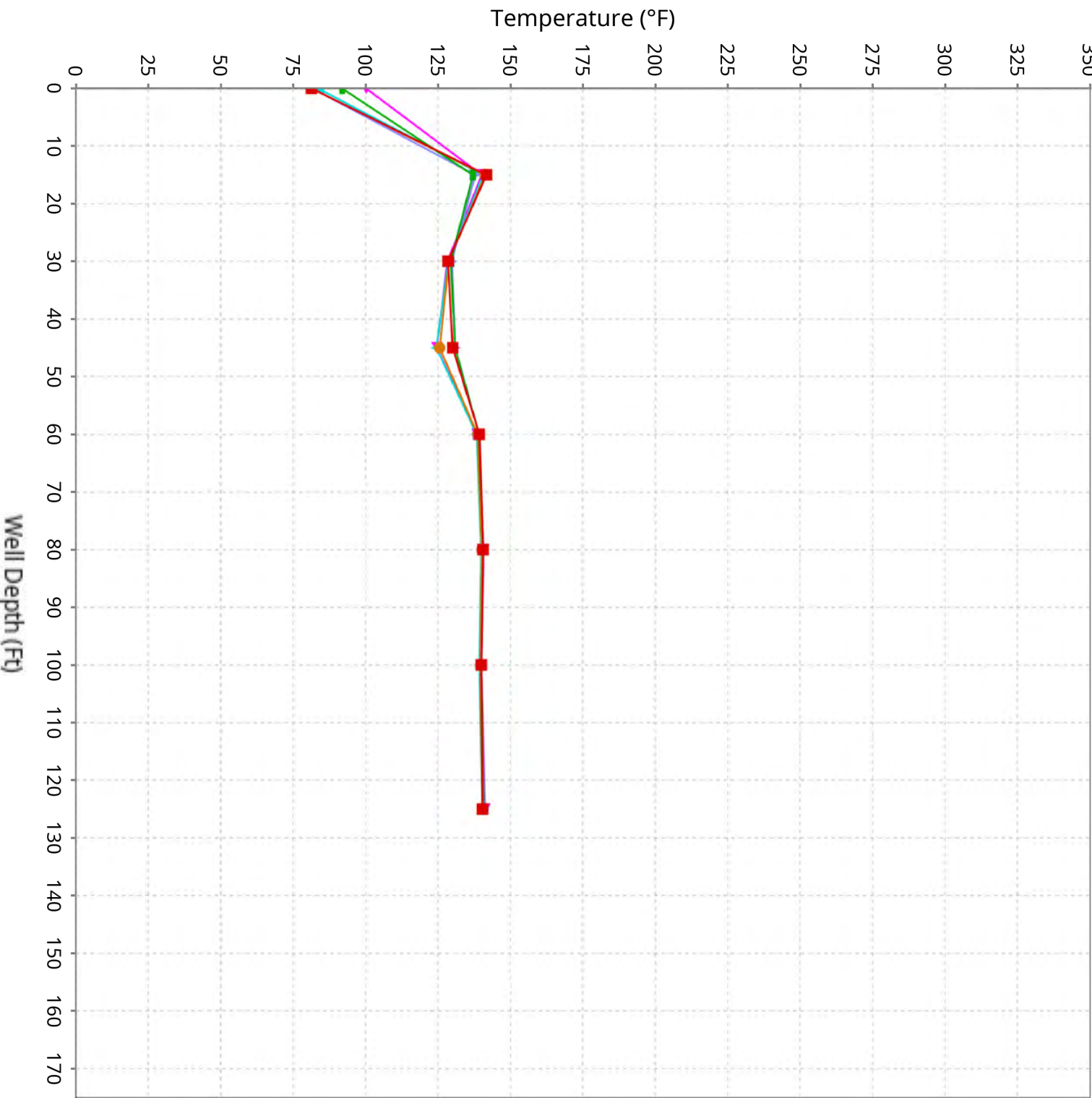
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-16

Maximum data for 2/13/2025 to 3/26/2025



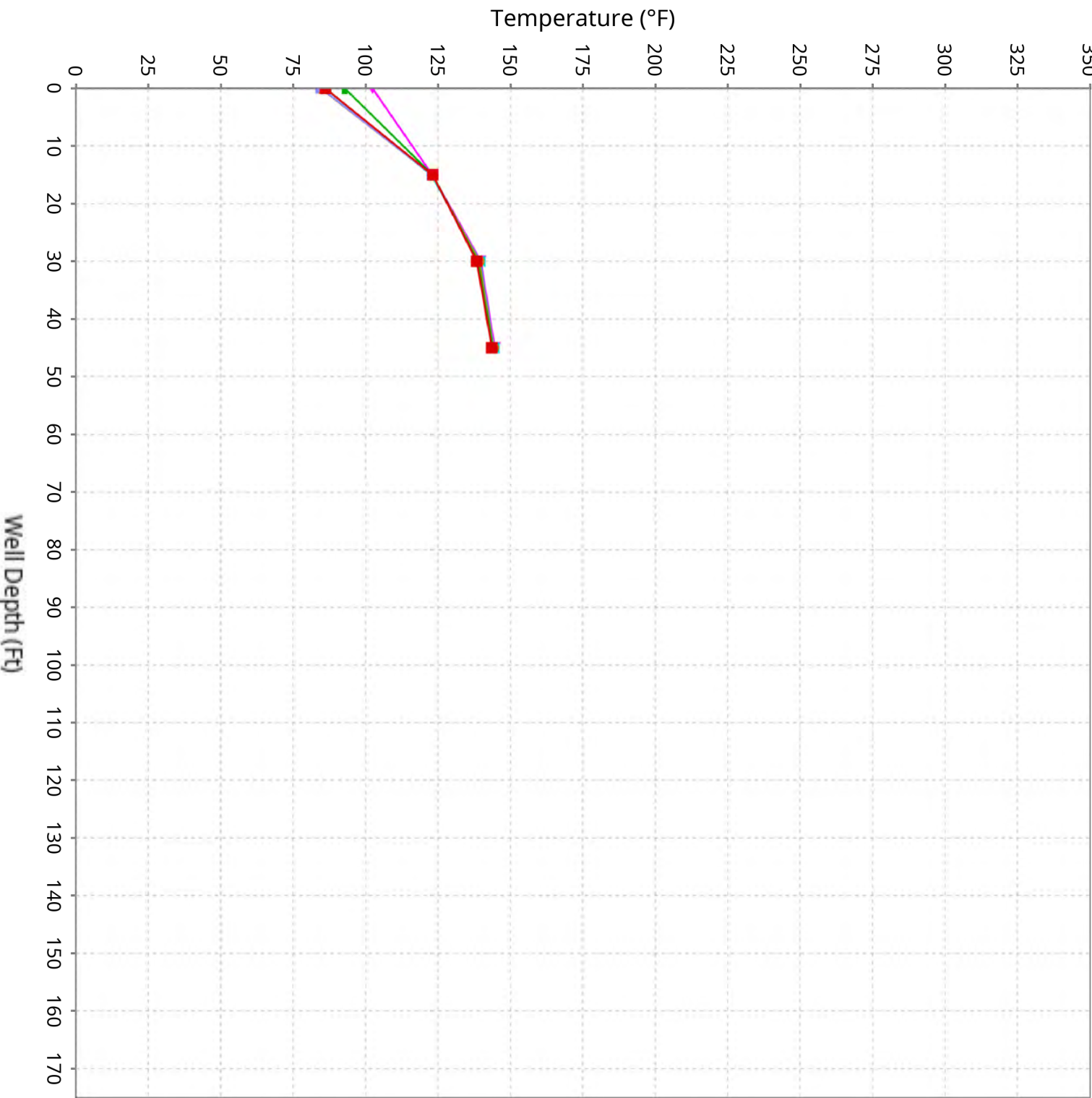
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-17

Maximum data for 2/13/2025 to 3/26/2025



Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-18

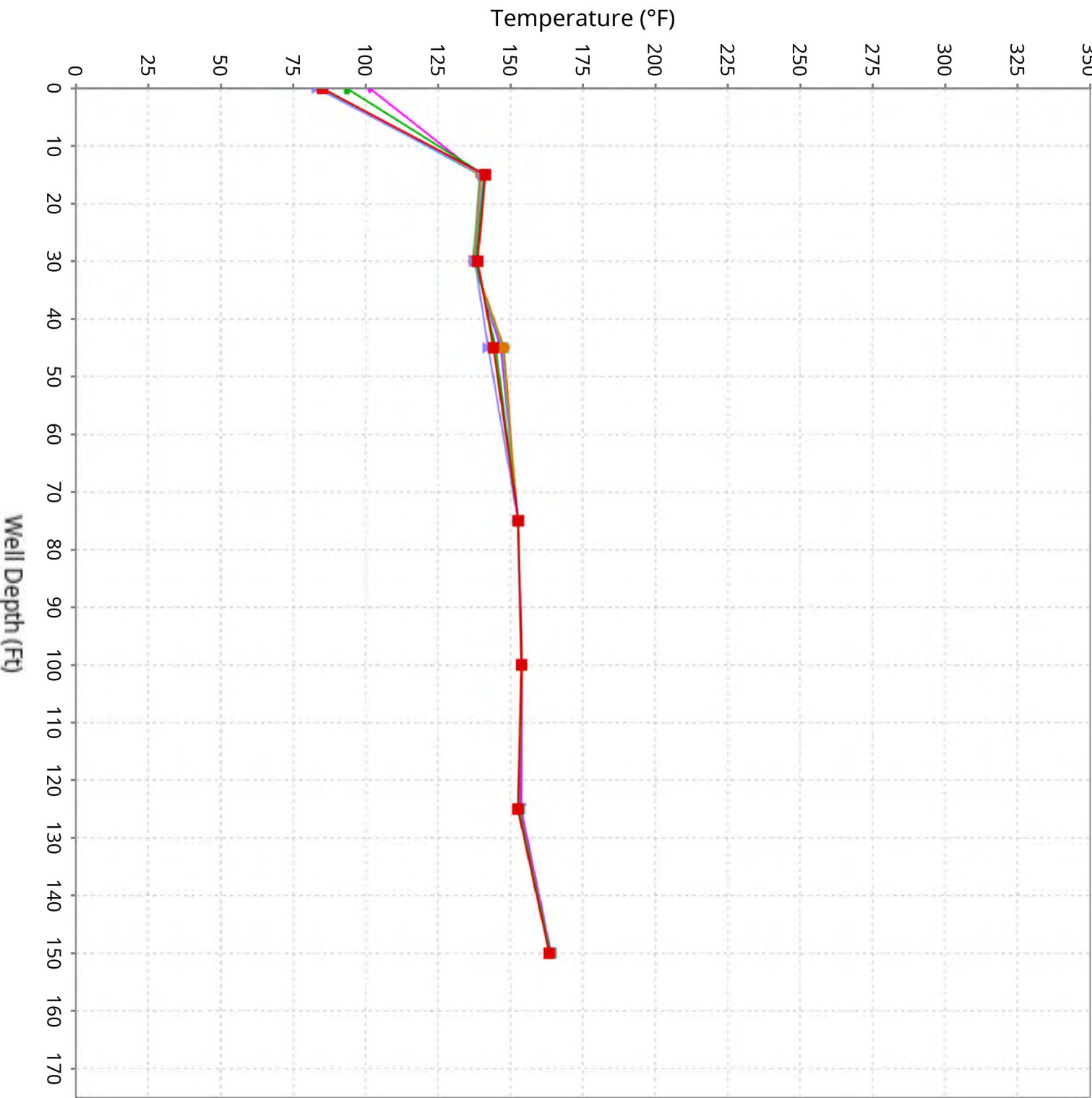
Maximum data for 2/13/2025 to 3/26/2025



2/13/25-2/20/25 2/20/25-2/27/25 2/27/25-3/6/25 3/6/25-3/13/25 3/13/25-3/20/25 3/21/25-3/26/25

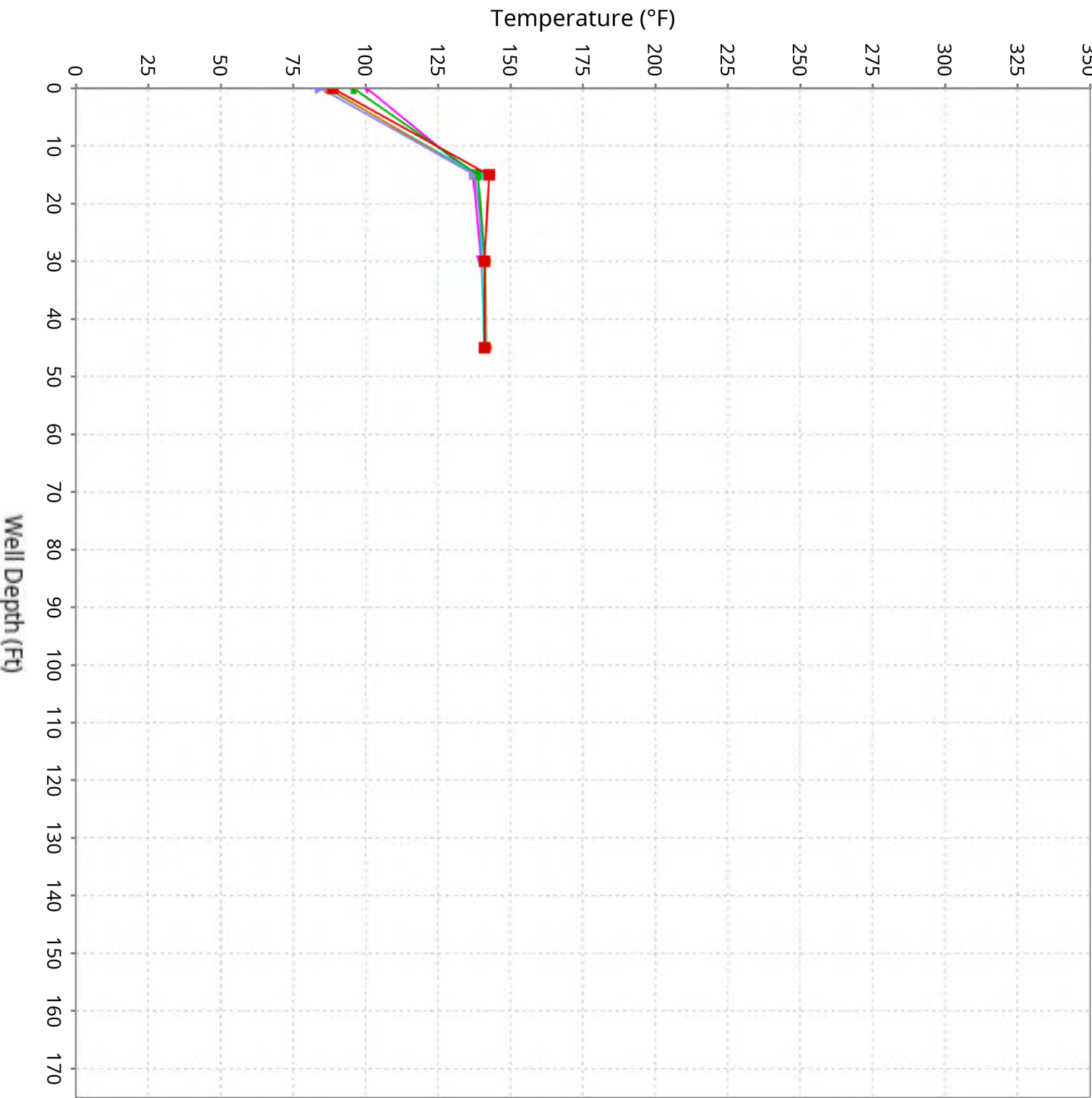
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-19

Maximum data for 2/13/2025 to 3/26/2025



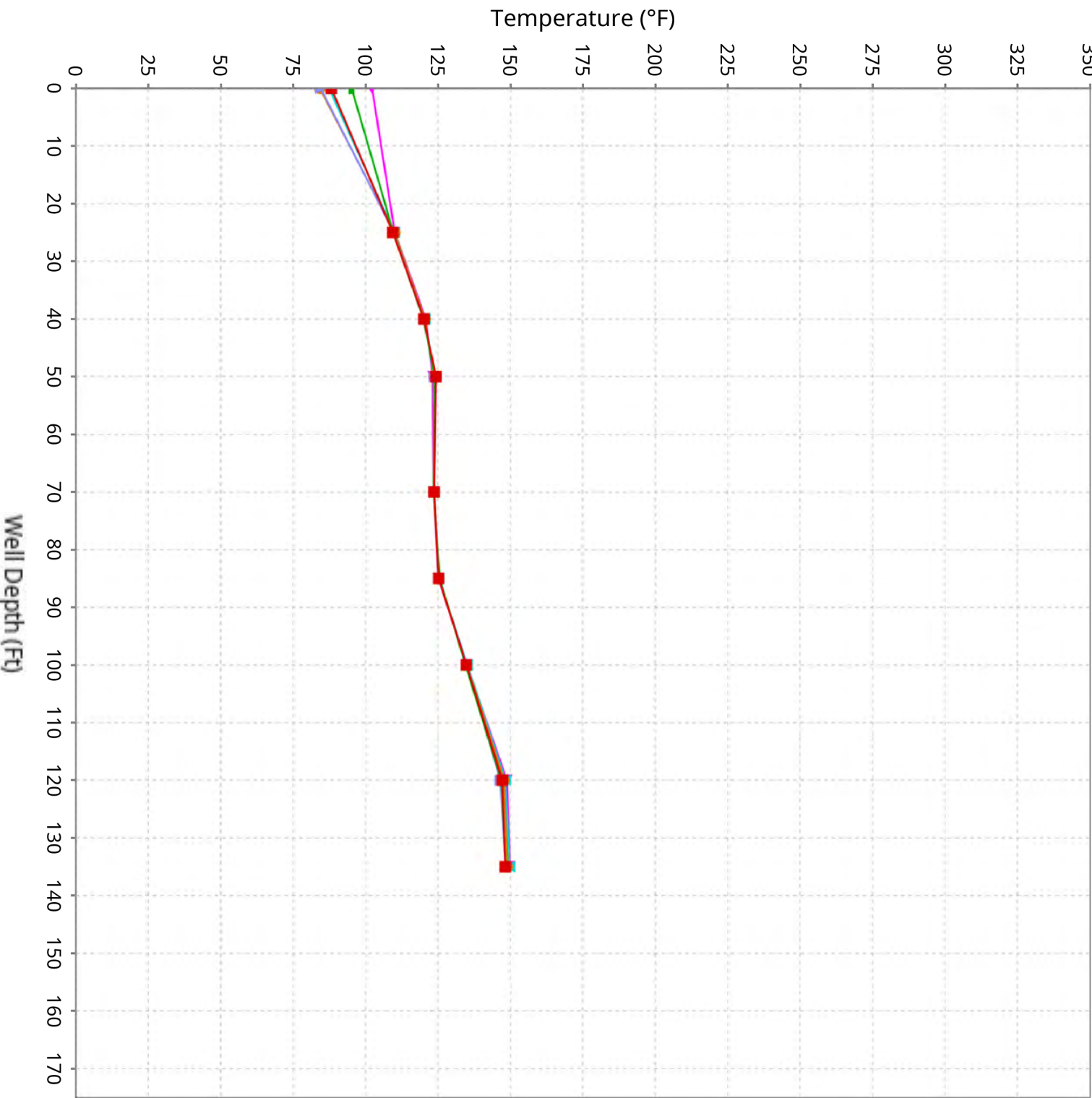
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-20

Maximum data for 2/13/2025 to 3/26/2025



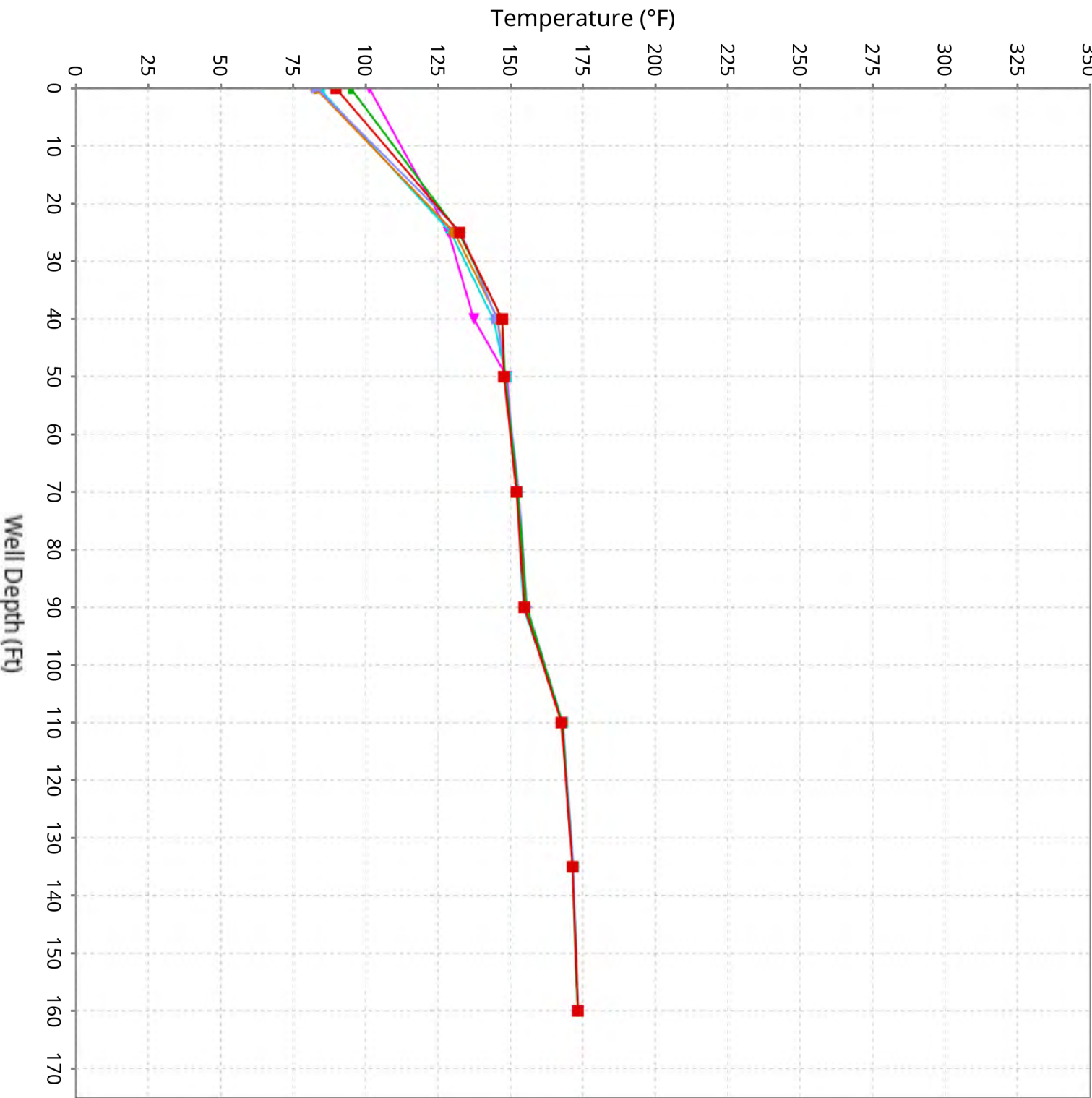
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-25

Maximum data for 2/13/2025 to 3/26/2025



Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-26

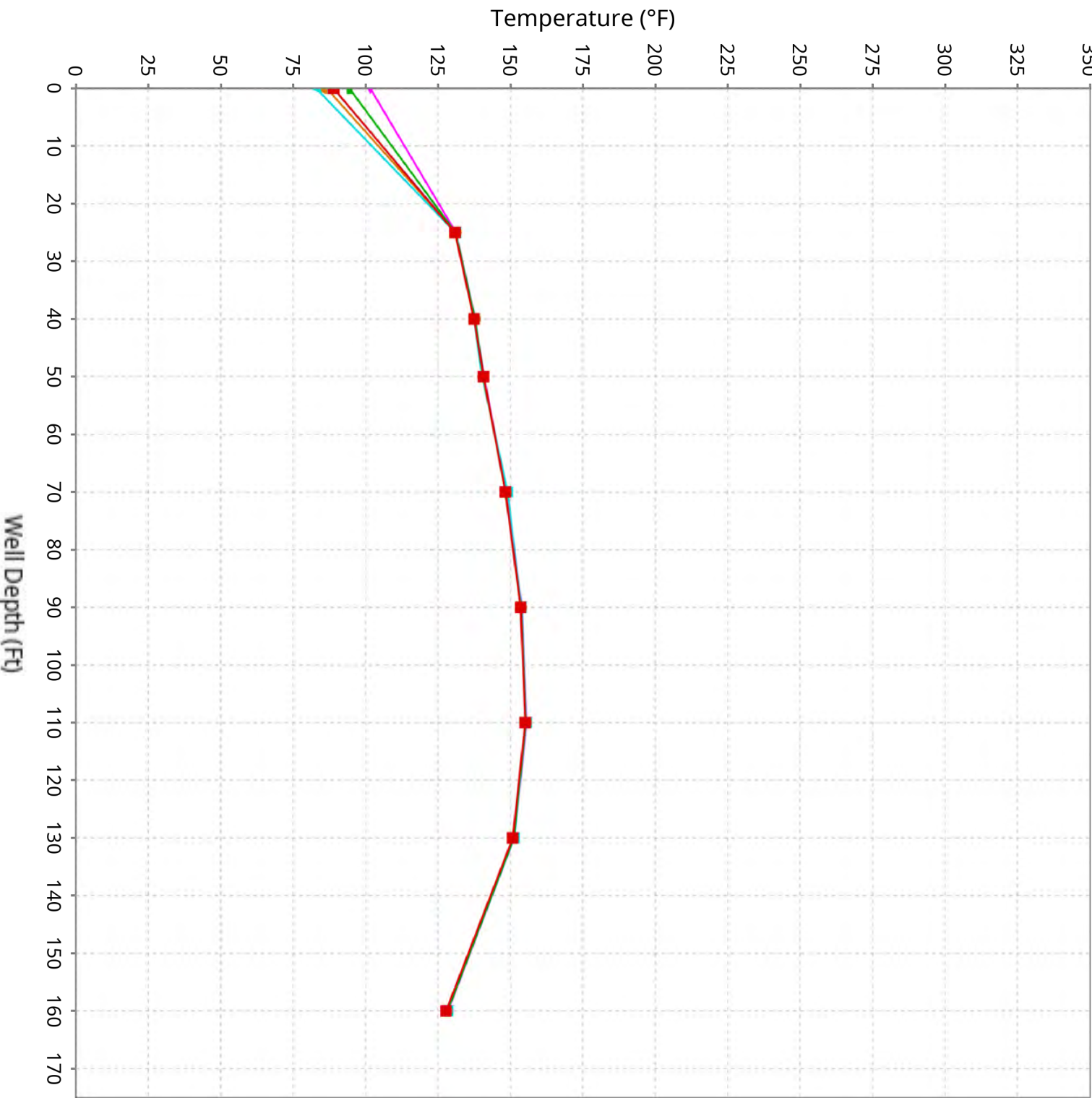
Maximum data for 2/13/2025 to 3/26/2025



2/13/25-2/20/25 2/20/25-2/27/25 2/27/25-3/6/25 3/6/25-3/13/25 3/13/25-3/20/25 3/21/25-3/26/25

Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-27

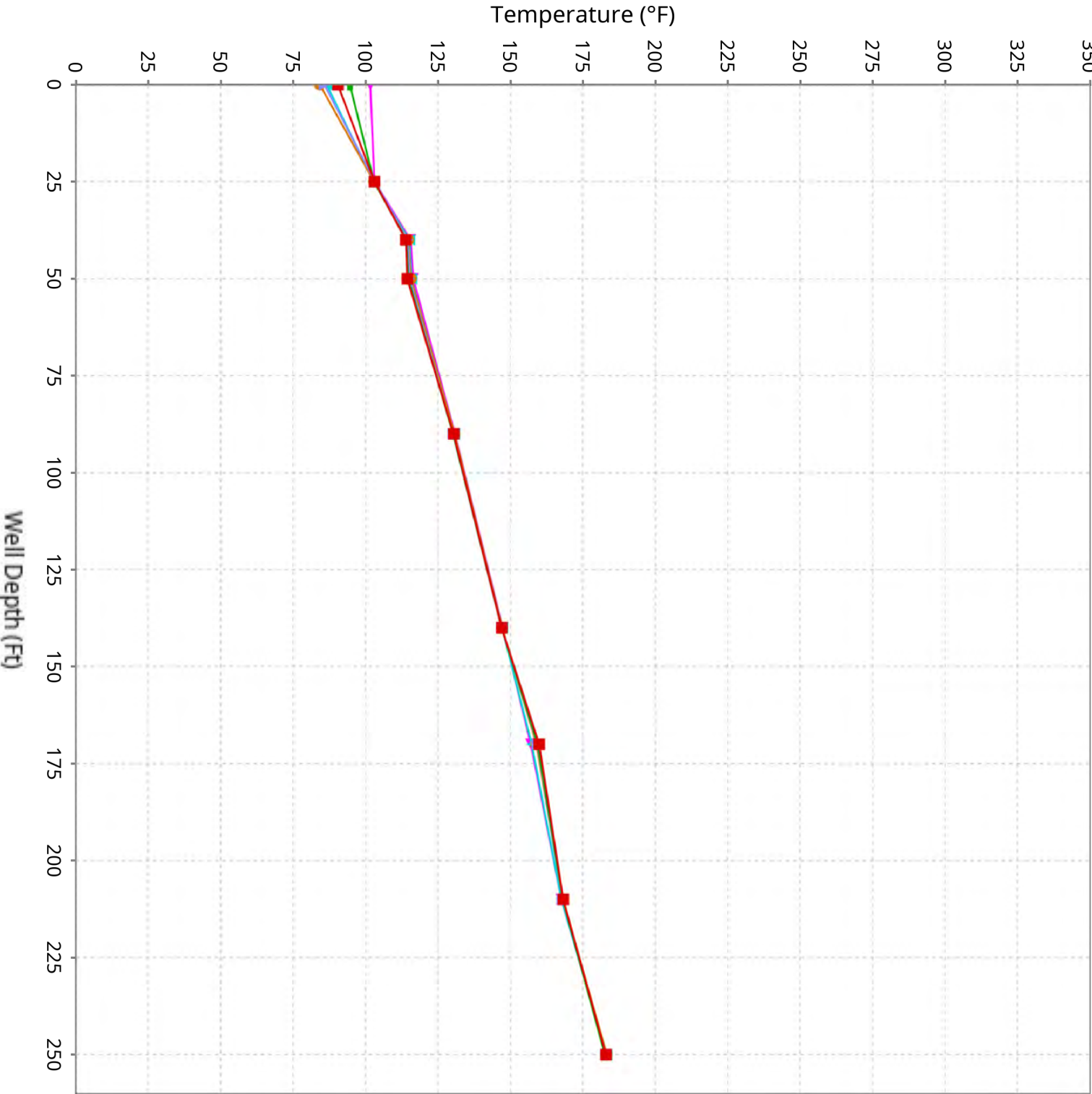
Maximum data for 2/13/2025 to 3/26/2025



2/13/25-2/20/25 2/20/25-2/27/25 2/27/25-3/6/25 3/6/25-3/13/25 3/13/25-3/20/25 3/21/25-3/26/25

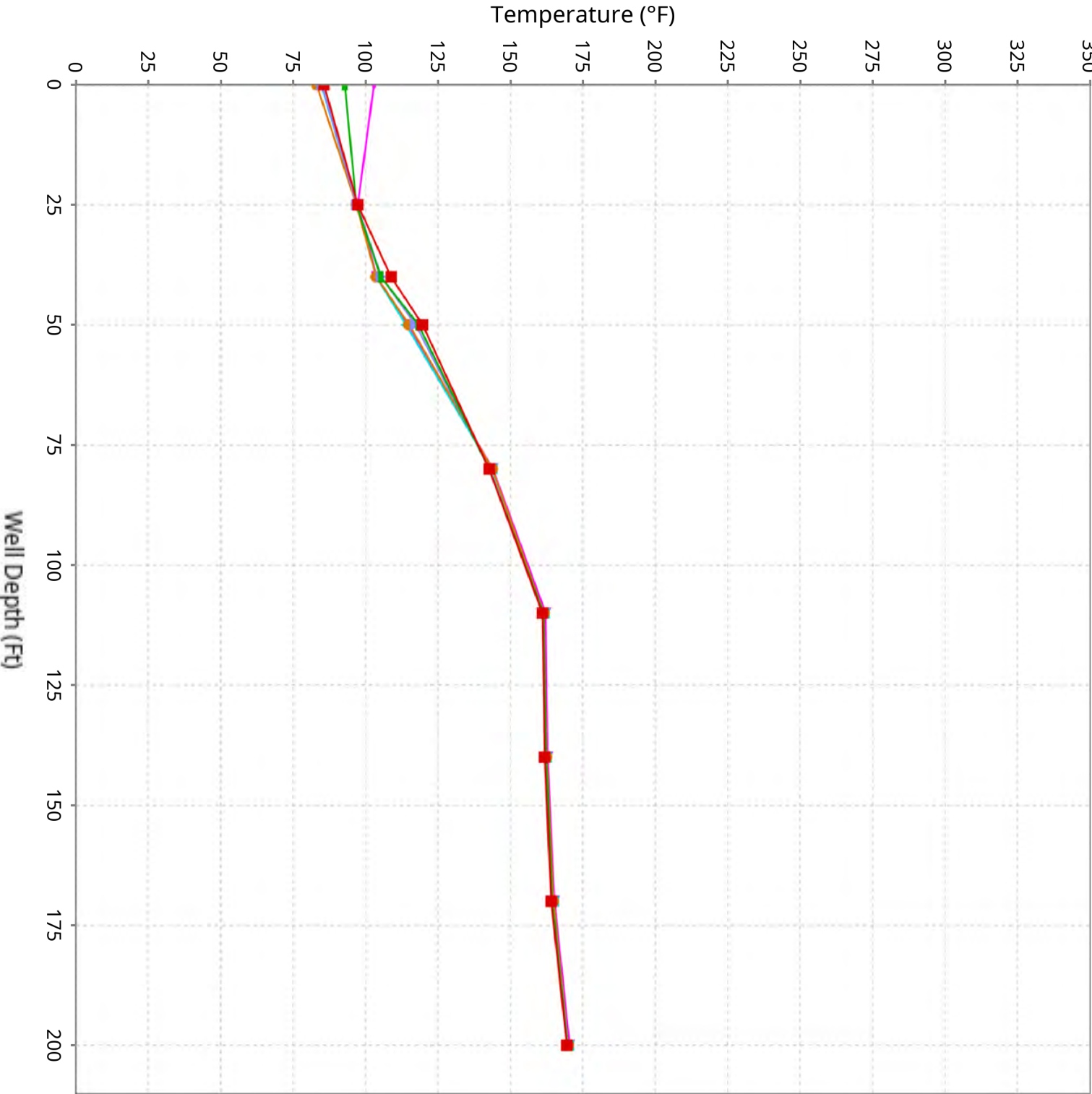
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Maximum data for 2/13/2025 to 3/26/2025



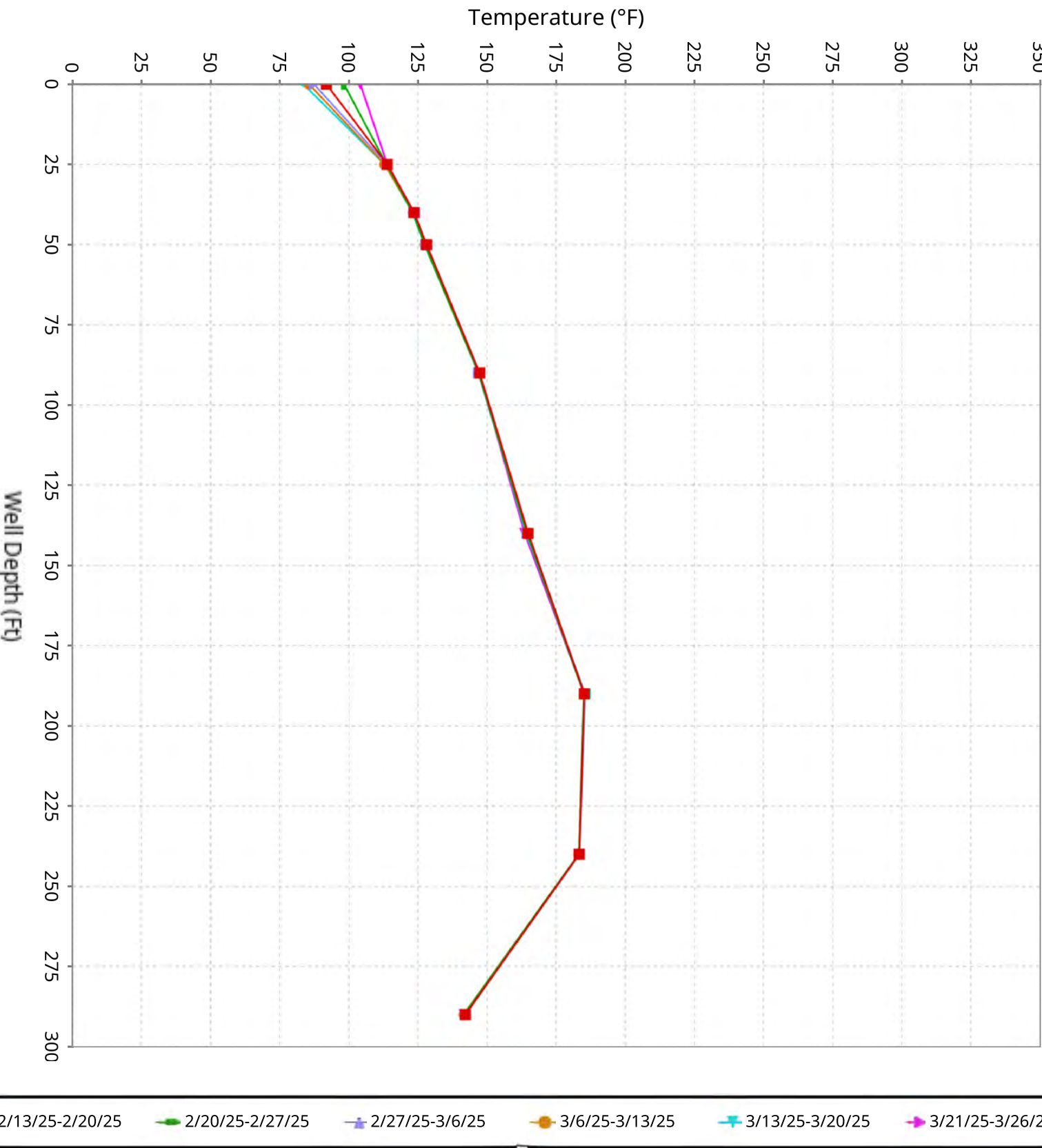
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-30

Maximum data for 2/13/2025 to 3/26/2025



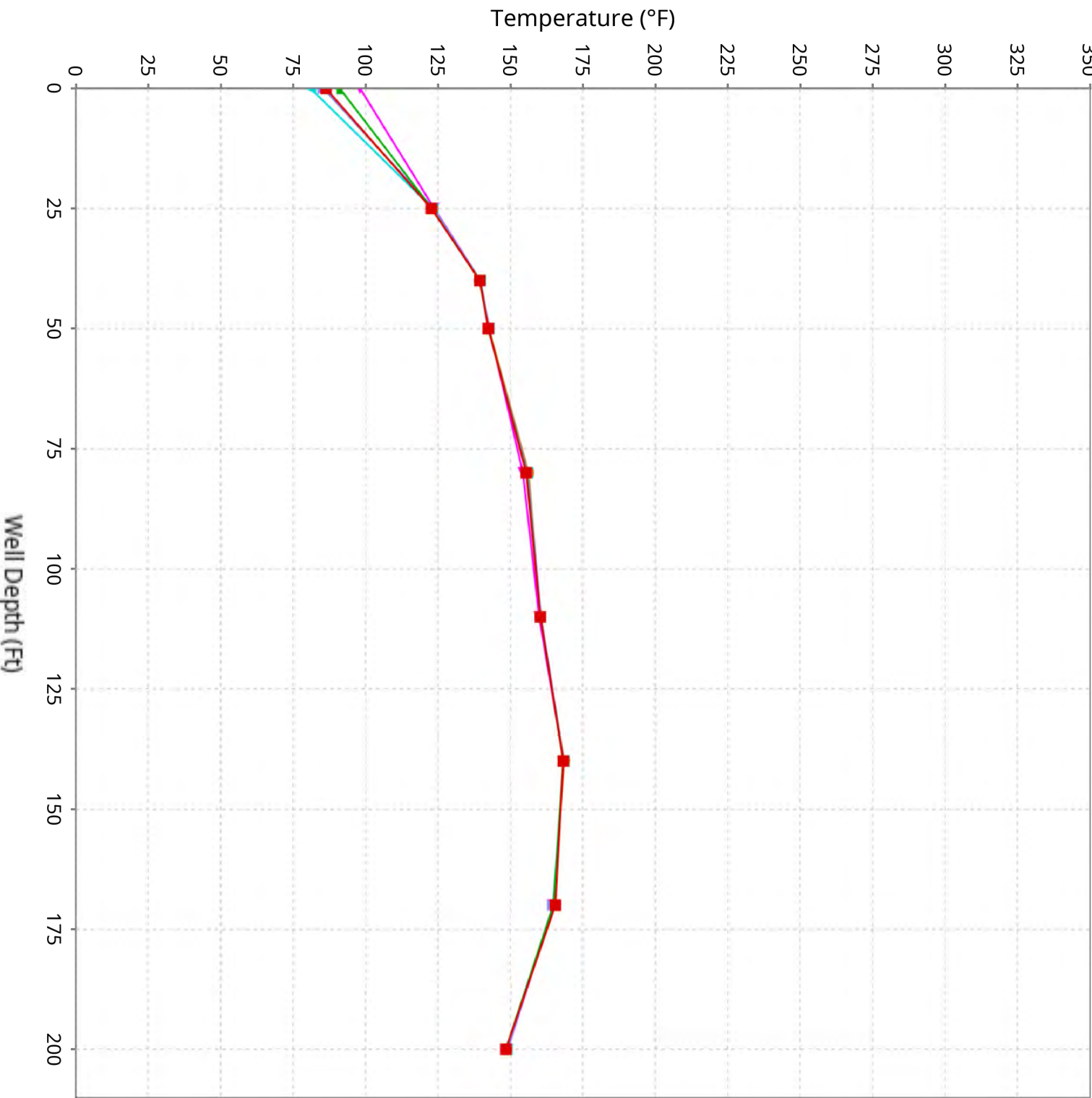
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-31

Maximum data for 2/13/2025 to 3/26/2025



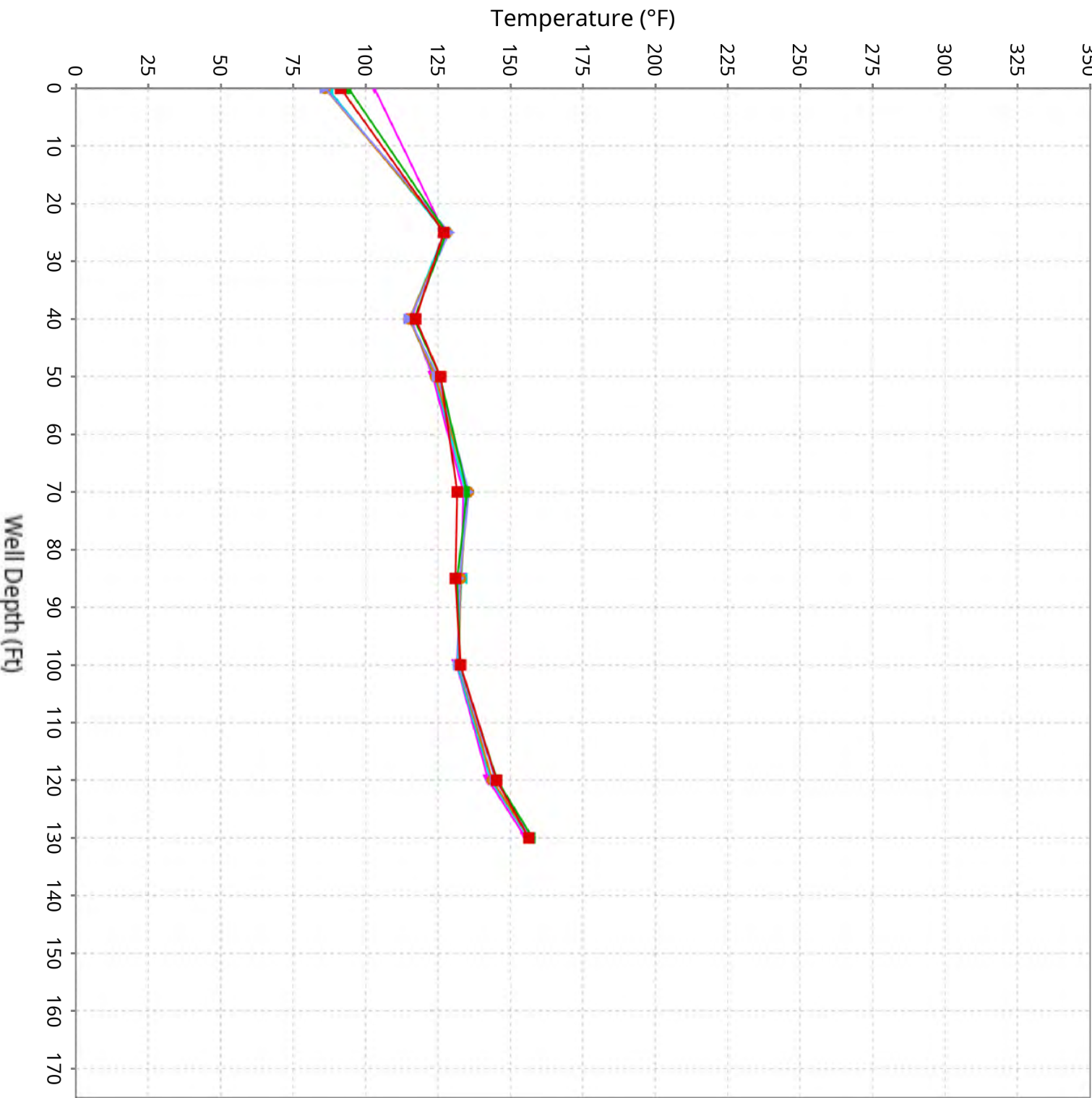
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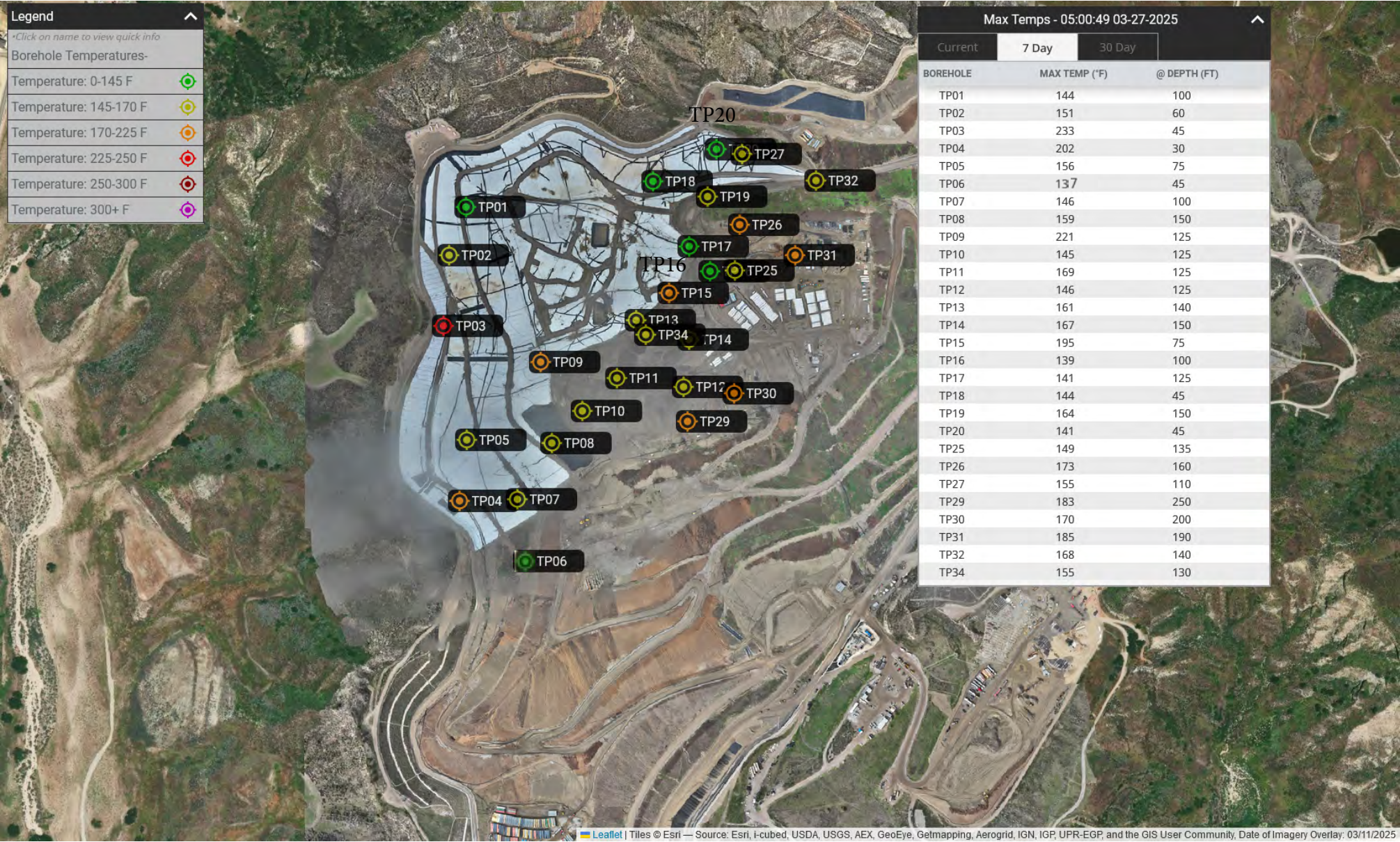


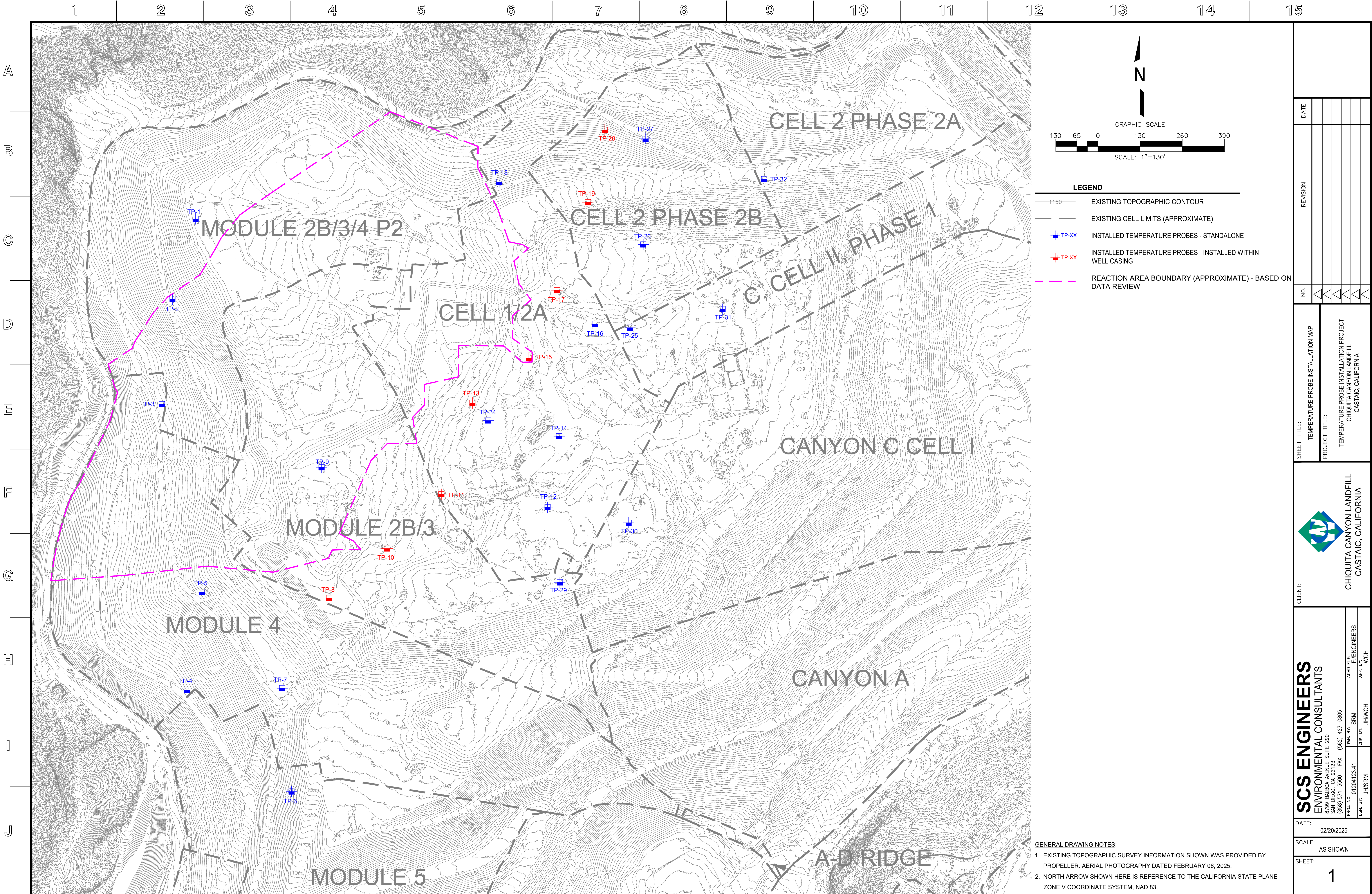
Vertical Temperature Profiles from Temperature Probes at Chiquita Landfill for TP-34

Maximum data for 2/13/2025 to 3/26/2025



Maximum Vertical Temperature Map from Temperature Probes at Chiquita Landfill





REQUEST FOR HEARING

Before the Local Solid Waste Hearing Panel or Hearing Officer

[Public Resources Code \(PRC\) 44310 et. seq.](#)

Enforcement Agency:					
Facility Name:				SWIS No:	
Facility Address:			City:		Zip Code:

Name of Petitioner:		
Requests a Hearing in the matter of (check one):		
☐ Challenge terms and/or conditions of the issued (PRC 44307) Solid Waste Facility Permit (SWFP)		
☐ Appeal an enforcement order (PRC 44307 , 45017(b))		
☐ Alleged failure of the EA to act as required by law or regulation (PRC 44307)		
☐ Appeal completeness review of ☐ Registration (CCR 18104.4) or ☐ Standardized (CCR 18105.4) SWFP.		
☐ Denial of the SWFP (PRC 44300)		
☐ Suspension of the SWFP (PRC 44305)		
☐ Revocation of the SWFP (PRC 44306)		
☐ Denial of Proposed RFI Amendment(s) (CCR 21665)		

Statement of the Issues (Appellants may wish to add additional pages to fully explain the legal and factual basis for their appeal) :	☐ Check if additional pages are attached.

Signature:		Typed Name:	
Title:		Date:	

Enclosure C – LEA March 2025 Letter attaching CalRecycle March 2025 Letter



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Director

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County Health Officer

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Deputy Director for Health Protection

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Fifth District

April 1, 2025

Via Electronic Correspondence

Mr. Steve Cassulo, District Manager
Steven.cassulo@wasteconnections.com
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

Dear Mr. Cassulo,

On November 26, 2024, the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), received Chiquita Canyon Landfill's (CCL) third revision of the Soil Reaction Break/Barrier Plan (SRBBP), dated November 26, 2024. The SRBBP was submitted to comply with Milestone 1-A1 of the LEA Compliance Order issued on June 6, 2024. On December 24, 2024, the LEA requested additional information from CCL to complete its technical review. CCL provided a response on January 24, 2025.

The LEA, in consultation with CalRecycle, has reviewed the SRBBP and CCL's additional information.

The SRBBP does not propose a physical barrier, as directed in the June 6, 2024 Compliance Order, but instead relies on gas and leachate removal for control and containment. However, no thermodynamic analysis has been provided to demonstrate the effectiveness of these measures. Temperature trends in multiple Temperature Monitoring Probes (TMPs) indicate ongoing reaction activity, particularly in areas with significant distances between gas extraction wells, such as the reaction boundary near Tank Farm #9 and TMP-17. Given the evidence of ongoing reaction activity, and no thermodynamic analysis, the LEA does not believe that gas and leachate removal alone is appropriate to contain the reaction.

Additionally, CalRecycle is not aware of any published studies supporting gas and leachate removal as a standalone containment strategy for a Subsurface Elevated Temperature (SET) Event. CCL's evaluation also confirmed that no internal barrier exists to prevent the reaction from spreading throughout the facility. For further discussion on these findings, refer to the attached CalRecycle Letter dated March 28, 2025.

Based on the reviewed documents and site data, the LEA is issuing the following response and directives to address the ongoing SET Event, ensure regulatory compliance, and prevent further impacts:

1. **Containment and Cover System:** Install a 40- to 60-mil thick tan or green HDPE-EVOH textured geomembrane underlain by a minimum 6 oz/sy nonwoven geotextile over approximately 100 acres outside the existing geomembrane cover. This new barrier must be welded to the existing 30-mil-thick white HDPE geomembrane or placed in a suitable anchor trench. A construction and quality assurance/quality control (QA/QC) plan must be submitted for approval.
2. **Relocation of Leachate Tank Farm 9:** Leachate Tank Farm 9 must be relocated off the top deck to an area unaffected by the SET Event, both currently and in the future.
3. **Preventing Expansion into Cell 8A:** The SET Event must not expand into Cell 8A. To prevent this, the previously constructed soil barrier must be extended to connect the western and eastern edges of Cell 8A. This barrier should serve as a thermal block and eliminate any waste connection between Cells 6 and 8A. This measure is critical to maintaining space for a potential soil buttress for slope stabilization and continued disposal operations in Cell 8A.
4. **Additional TMPs:** Five new TMPs must be installed at locations specified in Attachment A of the CalRecycle Letter.

This letter serves as the LEA's initial response to the SRBBP. Please note that the LEA is preparing an official Notice and Order, which will formally establish compliance deadlines for these directives. The LEA reserves the right to modify these directives as new data becomes available.

If you have any questions, you may contact me at kgork@ph.lacounty.gov.

Sincerely,



Karen Gork
Chief Environmental Health Specialist
Los Angeles County LEA

Enclosure: CalRecycle review letter dated March 28, 2025

CC: (Via Electronic Correspondence Only)

- 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
- Ken Habaradas, Los Angeles County LEA
- Eric Morofuji, Los Angeles County LEA
- Renee Jensen, LEA Counsel (rjensen@fwhb.com)
- Blaine McPhillips, Senior Deputy County Counsel
- Emiko Thompson, Los Angeles County Department of Public Works
- Alex Garcia, Los Angeles County Department of Regional Planning

Steve Cassulo

April 1, 2025

Page 3 of 3

- Ai-Viet Huynh, Los Angeles County Department of Regional Planning
- Wes Mindermann, CalRecycle (wes.mindermann@calrecycle.ca.gov)
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- Jack Cheng, South Coast Air Quality Management Board (jcheng@aqmd.gov)
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- Enrique Casas, Los Angeles Regional Water Quality Control Board
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Department of
Resources Recycling and Recovery

Yana Garcia
Secretary for Environmental Protection
Zoe Heller
CalRecycle Director

March 28, 2025

Karen Gork
Chief Environmental Health Specialist
Los Angeles County Department of Public Health
5050 Commerce Drive
Baldwin Park, California 91706

Subject: Review of the November 26, 2024, Revised Soil Reaction Break/Barrier Plan for the Chiquita Canyon Landfill Subsurface Elevated Temperature (SET) Event

Dear Ms. Gork:

CalRecycle staff is providing this letter in response to your request for technical assistance in reviewing the subject analysis to determine the next course of action.

The following comments are provided to the Los Angeles County Department of Public Health, a Local Enforcement Agency (LEA), as assistance in supporting the program in carrying out its responsibilities at permitted disposal sites. The final determination as to the comments to be provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in Title 14, California Code of Regulations (14 CCR), Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the Public Resources Code.

Review Background

On March 27, 2024, the CCL submitted its initial Soil Reaction Break/Barrier Plan (Work Plan) to the United States Environmental Protection Agency (USEPA) in accordance with Condition No. 22.c.2 of the Unilateral Administrative Order EPA Docket No. RCRA 7003-09-2024-001 and CERCLA 106-09-2024-05 and to the Los Angeles County Department of Public Health Solid Waste Management Program [solid waste Local Enforcement Agency (LEA)] as required in Mitigation Measure #1A. The LEA provided comments on the Work Plan in a letter dated May 3, 2024. The LEA requested that the revised CCL Barrier plan address the

following:

1. Installation of an air/soil break that separates the waste with either an inert material or with an air break.
2. Investigate how each cell or phase was constructed and examine if air/soil breaks between cells/phases can be exploited. The investigation should include a review of where haul roads were constructed to determine if the inert roads can also be used as breaks. Information from the investigation should be used to develop where containment breaks should be placed.
3. Propose a set of criteria for the primary and secondary engagement lines, including the type of reaction breaks, barriers, and/or mitigations. These criteria shall be based on temperature, carbon monoxide levels, and possibly settlement rate. The primary engagement lines need to prevent the reaction from spreading in the main fill area close to the reaction. The secondary engagement lines need to prevent the reaction from entering the eastern and southern fill areas at the toe of the slope.
4. Construction plans for reaction breaks in the 160-acre main fill area. The reaction break plans should include timelines and a construction method that aligns with the timelines and engagement lines.
5. Include the construction of reaction breaks/barriers between Canyons C, A, D, and Cell 5 in the event the reaction reaches the secondary engagement lines.
6. Use the best available technology, such as grout injection, to slow or contain reaction movement to the south and east.
7. Description of the criteria that will mandate the temporary suspension of placing new waste.

On July 8, 2024, CCL submitted a response regarding the LEA's comments. On September 20, 2025, CalRecycle staff again provided comments and recommendations to the LEA regarding the second Barrier Plan submitted by CCL. In general, the letter outlined the criteria for defining the reaction area, the expansion of the SET Event, and for installing a barrier, and included barrier strategies, additional temperature probe installations, and measures to limit oxygen intrusion during landfill gas collection and control operations.

On November 26, 2024, CCL submitted the third Work Plan to the LEA. CalRecycle staff requested the following information to complete their review on December 16, 2024:

1. All downwell gas temperature data collected for 2023 and 2024 were per New Source Performance Standards (NSPS) protocols.
2. All gas well data, both vertical and horizontal, from SCS E-tools, including notes in an EXCEL format for 2023 and 2024 up to December 12, 2024.
3. Current gas collection map showing vertical and horizontal wells.
4. Access to the forward-looking infrared (FLIR) Images from October and December via the FLIR web portal.

5. Landfill Gas (LFG) Operational Manual for CCL.
6. Resubmittal of the Revised Soil Reaction Break/Barrier with a registered professional signature(s) as required by the California Professional Engineering Act.

As of March 24, 2025, the CCL has not provided the information requested in items 1, 4, and 5. In addition, the CCL provided most of the landfill gas data in Excel format, but did not include the notes section. Of the requested 34 downwell temperatures, only eight were provided because five were abandoned and the remaining 21 had Lorenz Pumps installed and the data was not available. The temperature data from the Lorenz Pumps is not NSPS compliant because the temperature is reported from only one depth and not at required 10-foot intervals. Neither data set is fully sufficient to adequately track the SET Event.

Subsurface Elevated Temperature Event Causes

SET Events are caused by several mechanisms, including air intrusion, spontaneous combustion, surface fires, smoldering, and/or reactive waste. A SET Event can generate significant heat through combustion or the exothermic reaction of waste, causing pyrolysis in surrounding materials such as plastics, paper, wood, cardboard, and other flammable substances. It is important to note that pyrolysis¹ is the chemical degradation of a substance by heat. In fire science, this refers to the fire stage before combustion, without requiring the presence or absence of oxygen. Combustion² is defined as a self-sustained, high-temperature oxidation reaction.

Most SET Events are typically caused by excessive oxygen into the waste mass near or on a side slope. SET Events can start locally at a gas extraction well, area of cap erosion, or other features that allow oxygen to enter the waste mass. If not adequately addressed, the SET Event may become a smolder and spread to the entire landfill facility if it is not isolated and contained.

The definition of a SET Event varies among landfill owners, consultants, and regulators. However, all include elevated temperatures in the municipal solid waste (MSW) increasing to a threshold, which begins to stress the biochemical decomposition processes. Some landfill operators attempt to change the terminology to avoid using the words "fire," "subsurface oxidation (SSO)," or "smolder," but federal regulations also state that the operating temperature value at a particular landfill gas well may not cause fires nor significantly inhibit anaerobic decomposition by killing methanogens. The operator must comply with both parts of the regulation.

SET Events also can (1) impact the integrity of bottom, top deck, and side slope

¹ Vytenis Babrauskas, Ignition Handbook 14,18 (2003).

² Id.

geosynthetic liner systems; (2) impact the efficacy of gas and leachate control infrastructure made from high-density polyethylene (HDPE) and/or polyvinyl chloride (PVC) materials (e.g., pipes, lines, and gas wells, due to softening and/or melting), (3) impact the quality of gas composition for renewable energy and operation of flare systems, (4) change in chemical profile of leachate from non-hazardous waste liquid to hazardous waste liquid due to increased benzene concentration, (5) slope instability, and (6) cause excessive and/or rapid settlement of the landfill surface.

A SET Event can result from a combination of reactions. For example, reactive industrial waste (e.g., aluminum dross, baghouse dust, salt cake, fly ash, incinerator ash, or other metal oxide waste) can generate sufficient heat to pyrolyze or ignite surrounding municipal solid waste (MSW) and cause high gas pressures at temperatures exceeding 212°F (100°C). A SET Event can also be caused by aggressively overpulling a gas collection and control system (GCCS) to address emissions and/or odors. This "doom loop" occurs when the operator attempts to correct one adverse condition by increasing the vacuum in the adjacent wells, which causes negative events (i.e., a spike in temperature or oxygen levels) in the surrounding gas wells, leading to further deterioration. This is precisely what CCL's industry expert recommended in his November 2024 EREF-sponsored presentation³. CalRecycle staff agree that the pressure in the landfill should be reduced, but not at the risk of initiating a new shallow SET Event by exceeding the oxygen threshold of 2 percent or requesting a temperature higher operating value.

To suggest that a SET Event cannot be related to a fire or smolder and can only be caused by a landfill accepting industrial waste that causes an unknown chemical reaction, as claimed by CCL, is not reasonable. A proper root cause analysis would show that the aforementioned scenario is the probable cause of the SET Event.

A root cause analysis for a SET Event must be based on the scientific investigation method. The study should employ a logical, step-by-step process that considers all possible mechanisms and utilizes measured parameters to eliminate mechanisms and determine the cause or causes of the SET Event. The analysis for a SET Event should follow pre-defined steps. The fact that Elevated Temperature Landfills (ETLFs) are limited to the United States (US), as confirmed by Dr. Morton A. Barlaz of North Carolina State University in his November 2024 EREF-sponsored presentation⁴, suggests that ETLFs are primarily due to landfill operating standards, conditions, and practices in the US. For example, in 1999, the Department of Energy estimated that approximately 2 billion pounds of aluminum dross and salt cake materials were landfilled annually in the US. Past SET Events at Countywide and Middle Point MSW Landfills are directly related to

³ Environmental Research & Education Foundation, A Deep Dive into Elevated Temperature Landfills, YouTube (Nov. 20, 2024), https://www.youtube.com/watch?v=sQQZBbtQ_w4.

⁴ Id.

the documented acceptance of 1.28 million tons of aluminum dross waste, which created an exothermic reaction that thermally broke down surrounding MSW. At the Countywide MSW Landfill, leachate recirculation provided enough liquid to cause an exothermic reaction of the placed aluminum dross waste.

Subsurface Elevated Temperature Event Monitoring

Temperature is the key metric in tracking a SET Event. Other metrics include LFG such as carbon monoxide (CO), hydrogen (H₂), methane (CH₄), volatile organic compound (VOC) levels in the landfill gas, settlement, cover fissures, leachate outbreaks, damage to the GCCS, emissions and odors, reduction in effective well screen lengths and higher liquid levels, positive gas pressure, and liquid geysers from gas wells⁵.

Landfill temperatures can be measured using various methods, including gas temperatures at wellheads, vertical profiles in gas wells, probes in the waste, liquid temperatures monitored with specific pumps, and surface temperatures measured with FLIR cameras.

Landfill gas methane content typically declines at 131°F (55 °C) because methanogenic activity decreases. At temperatures above 158°F (70°C), few methanogens will survive, and methane concentrations will drop below 15 percent.^{6 7} This upper threshold is crucial in maintaining compliance with Title 40 of the Federal Code of Regulations (40 CFR), as stated in multiple sections.⁸ The operator must not operate a GCCS that causes a fire or significantly inhibits anaerobic decomposition by killing methanogens. The operator must also maintain waste temperatures below the level that damages the GCCS and liners.

CalRecycle staff recommends that temperatures above 131°F (55°C) be considered the threshold at which a SET Event is considered to have started. We recognize that USEPA revised its regulation under the National Emissions Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 63.1958(c), effective September 27, 2021, which increased the operational standard temperature from 131°F (55°C) to 145°F (62.8°C). CalRecycle still recommends the more conservative temperature threshold of 131°F (55°C) to initiate a root cause analysis, restrict oxygen to less than two percent, and repair the cover to prevent a SET Event.

⁵ When Does a Municipal Solid Waste Landfill Become an Elevated Temperature Landfill (ETLF)? US EPA (Mar. 7, 2025), https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=CESER&dirEntryId=354569.

⁶ Krause et al., Understanding Landfill Gas Behavior at Elevated Temperature Landfills, 165 Waste Management 83-93 (2023).

⁷ Jafari, Progression of Elevated Temperatures in Municipal Solid Waste Landfills, (Mar. 23, 2017), https://cdn.prod.website-files.com/5977726d80d12837b9592f43/5c1751e2f58cb29ead2cffc9_Navid-Progression%20of%20Indicators-JGGE-2017.pdf.

⁸ 40 C.F.R. § 63.1958 (2025), 40 C.F.R. § 62.16716 (2025), 40 C.F.R. § 60.34f (2025), 40 C.F.R. § 60.763 (2025)

CalRecycle staff also recommends a maximum operating temperature threshold of 140°F (60°C) for systems with PVC and HDPE pipe due to the risk of failure. Additionally, CalRecycle staff considers a temperature of 140°F (60°C) to be the threshold that impacts the service life of liners.⁹ As discussed in "Service Life of HDPE Geomembranes Subjected to Elevated Temperatures," by Navid H. Jafari, PhD, Timothy D. Stark, Ph.D., P.E., and R. Kerry Rowe, Ph.D., P.Eng., a temperature of 140°F (60°C) decreases the service life to 15 to 20 years from 205 to 315 years at 86°F (30°C).

Reaction Area Boundary

As part of a South Coast Air Quality Management District (SCAQMD) Stipulated Order of Abatement regarding the reaction at the CCL (Case No. 6177-4), a Reaction Committee was formed to review applicable data, estimate the extent of the SET Event, and determine the reaction area. The CCL's Reaction Committee uses the following criteria to track the SET Event:

- *Landfill gas (LFG) wellhead temperatures more than approximately 160 degrees Fahrenheit.*
- *Poor gas quality (defined as methane levels of less than 30 percent) in conjunction with methane-to-carbon dioxide (CH₄:CO₂) ratios less than 1.0.*
- *The concentration of hydrogen (H₂) in the LFG measured greater than 2 percent by volume.*
- *Accelerated settlement of the landfill surface, defined as approximately 6 inches or greater within a 60-day period, and cracks in landfill cover.*
- *First-hand observations of landfill and/or SCS engineering, construction, and operations and maintenance (O&M) field personnel who are on-site related to:
1) atypical excess leachate quantities (presence and quantity of liquids);
2) instances of pressurized liquids emitting from the landfill surface, from boreholes during drilling, and from LFG wells; and
3) the characteristics of the odors originating from the select areas of the waste footprint (often described as "chemical-like" and distinctly different from typical LFG or landfill working face odors).*
- *Observations of subsurface waste conditions and characteristics as noted on borehole drilling logs for recently installed new wells and/or probes.*
- *Initial subsurface temperatures recorded at the in-situ waste temperature probes that were commissioned in April 2024.*

Unfortunately, the Reaction Committee has taken a conservative approach in determining the reaction area. The Committee relies on a complex set of evaluations,

⁹ Navid H Jafari et al., Service Life of HDPE Geomembranes Subjected to Elevated Temperatures, The Journal of Hazardous, Toxic and Radioactive Waste 1-3 (2014).

including wellhead temperatures, the presence of H₂, poor gas quality, odors, waste conditions from drilling logs, and some TMP data, to determine the reaction boundary.

Indications of a Smolder or SET Event

The Committee disregards the CO results, possibly because they assume this reaction is an unknown chemical reaction causing an ETLF event, rather than a smolder, SSO, or fire. Carbon monoxide concentrations have been used for over 40 years in the US and abroad as a measure to determine if a smoldering or SSO is extinguished. Carbon monoxide is also a sign of incomplete combustion, and the change of CO levels over time is a critical tool in determining the magnitude of the SET Event. This is also why USEPA requires CO measurements¹⁰ at a wellhead or any point in the well greater than 170°F (76.7°C). CalRecycle staff is aware that CCL is tracking CO and providing a scale for intensity in SCSe Tool, but we are unsure why the Committee is disregarding a key metric. **Figure 1** provides the most current CO levels at the CCL.

As far back as 1984, SCS Engineers¹¹ discussed how to identify a subsurface fire. While the authors stated identification and size determination can be difficult, a subsurface fire is typically indicated by:

- Unusual or rapid settlement.
- Venting of smoke.
- CO in the GCCS.
- Combustion residue in header lines.
- Elevated LFG temperatures.

And the location and areal extent of a subsurface fire can involve:

- Thermographic scans.
- Excavation or boring to allow visual examination of refuse.
- Installation of test wells to allow for monitoring.

All of these steps have been done by CCL; however, CO is not being evaluated by the Reaction Committee. The CCL also notes that they are not observing smoke venting, concluding elevated temperatures must not be a result of a fire. CalRecycle staff have excavated many subsurface fires without initially seeing smoke. At times, a smolder will appear as steam venting, and only when CO sampling, excavation, and/or a FLIR survey is performed will the operator confirm a smolder. Additionally, compacted waste outside the smolder can act as a filter for particulate matter, depending on its depth and location. The 1984 SCS Engineer's article¹² acknowledges this, stating, "*Depending on the location of the subsurface fire, smoke could be drawn through the LFG extraction system unnoticed.*" The absence of smoke does not confirm that a smolder is not present. CalRecycle staff is not implying that all SET Events are smolders; however,

¹⁰ 40 CFR 63.1981(h)(8)

¹¹ Robert Stearns & Galen Petoyan, Identifying and Controlling Landfill Fires, 2 Waste Management & Research 303-309 (1984).

¹² Id 11.

smolders start from SET Events. Some SET Events can be tracked by other parameters, such as oxygen levels above 5 percent and/or the presence of H₂, VOCs, or the occurrence of settlement and fissures. However, USEPA makes the distinction between smolders and SET Events, and that the owner or operator may establish a higher operating temperature, provided that it neither causes fires nor significantly inhibits anaerobic decomposition by killing methanogens. The demonstration must satisfy both criteria to be approved. Temperature above 160°F (71°C)¹³ significantly inhibits the production of methane.

Temperature

To simplify the discussion between the LEA and CCL, CalRecycle will use CCL's Reaction Committee value of 160°F (71°C) as the temperature at which the SET Event is expanding and inhibiting methanogenic bacteria from producing methane. Temperatures greater than 160°F (71°C) will signify an increase in reaction intensity. Since the CCL has elected not to install a barrier, the previous installation criteria will not be used. Instead, a temperature of 160°F (71°C) will be the criterion to confirm that a SET Event has expanded.

To monitor the SET Event, CCL constructed 20 TMPs in the waste, which were operational in late April of 2024. Only two TMPs (TP-3 and TP-9) could be completed within the known reaction area. Other TMPs were scheduled to be placed in the Reaction Area, but due to unsafe conditions with pressurized leachate and thirteen geysering gas wells, CCL elected to wait. In January 2025, CCL added eight additional TMPs to act as sentinels adjacent to the Reaction Area. The TMP network collects data in real-time and reports daily.

The most accurate temperature measurement in a landfill is the in situ temperature, measured at various depths using TMPs. As discussed previously in CalRecycle's letter dated October 16, 2023, the enhanced monitoring of downwell temperatures at CCL, documented the 2023 First Semi-Annual NSPS and NESHAP Report showed two gas wells (CV-2201 and CV-1902S) with significant temperature differences in the shallow zone (i.e., less than 50 feet below ground) of waste. On June 27, 2023, CV-2201 had a wellhead temperature of 135°F (57°C). Twenty feet down from the well casing, the temperature was measured to be 36°F (20°C) higher at 171°F (77°C). On June 28, 2023, CV-1902S had a wellhead temperature of 141°F (60°C), and forty feet below, a downhole temperature of 188°F (87°C) indicated a difference of 47°F (27°C). While some of the downwell temperatures from the 2024 Semi-Annual Report enhanced monitoring requirements¹⁴ showed temperatures within 10°F (5.5°C) of the wellhead temperature, several downhole logs showed temperature differences ranging from 40 to 120°F (23.8 to 37.7°C). Operators should not rely on wellhead temperatures in an area where the SET Event is expanding or where oxygen levels exceed 2 percent by volume. The operator should consider other indicators, such as downhole temperatures, TMPs, LFG data, or results for CO, H₂, and VOCs, to verify the movement of the SET Event.

¹³ Id 5,6.

¹⁴ Id 9.

Using wellhead temperatures to determine SET Event boundaries is questionable. Past SET Events have documented temperature differentials between the wellhead temperature and downhole temperatures exceeding 100°F (37.7°C), and at the CCL, the differential was even higher at 120°F (48.8°C). Once the LFG temperatures stabilize, the operator can use the wellhead data to visually display the progression graphically. **Table 1** provides a summary of selected enhanced monitoring downwell temperatures from the 2023 and 2024 Semi-Annual Reports.

Table 1. Selected Wellhead and Downwell Temperature Differential at Chiquita Canyon Landfill (Source: Semi-Annual Reports 2023 to 2024)

Well ID	Date	Wellhead Temp (°F)	Downwell Temp (°F)	Downhole Depth (ft)	Temp (°F) Differential
CV-2201	6/27/23	135	171	20	36
CV-1902S	6/28/23	141	188	40	47
CV-1532A	12/5/23	148	194	34	45
CV-2310	11/16/23	184	226	125	42
CV-24034	1/6/24	166	196	11	30
CV-2001	1/17/24	60	165	37	105
CV-24139	1/31/24	74	180/194	15/25	106/120
CV-24140	1/31/24	99	175	12	76
CV-2352	8/26/24	104	166/200	15/25	62/96
CV-24017	8/29/24	140	165	3	25
CV-2341	11/10/24	140	165/170	3/33	25/30
CV-24139	11/17/24	127	190	13	63
CV-2339	12/26/24	168	195	12	27

The TMPs provide a more accurate account of temperature than wellhead monitoring for two distinct reasons. First, TMPs provide more accurate and in-depth waste mass temperatures compared to wellhead temperatures. Second, TMPs provide real-time data, unlike collecting LFG data, which is typically done only one or twice a month.

As an example of how wellhead temperatures can mask what is occurring in the waste, as shown in **Figure 2**, TMP-14 reported a temperature of 80°F (26.7 °C) on April 24, 2024, at the fifteen-foot probe. By March 19, 2025, the temperature at the 15-foot probe had increased to 133°F (56°C). This shallow temperature spike was not observed in gas well CV-1906, approximately 10 to 15 feet away, where the wellhead temperature was reported to be 68°F (20°C) on April 1, 2024, and 60°F (15.5°C) on March 19, 2025. There were also significant temperature swings in the wellhead temperature data for gas well CV-1906, where the temperature rose from 95°F (35°C) to 121°F (49°C) and then dropped to 73°F (22.7°C) within a month. However, all the wellhead temperatures are below the regulatory threshold and do not require further analysis. Data from TMP-14 indicated that on March 19, 2025, the temperature reached 133°F (56°C) and exceeded the 131°F (55 °C) threshold. CV-1906 is also experiencing a significant oxygen overdraw at this location. The percent oxygen has varied from 10.9 percent on March 4, 2024, to 18.7 percent on March 6, 2025. The average oxygen for the past year at this well is 8.4 percent. Continued high oxygen levels above 2 percent and temperature spikes will lead to a SET Event. This TMP and gas well are approximately 450 feet away from the CCL-defined reaction boundary and CalRecycle staff do not believe the shallow temperature increases are connected to the main reaction area. CalRecycle believes that the temperatures of 166 to 168°F (74.4 to 75.5°C) at the deeper probe (i.e., 125 to 150 ft) are connected. However, this data demonstrates that the operation of the GCCS must not sacrifice LFG operational objectives/standard operating procedures (i.e., limiting oxygen to 2 percent¹⁵) to control emissions and risk developing of new SET Events. **Table 2** and **Table 3** provide the LFG data and temperatures for gas well CV-1906 and TMP-14.

The Reaction Committee has disregarded a significant number of in situ TMP readings and does not consider shallow temperature spikes as indicative of SET Events or smolders. Again, in the SCS Engineers 1984 journal, they describe a gas temperature of 45°F (25°C) above baseline gas temperatures just before verification of a subsurface fire.

The Reaction Committee stated in November 2024, that the temperatures recorded by the 13 probes (TP-4, TP-6, TP-7, TP-8, TP-10, TP-11, TP-13, TP -14, TP-15, TP-17, TP-19, TP-20) outside the boundary during October 2024, are not indicative of a subsurface reaction and do not substantiate a decision to expand the boundary of the reaction area at this time. However, in January 2025, the CCL made an adjustment to the Reaction Area boundary that included TMP-15. **Figure 3** provides a map of the TMP's network as of December 2024, while **Figure 4** shows the most recent TMP network, which includes the seven installed TMPs (TP-25, TP-26, TP-29, TP-30, TP-31, TP-32) and the new Reaction Area boundary encompassing TP-15.

Of the primary twenty TMPs (TP-1 to TP-20), four TMPs (TP-8, TP-10, TP-11, TP-15) have shown or are exhibiting shallow temperature spikes above 160°F (71°C) at the shallow depths between 15 and 45 ft. Six other TMPs (TP-6, TP-13, TP-14, TP-17, TP-

¹⁵ Todd Thalhamer, Expert Opinion of the Bridgeton Sanitary Landfill Incident, Bridgeton, Missouri, MO.gov (Sept. 1, 2025), <https://dnrservices.mo.gov/bridgeton/docs/agobridgeeval92015.pdf>.

19, TP-20) have temperatures that have been or are currently trending upwards since installation. The remaining ten are holding their current temperatures and have not cooled. Two TMPs (TP-6 and TP-8) have seen both increases and decreases. TP-6 reported a significant temperature decrease in the deeper probes at depths of 80, 100, and 120 ft; however, it also observed substantial temperature increases in the shallow probes at depths of 15, 30, 45, and 60 ft. TP-8 recorded substantial temperature increases on January 10, 2025, once TP-8 came back online. The CCL elected to take TP-8 offline in early October 2024, for a waste filling process. Temperature differentials of 30 to 90°F were observed in all TMPs. Two probes in TP-8 recorded temperatures of 230 to 232°F (110 to 111°C). Since January 2025, all temperatures have dropped, but not to the original temperatures measured in May 2024. As of April 2024, the two TMPs (TP-3 and TP-9) in the original waste area have maintained their maximum temperatures at 222°F (105.5°C) and 233°F (111.6°C), respectively. Attachment B provides graphs of the ten TMPs that have demonstrated or are currently experiencing temperature increases.

A review of the new temperature data from TMPs (TP-25, TP-26, TP-27, TP-29, TP-30, TP-31, TP-29, and TP-34) determined that all the temperatures in the new TMPs exceed the regulatory threshold of 145°F (62.8°C). Five TMPs (TP-26, TP-29, TP-30, TP-31, TP-32) have temperatures above 160°F (71.1°C), with the highest being TP-31 (with a temperature of 185°F (85°C) at a depth of 190 ft), located over 600 ft from the CCL-defined reaction boundary. It is also important to note that in January 2025, the CCL changed the probe depths of the new TMPs without notifying the LEA. The CCL elected to install the probes at 25, 40, and 50 ft instead of the approved design of 15, 30, and 45 ft. This change in probe depth will decrease the ability to track shallow SET Events. It is recommended that any future TMP be constructed in accordance with the approved plan. **Figure 5** provides the current maximum vertical temperature map for the TMPs at the CCL.

Table 2. LFG Data for Gas Well CV-1906 from March 2023 to March 2025. (Source: Chiquita Canyon Landfill Raw Gas Data)

Point Name	Record Date	CH4 [%]	CO2 [%]	O2 [%]	Bal Gas [%]	CH4:CO2	Init Temp [°F]
CV-1906	3/4/24	25.2	23.7	10.9	40.2	1.1	68.2
CV-1906	4/1/24	30.9	30.1	9.2	29.8	1.0	68.2
CV-1906	5/17/24	51.0	44.2	0.5	4.3	1.2	82.8
CV-1906	6/10/24	44.3	49.7	0.4	5.6	0.9	91.6
CV-1906	7/3/24	43.6	39.5	3.4	13.5	1.1	109.3
CV-1906	8/1/24	20.8	33.3	9.6	36.3	0.6	104.0
CV-1906	8/19/24	8.2	13.0	15.6	63.2	0.6	95.2
CV-1906	9/4/24	16.5	18.3	12.7	52.5	0.9	106.7
CV-1906	9/28/24	13.8	17.5	13.9	54.8	0.8	93.9
CV-1906	10/2/24	28.4	33.7	1.8	36.1	0.8	121.9
CV-1906	10/16/24	30.6	36.7	0.9	31.8	0.8	73.0
CV-1906	11/1/24	27.1	37.1	0.0	35.8	0.7	79.5
CV-1906	11/17/24	22.4	24.1	7.1	46.5	0.9	79.6
CV-1906	12/6/24	4.4	19.4	16.7	59.5	0.2	79.1
CV-1906	12/18/24	28.1	36.4	2.4	33.1	0.8	80.8
CV-1906	1/4/25	4.4	11.5	16.6	67.5	0.4	66.7
CV-1906	1/12/25	40.8	58.9	0.0	0.3	0.7	107.4
CV-1906	1/17/25	4.3	7.3	15.3	73.1	0.6	68.4
CV-1906	2/3/25	4.7	8.7	15.8	70.8	0.5	71.1
CV-1906	2/20/25	38.2	30.9	5.3	25.6	1.2	73.5
CV-1906	3/6/25	4.1	16.0	18.7	61.2	0.3	60.9

Table 3. TMP Monitoring Data for TP-14 at Chiquita Canyon Landfill. (Source: SCS Engineers TMP Data)

TMP Tracking	TP-14						
	Probe Depth (ft)						
Date	15 ft	30 ft	45 ft	75 ft	100 ft	125 ft	150 ft
Apr 24, 2024*	80	107	123	137	150	160	165
Aug 5, 2024	89	107	123	139	153	164	165
Sep 5, 2024	93	106	123	140	153	165	166
Sep 25, 2024	102	104	122	138	153	164	166
Oct 1, 2024	109	105	123	139	153	164	165
Nov 1, 2024	100	105	123	139	153	164	165
Dec 4, 2024	120	133	123	139	154	164	166
Jan 13, 2025	114	114	123	139	154	164	166
Feb 8, 2025	129	114	123	139	154	164	166
Mar 5, 2025	119	112	123	139	154	164	166
Mar 12, 2025	130	116	123	140	154	164	167
Mar 19, 2025	133	118	123	142	155	166	168
*Data estimated from SCS Engineers Temperature Profiles, raw data not submitted by CCL							

It is also the opinion of CalRecycle staff that the CCL has caused other SET Events to occur in the shallow zone by overdrawing the GCCS. These shallow SET Events with temperatures above 160°F (71°C) were observed in the TMP network. Further gas wellhead data and downwell temperature surveys should be done to determine the magnitude of the problem.

CCL and the Reaction Committee have stated that the shallow temperature spikes are not significant in relation to the CCL-defined reaction area. CalRecycle staff have consistently cautioned CCL that overdrawing the GCCS will lead to independent and separate SET Events. The CCL and its consultant state this has not happened in the waste industry, nor has any case study been documented. However, this is not the case. In 2024, the waste industry published part of a case summary of a landfill that most likely had a combination of multiple SET Events. A review of the entire LFG data for oxygen exceedance is sufficient to confirm the overdraw of the GCCS was related to the smolder. On March 14, 2024, a consultant for Middle Point Landfill in Tennessee submitted a minor permit modification to place new MSW waste above an area where aluminum dross waste reacted for Middle Point Landfill. Although the permit request was later withdrawn, the report offered several valuable insights into SET Events. The Middle Point Landfill consultant documented that the facility had two distinct and separate SET Events. One was from the reaction of aluminum dross and the other was a smolder. Both SET Events produce temperatures that kill methanogenic bacteria, as well as high CO and H₂ readings. A summary of some of the insights from both reactions from the report is provided below:

- The heat generated by the reaction is efficiently retained in the waste, leading to elevated temperatures. The elevated temperatures can continue to rise to levels that kill methanogenic bacteria found in landfills and may continue to rise, resulting in pyrolysis of organics in the waste.
- Pyrolysis contributes to rapid settlement observed at elevated temperature landfills by consuming organic waste much quicker than typical anaerobic degradation.
- Pyrolysis is an exothermic process and may begin as low as 212°F.
- Evaporation of the liquid from the organics requires a lot of energy to change from liquid to vapor. This may limit the propagation of the pyrolysis in the waste mass.
- The aluminum dross waste (APW) produced ammonia and hydrogen gas, as well as water, and caused pyrolytic reactions in the waste, resulting in the creation of carbon monoxide and other VOCs.
- Significant hydrogen production may occur in elevated temperature landfills without APW, such as Bridgeton Landfill in Missouri. The April 2016 Bridgeton Landfill Monthly Data submission revealed hydrogen concentrations in wells as high as 42 percent, elevated carbon monoxide levels, and decreased methane production.
- Carbon monoxide is typically a byproduct of incomplete combustion and may indicate a subsurface oxidation (SSO) event where MSW is smoldering beneath the landfill surface.
- Carbon monoxide may also be produced through reactions that generate hydrogen.
- The area near well series has been of interest for a number of years. At one time, this area was under close observation following a large, shallow subsurface oxidation (SSO) event that may have been related to the acceptance of APW; however, it was never determined that this event was a direct result of the exothermic reactions occurring in the subsurface.
- The SSO that occurred in this area was treated as a different event compared to the deeper reaction(s) occurring within the subsurface of the AWR.
- This SSO event was observed as an effort to mitigate the oxygen intrusion.

Other Data

There are several ways to increase the degree of certainty in determining the magnitude of a SET Event. Without all the available data, the operator or regulator must evaluate primary indicators such as temperature, LFG gas data, CO, H₂, and physical signs of a SET Event. If other reports or data are available, the operator should analyze this data and compare it to the primary tool. Other data would include FLIR imagery with reference temperature scale, settlement, leachate and gas chemical characteristics, fissures, slope stability reports, additional temperatures from liquid pumps in wells, 2D and 3D temperature modeling, isopatch modeling, odors and emissions, leachate outbreaks and generation, and individual LFG gas plots. The CCL is using the isopatch software to track the settlement every quarter, as shown in **Figure 6**. They also track

the settlement bi-monthly in the Cover Inspection Reports. The maps show the settlement area growth of more than 5 feet. **Figure 7** shows the most current settlement map.

The CCL Settlement and Fissure Reports also align with the TMP temperature spikes data in grids. CCL's consultant, Geo-Logic Associates, provided a summary map of the recently occurring fissures in February 2025 (see **Figure 8**). Significant fissures and areas where the soil collapsed were documented in Grids 146, 147, 148, and 154. CalRecycle also reviewed FLIR data from October 2024; however, CCL has refused to provide the temperature layer on each photo. All data should be available.

CalRecycle staff received the requested raw gas monitoring data (i.e., methane, carbon dioxide, oxygen, balance gas, pressure, flow, temperature, and field notes) for the years 2024 and 2025 on March 26, 2024, and additional comparison of well-to-well data over time for methane and temperatures or individual SET Events cannot be provided at this time. However, another way to evaluate whether the landfill is operating and maintaining air pollution control equipment and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions is to analyze the Semi-Annual and NESHAP Reports required by the EPA. As shown in Table 4, from the second semi-annual period of 2023 to 2024, the number of reported well readings for oxygen levels above 5 percent, temperatures exceeding 131°F (55°C), and positive pressure increased significantly. The percent change from 2023 to 2024 for wells with oxygen above 5 percent increased by 55 percent, wells with high temperatures increased by 41 percent, and wells with positive pressure rose by 33 percent. This metric indicates that the SET Event is intensifying in magnitude from July 2023 to December 2024, rather than decreasing.

Table 4. Summary of NSPS Reporting Requirement for Chiquita Canyon Landfill

NSPS Reports	Wells Above 5% Oxygen	Wells Above 131/145°F	Wells Under Positive Pressure
2023 Second Semi-Annual	>100	>115	>220
2024 First Semi-Annual	>110	>95	>280
2024 Second Semi-Annual	>225	>195	>330

Soil Reaction Break/Barrier Plan

On November 26, 2024, CCL submitted the third Soil Reaction Break/Barrier Plan. This revision has no proposed barrier and relies on the removal of gas and leachate as a control and containment strategy. The CCL has reported that over 77 million gallons of leachate were removed from January 2024 to February 2025. CCL has not provided any technical thermodynamic analysis demonstrating that removing the leachate or gas has contained the reaction. Only two TMPs have shown any significant decreases greater than 20°F (11°C) and both of those TMPs experienced significant temperature increases within the past six months. There are multiple areas on the landfill where the distance between the gas extraction wells exceeds 150 feet. Specifically, CalRecycle staff estimate that the boundary of the reaction area, where Geo-Logic has documented multiple fissures and cracks, is located to the east of and around Tank Farm #9 and TMP-17. The new reaction boundary has significant distances without extraction wells, extending from CV-2327 to CV-2322, CV-2464, CV-2454, CV-2449, CV-2442, and CV-144, as well as from CV-2305 to CV-2316.

CalRecycle staff is not aware of any published studies indicating that the removal of gas and liquid has contained a reaction similar to CCL. The removal of gas and leachate is critical, given the pressure and generation rate; however, as far as containing a SET Event, CalRecycle does not recognize this as a containment strategy.

Lastly, CalRecycle had requested CCL evaluate if there was any potential internal barrier, such as a haul road, cell separation, fire break, or other feature, that would prevent the SET Event from impacting the entire 190 acres of the main landfill. Based on CCL analysis, there is no internal barrier that could prevent the reaction from spreading to the entire facility.

Review Documents

While CalRecycle has not performed a complete review of the unedited 2024 and 2025 LFG data the CCL has just submitted, the evaluation of the Barrier Plan and reaction boundary is based on the following information and reports:

- Three versions of the Soil Reaction Break/Barrier Plan.
- Vertical Injection Barrier Plans.
- East fill proposals and correspondence.
- Two site visits, one on November 2, 2023, and the other on May 23, 2024.
- Hydrogen, carbon monoxide, VOCs reports and data.
- ERMAC meetings with CCL.
- Technical Memorandum from Dr. Stark, dated February 26, 2025, "Comments on the November 26, 2024 Revised Soil Reaction Break/Barrier Plan and February 20, 2025 Waste Temperature Data for the

Chiquita Canyon Landfill Subsurface Elevated Temperature (SET) Event.”

- Eight years of Chiquita Canyon Landfill Semi-Annual New Source. Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) Reports.
- Five years of Annual Rule 1150.1 Compliance Plan reports, Chiquita Canyon Landfill.
- Four years of Surface Emission Monitoring reports, Chiquita Canyon.
- Raw LFG data from 2022 to 2025.
- Landfill gas migration reports.
- Downwell temperature monitoring reports
- Lorenz pump temperature reports.
- Weekly TMP reports.
- Weekly Fissure and Settlement reports.
- Slope stability reports.
- Settlement reports
- Leachate metric reports.
- Elevated Temperature Landfill Causation Investigation report.
- SCAQMD orders.
- Reaction Committee reports.
- Odor reports.
- LFG designs and maps.
- FLIR Imagery.
- LEA orders, correspondence, temperature and settlement reviews, and general technical review.
- Other letters, correspondence, LFG laboratory reports, and other data files.
- Experience with other SET Events and smolder in the US and abroad.
- The letter from Dr. Stark, which provides additional details on the cover specifications, is included in Attachment C.

Evaluation

Based on the information above, the CCL has experienced the following conditions:

- Significant emissions and odors that have impacted the community of Val Verde and surrounding areas from 2023 to 2025. According to the SCAQMD, the CCL has received a total of 1,493 complaints and 16 Notices of Violations in 2025.
- The interim cover has experienced significant damage from settlement, leachate outbreaks, slope instability, and fissures.
- Leachate is currently being extracted at a rate of 228,624 gallons per day.
- The facility has had several leachate outbreaks and releases.
- The facility is treating a portion of the leachate for hazardous levels of benzene.

- 13 gas wells have observed geysering of leachate.
- Wellhead and downwell temperature differentials have been severe. Two wells have observed differentials over 100°F, and six had readings over 40°F.
- Temperatures have reached the maximum detectable limit of 250°F in the Lorenz Pumps for gas wells CV-2301, CV-2303, and CV-24017.
- Temperatures in TP-3 and TP-9 have remained constant (+/- 5°F) at 222°F and 233°F respectively.
- Temperatures in four TPs (TP-8, TP-10, TP-11, TP-15) have shown or are exhibiting shallow temperature spikes above 160°F in the shallow probes.
- TMP-14 is demonstrating a shallow SET Event.
- Temperatures in six TMPs (TP-6, TP-13, TP-14, TP-17, TP-19, TP-20) have been or are currently trending upwards since installation in April 2024.
- Five new TMPs (TP-26, TP-29, TP-30, TP-31, TP-32) temperatures are above 160°F, with the highest being TP-31 with 185°F at 190ft below the surface. TP-31 is located over 600 ft away from the CCL-defined reaction boundary.
- Nine wellhead temperature have exceeded 200°F and 83 have exceeded 170°F since 2023.
- Multiple LFG wells have been replaced due to integrity issues resulting from temperatures exceeding 140°F.
- Two slope instability incidents have occurred on the west slope.
- The facility is experiencing a decrease in methane production in the reaction area and along the boundary, with many gas wells now operating at less than 15 percent.
- The facility is observing CO above 1,500 ppmv, H₂ above 2 percent, and elevated VOC levels in the reaction and boundary areas.
- NSPS reporting data has increased significantly from July 2023 to December 2024. Wells with oxygen levels above 5 percent increased by 55 percent, temperatures exceeding 131°F increased by 41 percent, and positive pressure at the wellhead rose by 33 percent.
- Accelerated settlement continues to be documented by the CCL in the weekly reports and isopatch survey.
- Temperatures exceeding 140°F have affected the service life of a portion of the liner. Further data is required to perform a more comprehensive study.

Based on the documented conditions summarized above, CalRecycle staff conclude the following:

- The submitted barrier plan will not contain or control the reaction. There is no proposed barrier to prevent the reaction from consuming the entire facility.
- The reaction area is expanding, and the current containment strategy has

failed. Install 40 to 60-mil thick tan or green HDPE-EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile over the approximately 100 acres outside the current geomembrane cover. Weld it to the existing 30-mil thick white HDPE geomembrane or place it in a suitable anchor trench. Submit a construction and quality assurance/quality control (QA/QC) plan for the installation.

- The independent SET Events are developing due to the current GCCS operations.
- While the removal of leachate and pressurized gas is critical, this is not a satisfactory containment method.
- Leachate Tank Farm nine must be relocated off the top deck to an area not impacted by the SET Event now or in the future.
- The expansion of the SET Event into Cell 8A must be prevented by connecting the previously constructed soil barrier to the west and eastern edges of Cell 8A. This soil barrier should provide a thermal block and remove any waste connection from Cells 6 to 8A. It is critical to prevent this expansion to 8A for two primary reasons. If a soil buttress must be constructed to stabilize the slope from the SET Event, this is the only area large enough to build a buttress. We must also allow the landfill to maintain a disposal area for self-generating waste in cell 8A.
- Install five new TMPs, as shown in Attachment A.

If you have any comments or questions, please contact Todd Thalhamer at (916) 341-6356 or email Todd.Thalhamer@Calrecycle.ca.gov.

Sincerely,



Todd Thalhamer, P.E.
Senior Waste Management Engineer
Engineering Support Branch

Attachments

A - Proposed Location of New TMPs for Chiquita Canyon Landfill

B - TMP Data from April 2024 to March 2025

C - Dr. Stark Memo February 26, 2025, Comments on November 26, 2024 Revised Soil Reaction Break/Barrier Plan

Cc Via Email:

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March 28, 2025
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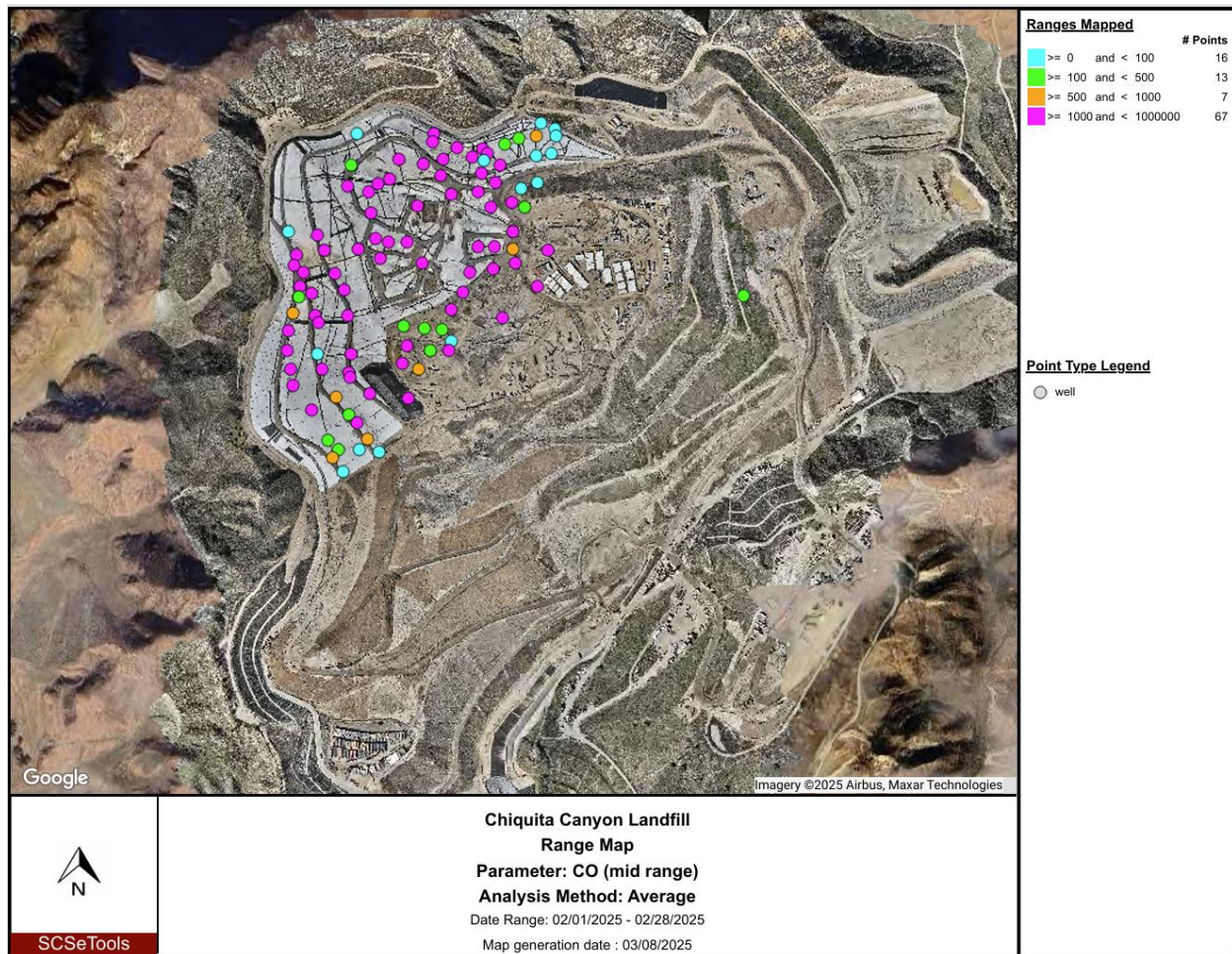


Figure 1. Chiquita Canyon Landfill CO Range Map, March 8, 2025. (Source: SCSe Tools)

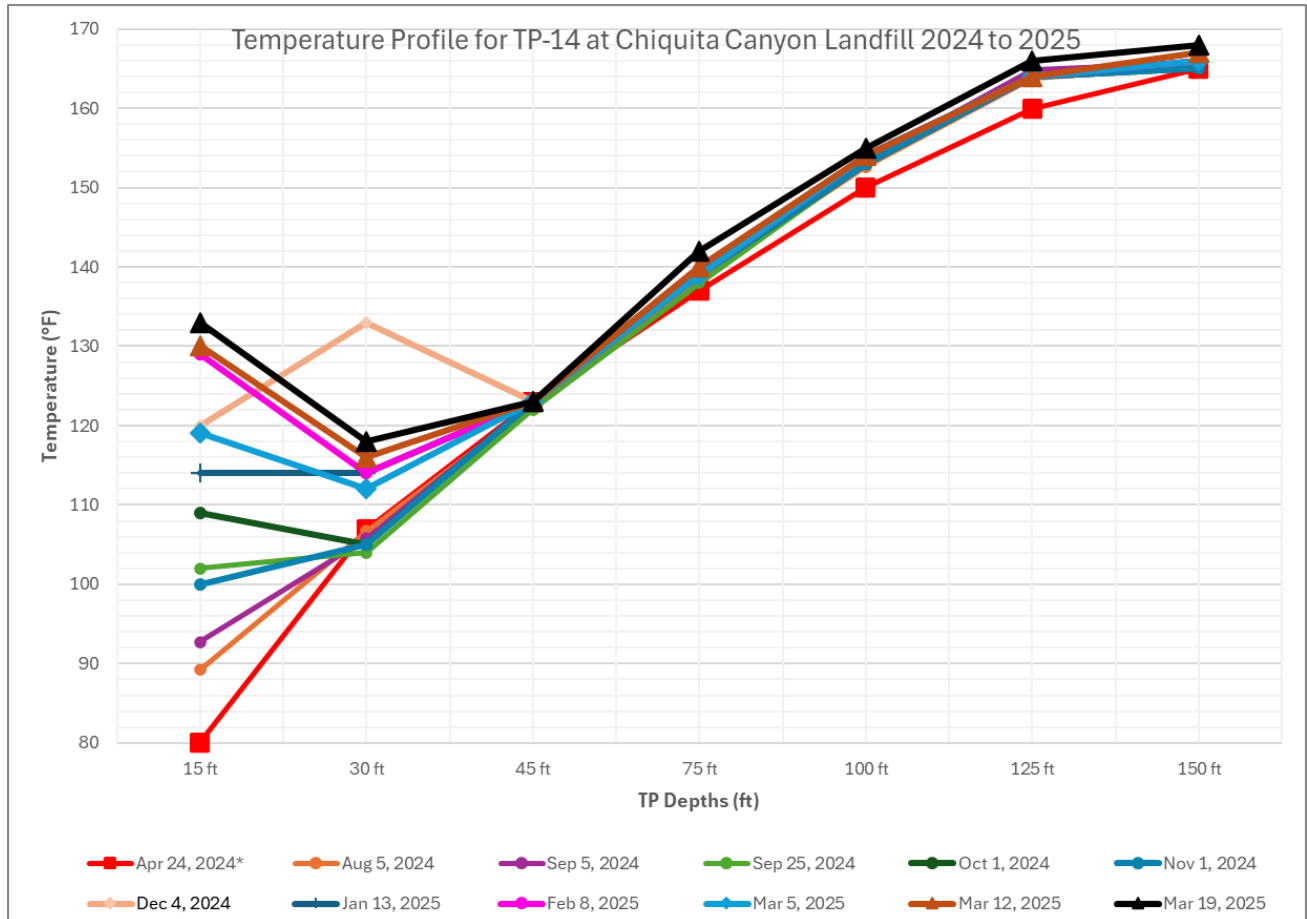


Figure 2. TMP-14 Temperature Profile Demonstrating a Shallow SET Event Developing at Chiquita Canyon, April 24, 2024, to March 19, 2025. (Source: SCS Engineers TMP Data)

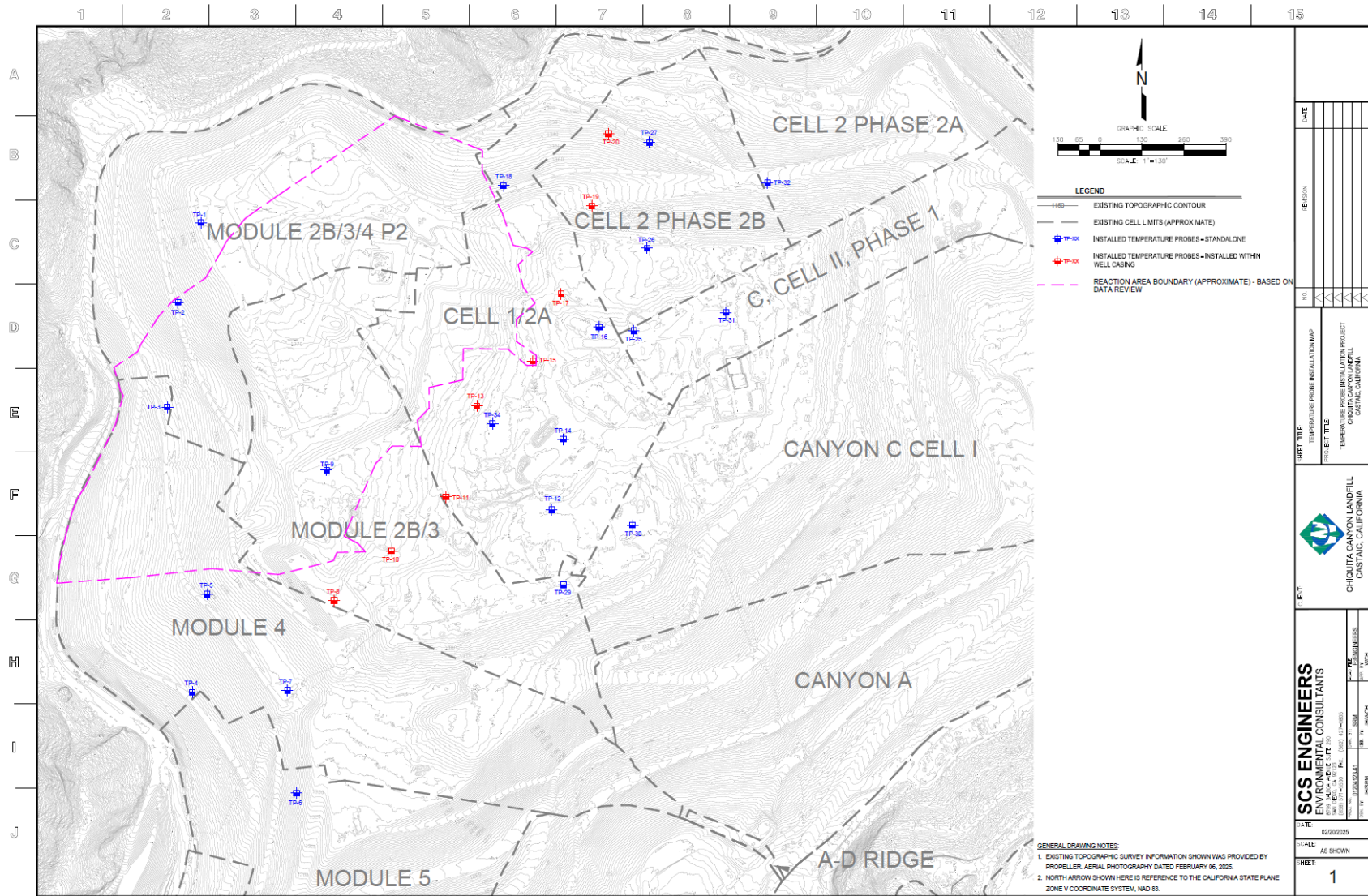


Figure 4. Revised TMP Installation Map Chiquita Canyon for 2025. (Source: SCS Engineers TMP Data March 2025)

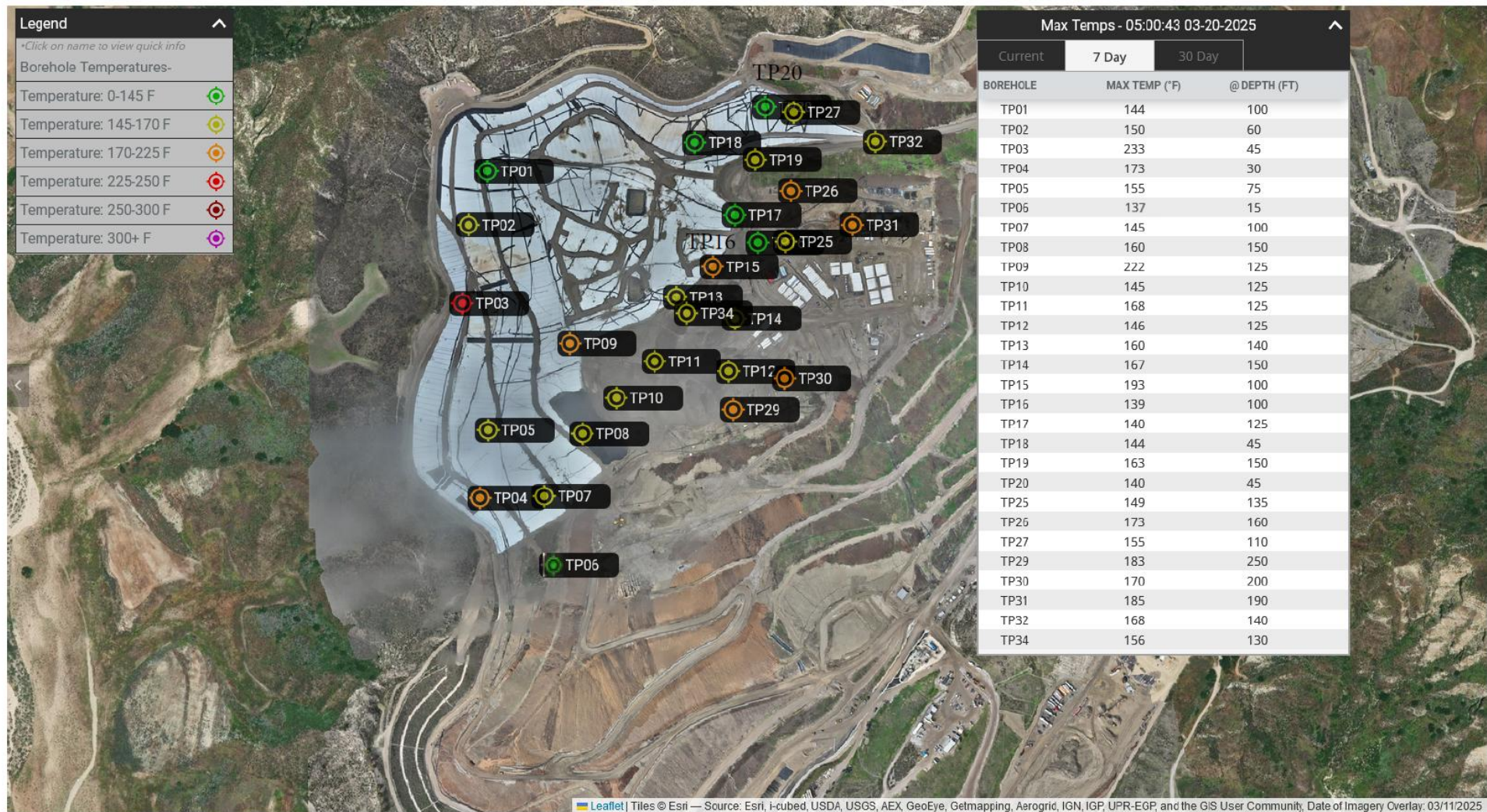


Figure 5. Maximum Vertical Temperature Map for TMPs for Chiquita Canyon for 2025. (Source: SCS Engineers TMP Data March 2025)

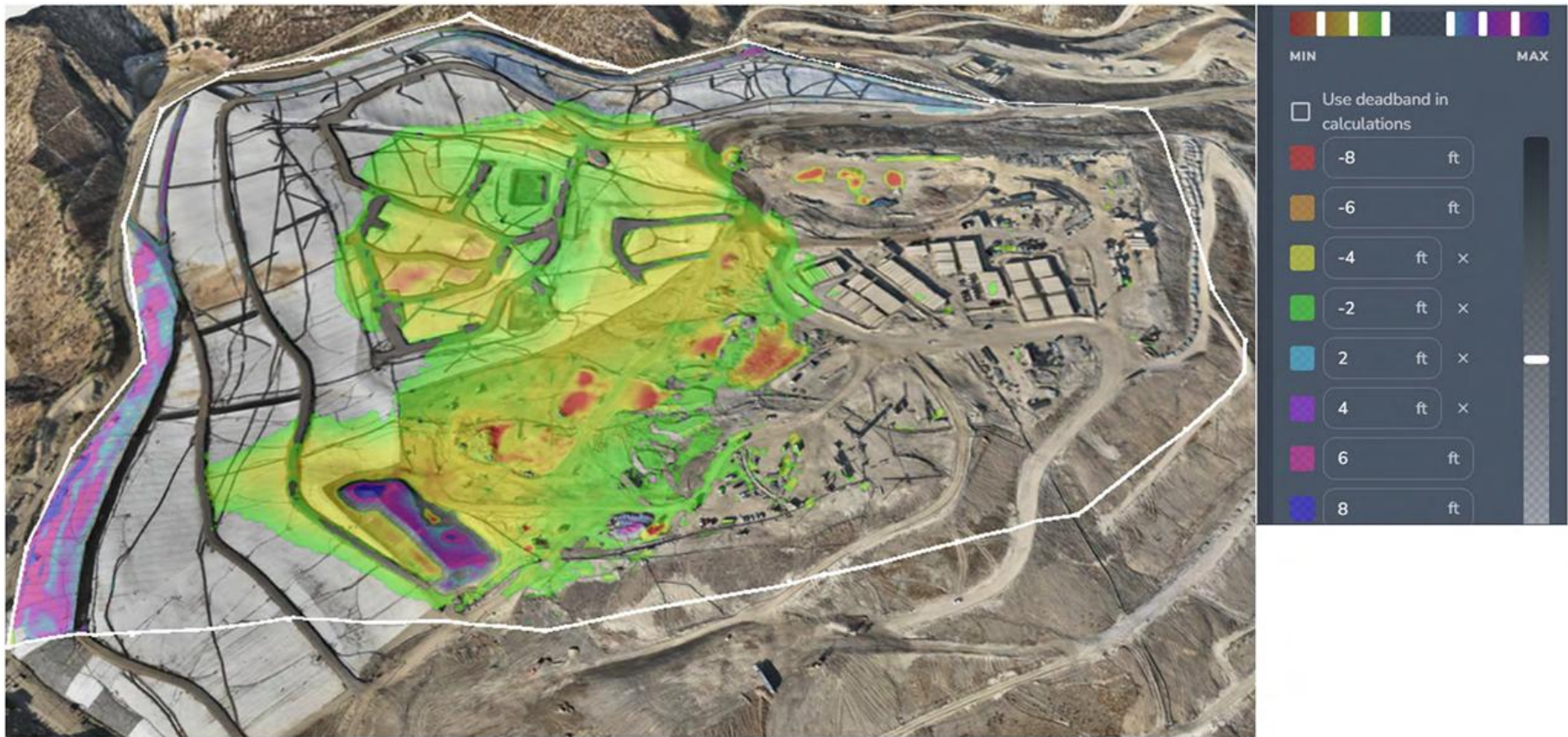


Figure 6. CCL Isopatch Settlement Map, January 3, 2025 Survey Image. October 2, 2024 vs January 3, 2025. (Source: CCL February 2025)



Figure 7. CCL settlement map showing the settlement area growth between 2/26/25 (in green) and 3/11/25 (in red). These polygons show the areas that have settled more than 5 feet. (Source: Bi-weekly Cover Reports by CCL).

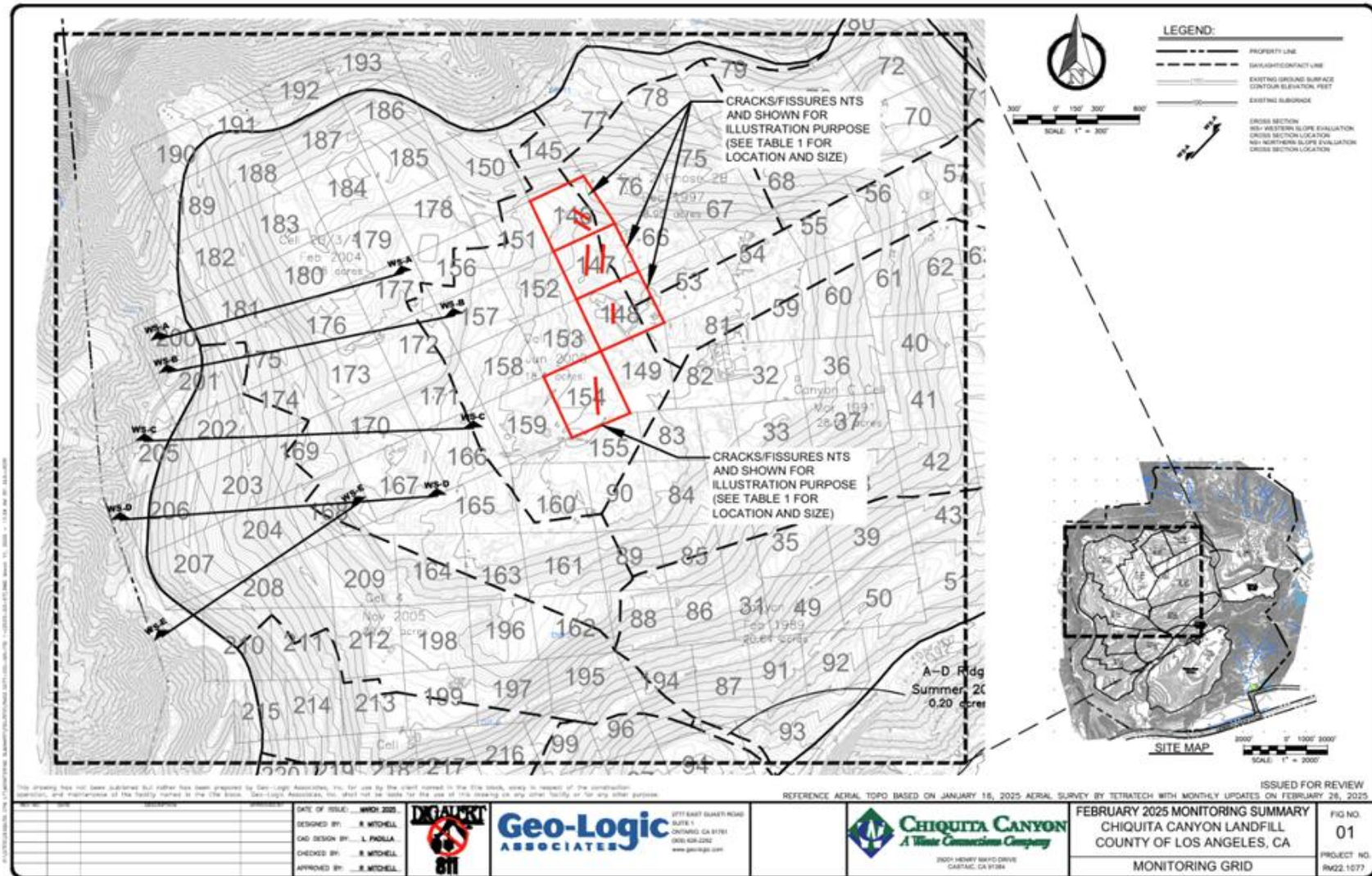
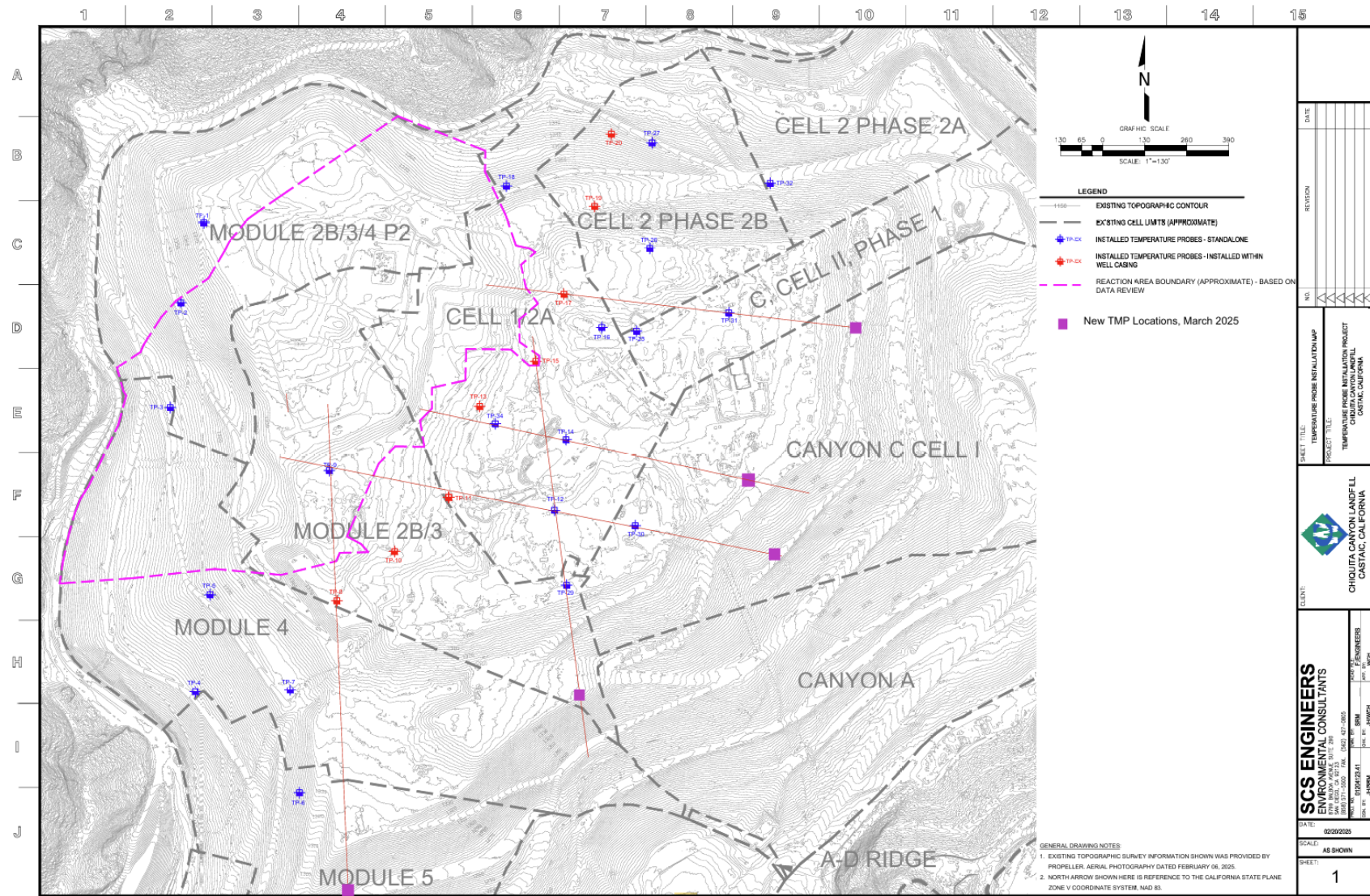


Figure 8. Fissure and Crack Monitoring Report for February 2025. (Source: Geo-Logic Associates)

Attachment A

Proposed Location of New TMPs for Chiquita Canyon Landfill

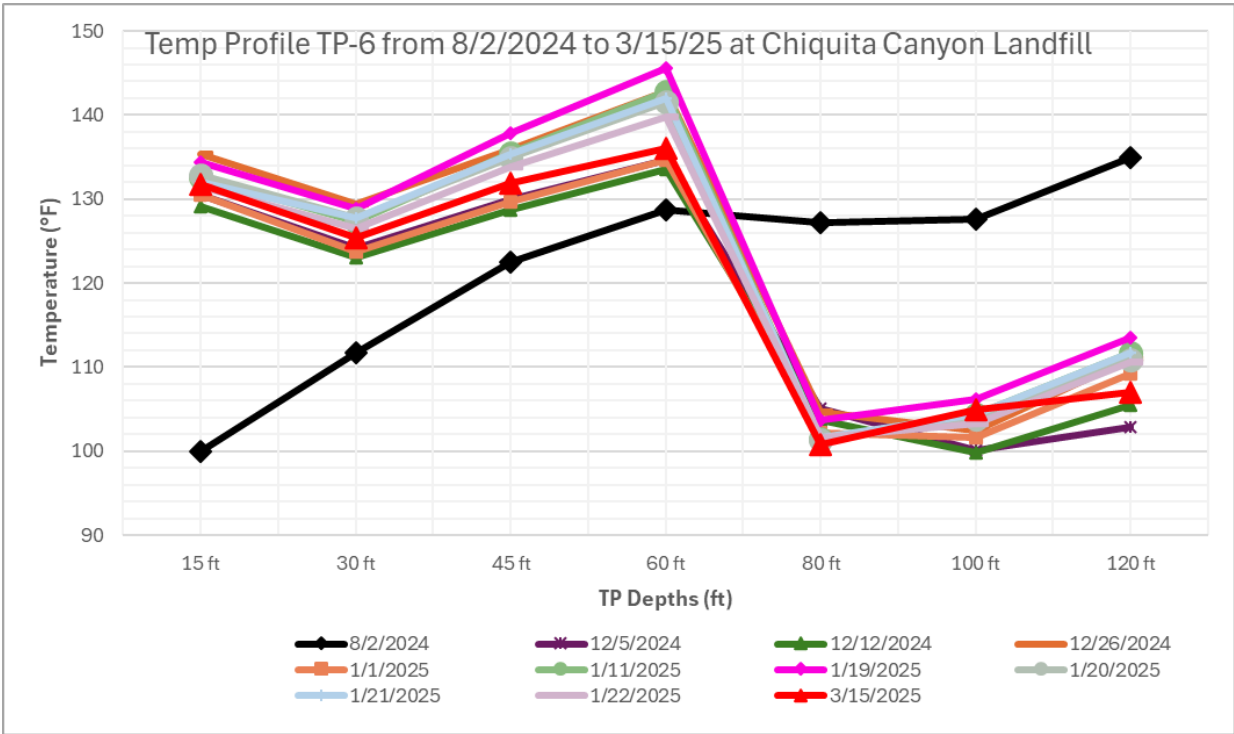
New TMPs for Chiquita Canyon Landfill, March 2025



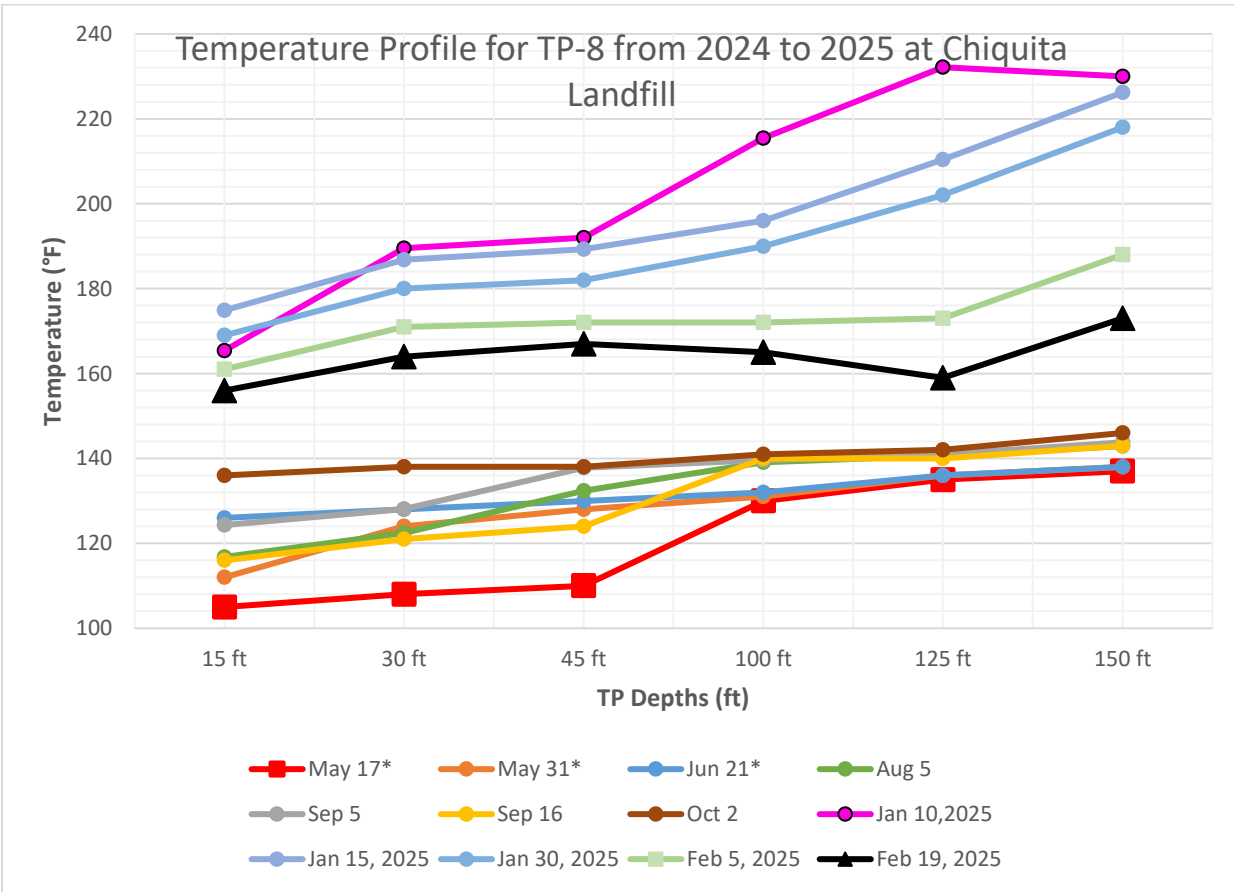
Attachment B

Chiquita Canyon Landfill TMP Profiles with Significant Changes
April 2024 to March 2025

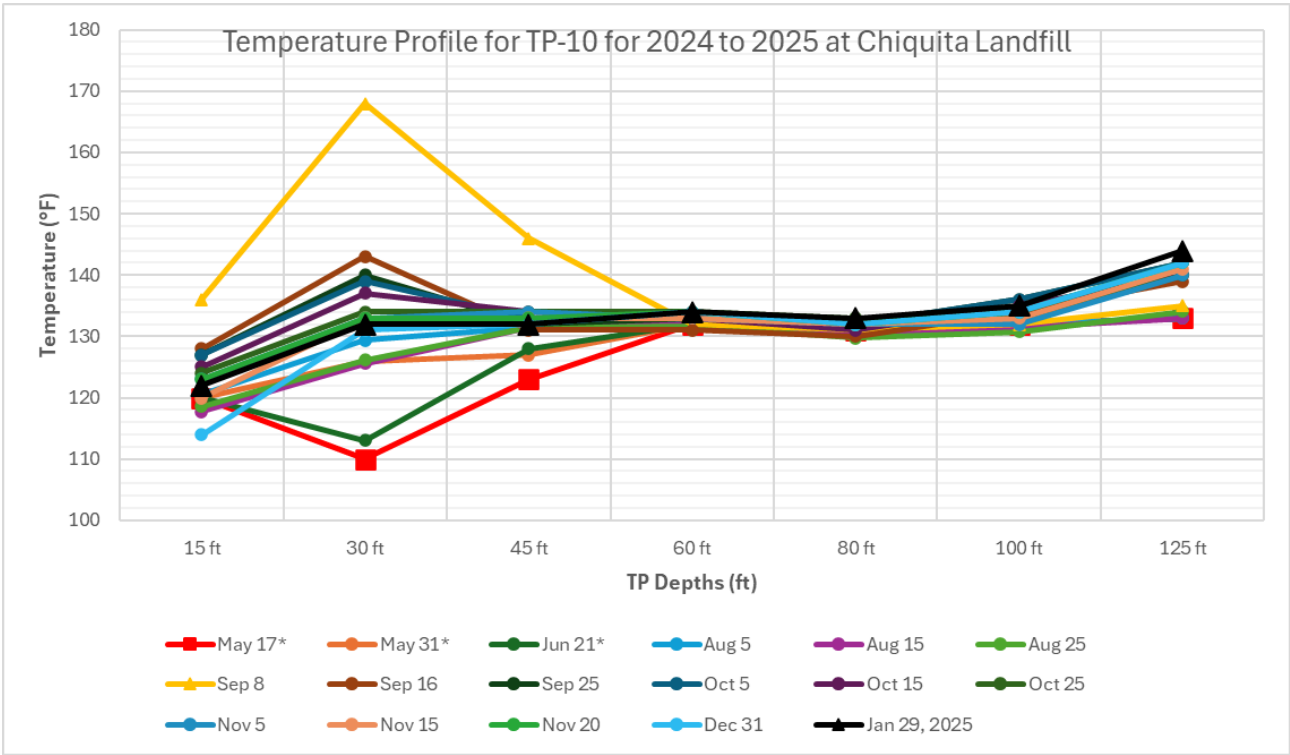
TP-6



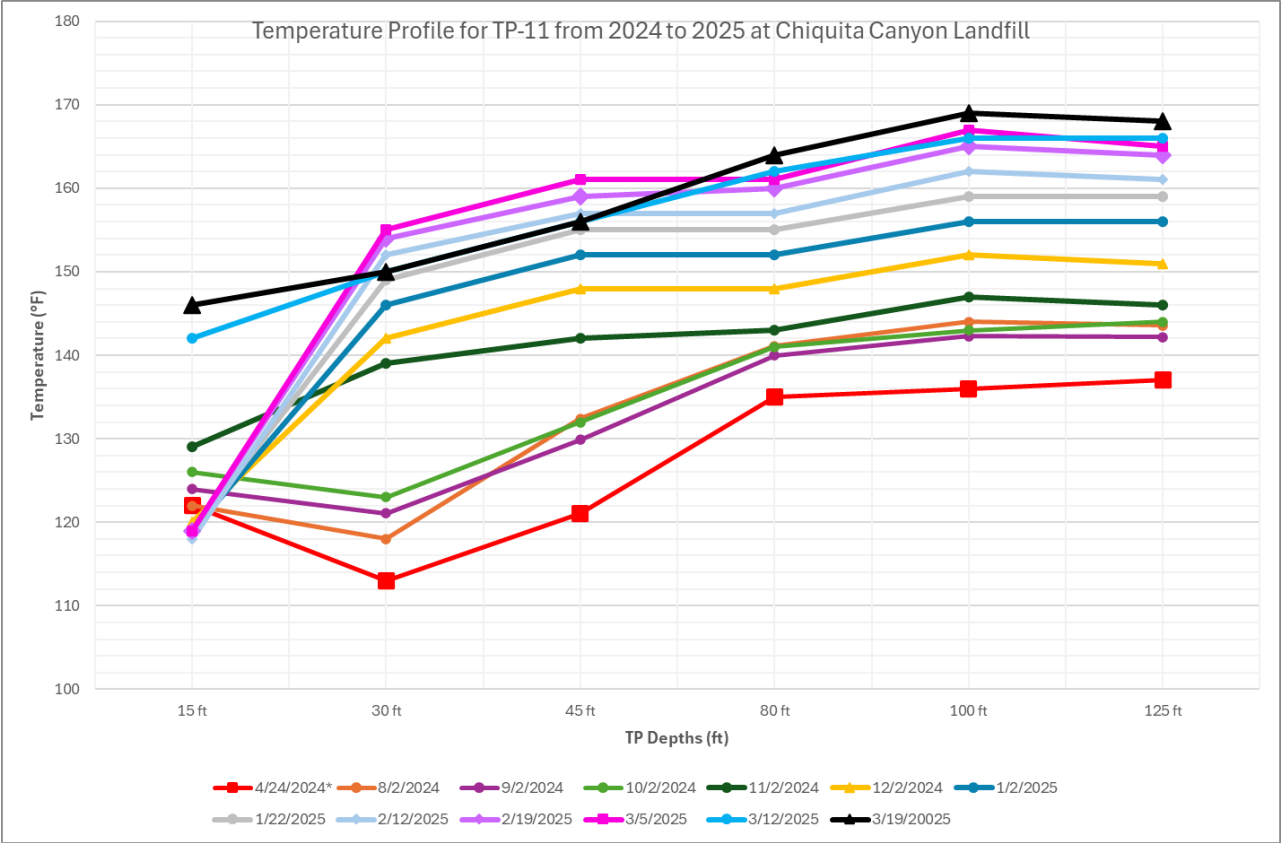
TP-8



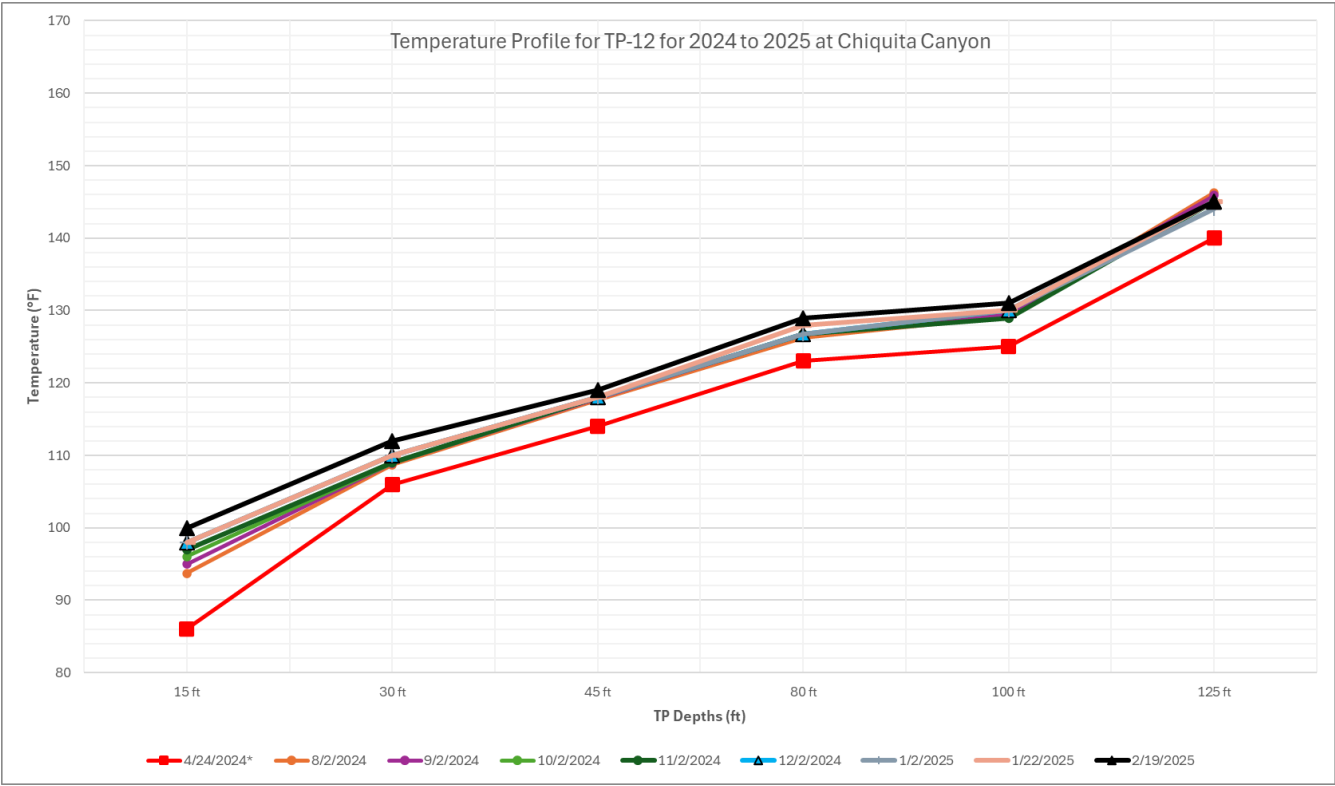
TP-10



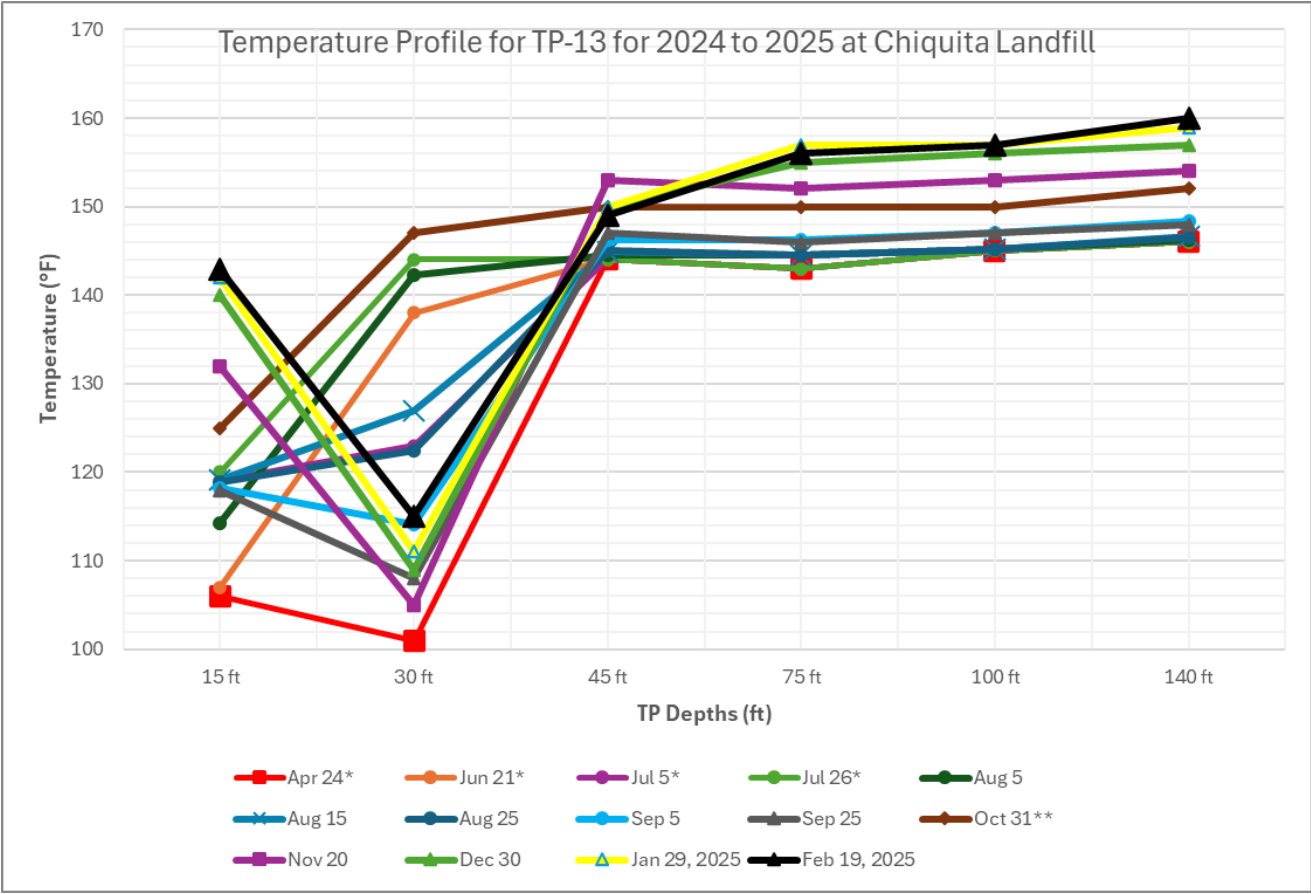
TP-11



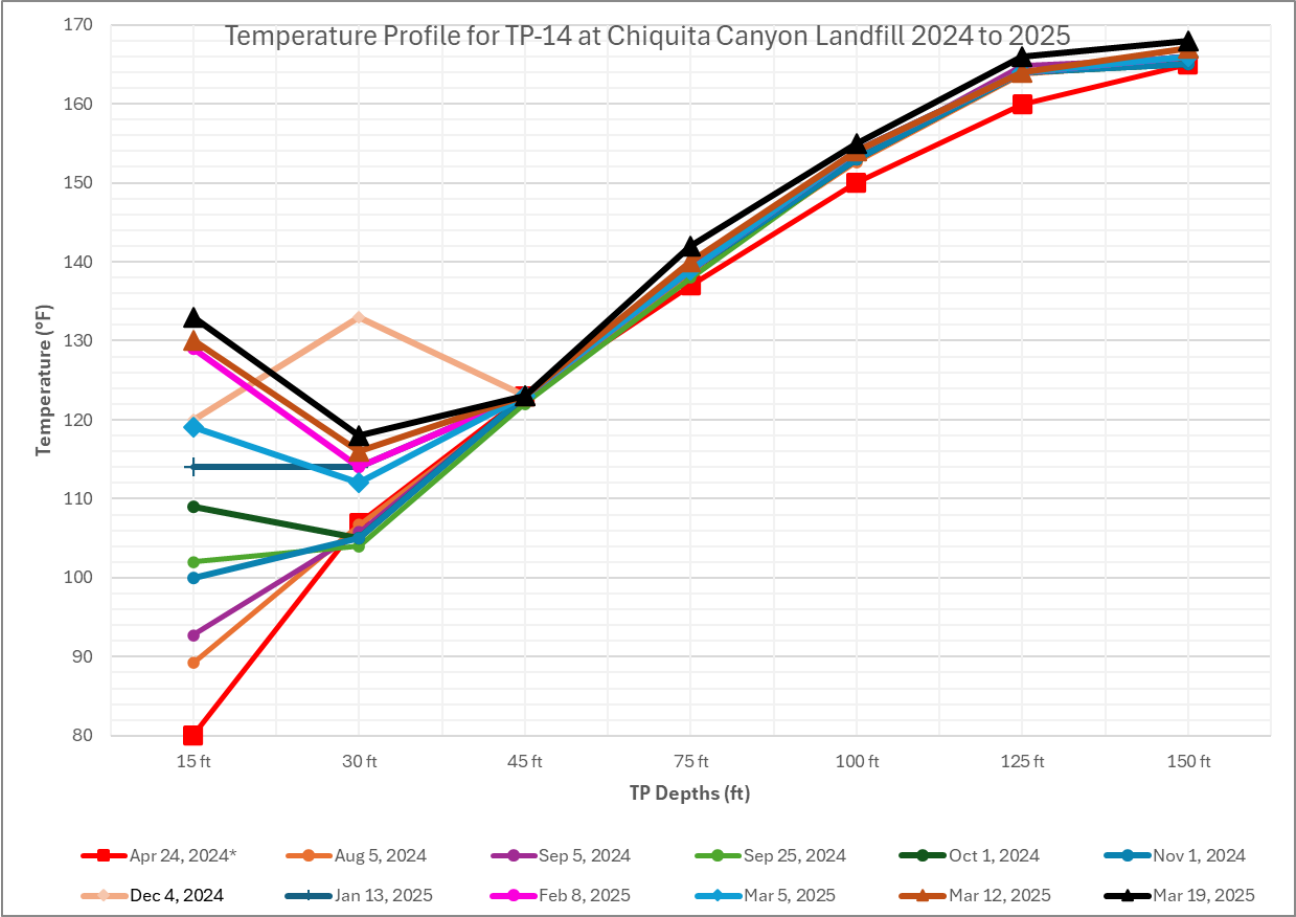
TP-12



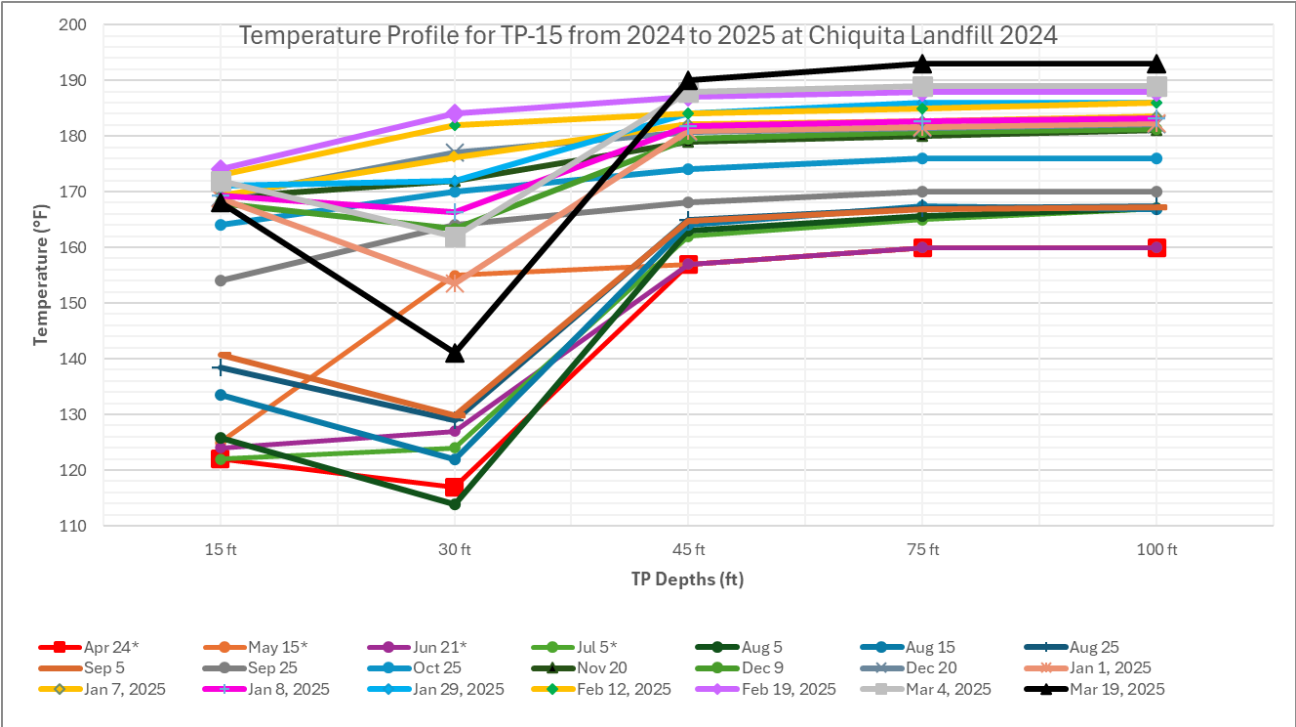
TP-13



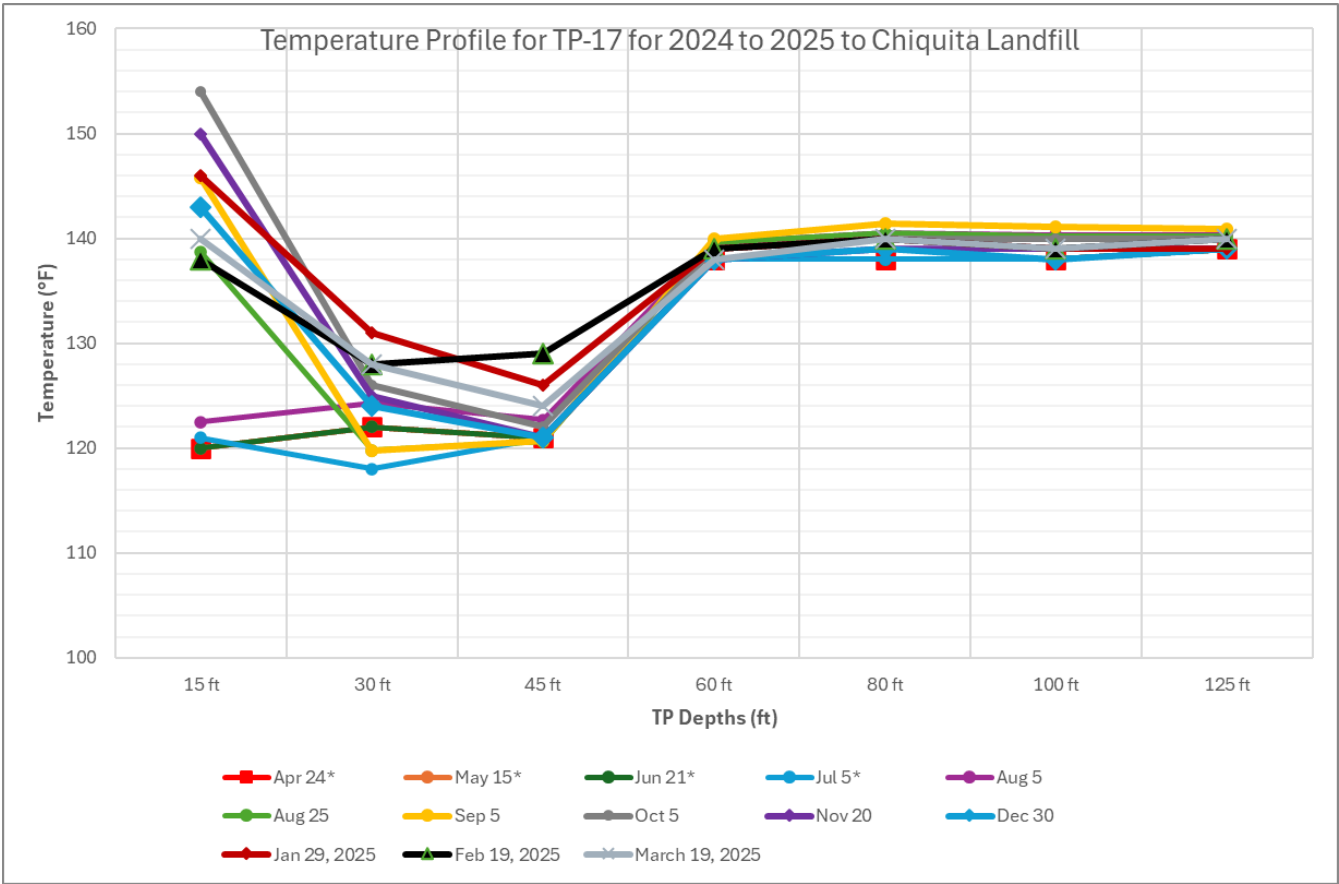
TP-14



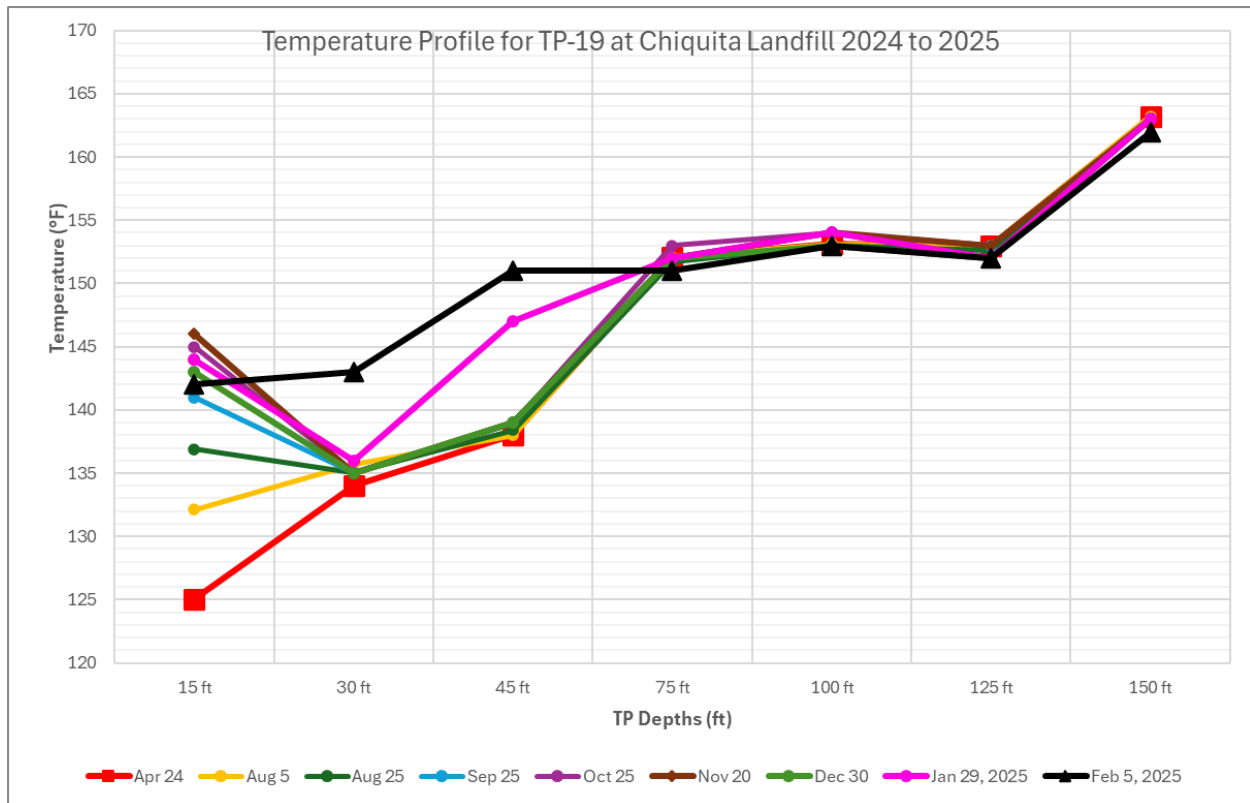
TP-15



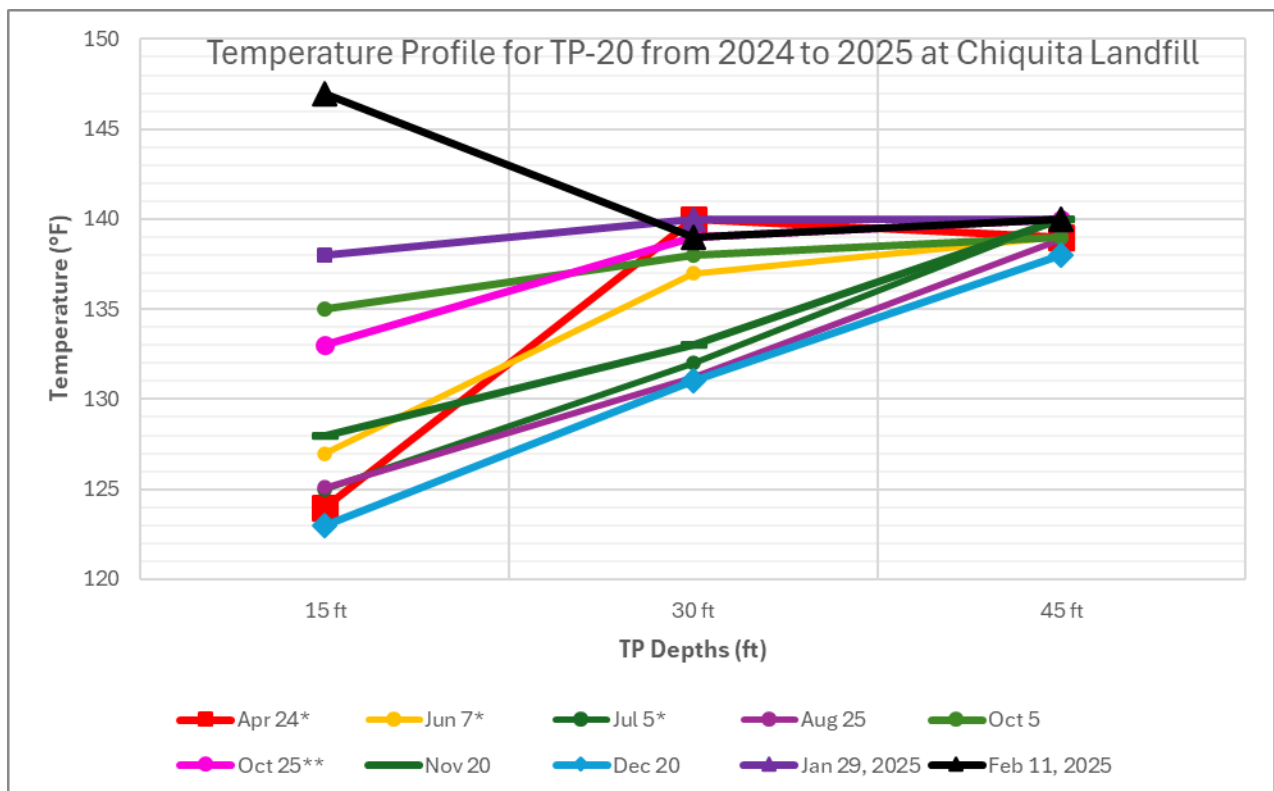
TP-17



TP-19



TP-20



Attachment C

Technical Memorandum from Dr. Stark dated February 26, 2025

TIMOTHY D. STARK, Ph.D., P.E., BC.GE

Stark Consultants, Inc., 401 W. Indiana Avenue, Urbana, Illinois, 61803; tstark32@gmail.com; (217) 840 - 8263

To: Mr. Matthew Dwyer
Senior Project Manager
Regional Manager
Engineering/Remediation Resources Group, Inc. (ERRG, Inc.)
9727 Business Park Drive, Suite A
Sacramento, CA 95827
matthew.dwyer@errg.com

From: Timothy Stark, Ph.D., P.E., BC.GE, Dist.M.ASCE

Date: February 26, 2025

RE: Comments on November 26, 2024 Revised Soil Reaction Break/Barrier Plan and February 20, 2025 waste temperature data for Chiquita Canyon Landfill Subsurface Elevated Temperature (SET) Event

Pursuant to your request and Task Order #1 under my contract with ERRG, I have reviewed the November 26, 2024 Revised Soil Reaction Break/Barrier Plan¹, waste temperature data provided by SCS dated February 20, 2025², and the weekly tracking of fissures and tension cracks in the impacted area dated February 17, 2025³ and submitted by the Chiquita Canyon Landfill (CCL) operated by Waste Connections, Incorporated to the Legal Enforcement Agency (LEA) on February 25, 2025.

Landfill Location and Description:

The CCL is located at 29,201 Henry Mayo Drive, Castaic, California, in northern Los Angeles County. This facility is a Class III non-hazardous municipal solid waste (MSW) landfill. The 639-acre landfill site began accepting waste in 1972. The landfill can receive up to 12,000 tons of MSW per day. The average daily tonnage in 2021 was reported to be 6,412 tons. The CCL only accepts non-hazardous solid waste for disposal, including municipal solid waste, green waste for composting or recycling, construction and demolition debris, and e-waste for recycling. The facility is prohibited from accepting hazardous waste that is ignitable, corrosive, reactive, or toxic. The landfill also does not accept biohazardous waste, household hazardous waste, radioactive materials, incinerator ash, sludge, automobile shredder fluff, or liquid waste.

The landfill site is a former limestone quarrying and crushing operation which began in 1939 and ended in 1988. The quarrying resulted in two quarry pits, the North Quarry Pit and the South Quarry Pit, which were excavated to a maximum depth of 240 feet below ground surface (bgs). The north and south quarry portions cover an area of approximately 52 acres.

¹ SCS Engineers, Revised Soil Reaction Break/Barrier Plan: Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, November 26, 2024, 198 p.

² SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

³ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

Landfilling began in the North Quarry Pit in 1974 and continued in this area until 1985. In 1985, the landfill underwent expansion to the southwest into the area known as the South Quarry Pit. This continued until August 2005 when the landfill stopped accepting waste to reduce the potential for birds to interfere with nearby airport operations. The total waste thickness is approximately 320 feet which means about 80 feet is above ground surface and about 240 feet is below ground surface. The landfill accepted approximately 17,000,000 in-place cubic yards of waste, including commercial, and municipal solid wastes.

The permitted landfill disposal footprint totals 257 acres and is comprised of three separate areas designated as “Primary” Canyon, “Canyon B,” and the Main Canyon (including Canyons A, C, D and subsequent fill modules). Currently, 231 acres of the footprint have been used for disposal. All areas except the Primary Canyon have geosynthetic bottom liner systems and leachate collection and removal systems. Leachate is collected and trucked off-site, but condensate from the gas extraction wells is injected into the flare.

Revised Barrier Plan:

The Revised Barrier Plan states a:

“discrete portion of the waste mass in the northwestern section of the Landfill is experiencing elevated temperature landfill (ETLF) conditions. ETLF conditions can generally be characterized as when the typical waste decomposition processes and corresponding methanogenesis associated with anaerobic digestion of organic solid waste materials disposed in a landfill are impeded because of heat accumulation. As a result, certain abiotic (non-biological) processes and chemical reactions within the buried wastes occur instead.”

Even though SCS Engineers (SCS) claims the Subsurface Elevated Temperature (SET) Event only is impacting a “discrete portion of the waste mass”, they review five options for isolating and containing the SET Event to impede heat flow into other adjacent portions of the waste mass. These five options are:

- (1) Air Break through avoidance of placement of additional waste lifts overlying existing buried wastes.
- (2) Air Break through excavation to “cut out” existing buried wastes.
- (3) Soil Barrier through placement of soil layer atop existing landfill surface.
- (4) Soil Barrier through excavation and backfilling of a deep trench.

5) Inert Material Barrier through Borehole Drilling, Dewatering, and Flowable Fill Injection.

SCS concludes an air break through avoidance of additional waste placement (option #1) or excavation (option #2) are “implausible” and thus are not being pursued by CCL. In addition, SCS deemed option #4 (soil barrier through excavation and backfilling) “implausible”, and the technology involved in introducing an inert material for Option #5 “uncertain”. As a result, options #4 and #5 are not being pursued by CCL.

Option #3 was deemed by SCS to be the “most plausible and may accomplish the desired objective without incurring substantial environmental and safety risks.” Option #3 simply involves placing additional soil over the top of the landfill, i.e., to create a thicker soil cover. This option will be less effective for controlling odors and emissions from CCL than a geomembrane cover (discussed below) because of many issues including inadequate soil compaction especially on the sideslopes, differential settlement causing cracks in the soil cover, and creation of desiccation cracks during the hot and dry months.

The Revised Soil Reaction Break/Barrier Plan⁴ was issued on November 26, 2024, which is important because CCL claims:

“CCL has implemented extensive mitigation measures that reduce the likelihood that CCL will need to construct any form of the various reaction break concepts, including CCL’s proposed additional mitigation measures. Previous experience at other ETLF landfills demonstrates that landfill reactions and resulting odors have been mitigated by best management practices, including increased gas extraction and liquid removal (e.g., through expanding systems and providing adequate LFG control capacity and leachate disposal capacity). Another best management practice is to improve cover integrity, which reduces infiltration of precipitation and limits the amount of excess liquids available to sustain various chemical reactions. Implementing these measures will help slow the reaction, impede the spread of the reaction to new areas, and mitigate impacts.”

“Further, Chiquita is constantly monitoring the landfill for signs of potential ETLF conditions so that it can react quickly in the event of changing conditions. CCL and SCS are confident that implementation of the best management practices developed by the landfill industry and EPA to contain and manage the reaction will succeed in slowing the propagation of the reaction area. Other landfills that have experienced widespread ETLF heating events during the past approximately 15 years have

⁴ SCS Engineers, Revised Soil Reaction Break/Barrier Plan: Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, November 26, 2024, 198 p.

successfully utilized these tools to contain those events. Continued application of the current mitigation measures will result in cooling of the buried wastes, which enable methanogenesis to ultimately be re-initiated within a large section of the affected waste mass. This in turn will mitigate and abate the detrimental impacts, such as odors, being experienced by surrounding off-site communities.”

Unfortunately, the waste temperature data released on February 20, 2025⁵ shows these “best management practices” have not “helped slow the reaction, impede the spread of the reaction to new areas, and mitigate impacts” as claimed by CCL and SCS above, as discussed in the next section. In summary, the removal of “hot” gas and leachate has not been successful in containing the SET Event.

Summary of Recent Temperature Data

SCS presents Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁶ An aerial image of CCL with a table of maximum temperatures is included in the subject SCS Report and reproduced in **Figure 1**. I have placed the maximum waste temperature from the table in **Figure 1** adjacent to some of the gas extraction wells to facilitate understanding the extent of the SET Event, especially on the east side of CCL. **Figure 1** shows waste temperatures of 183°F and 185°F at the eastern side of the top deck of the CCL. This means the SET Event has migrated from the western slope (TP03) to the eastern side of the CCL (TP31). Expansion of the SET Event has the following implications:

- Elevated temperatures (185°F to 189°F) surround the leachate tank farm (see red arrow in **Figure 1**). This area is going to undergo significant settlement, if it has not already started to do so, due to thermal breakdown of the buried waste. This settlement will cause differential movement of the leachate tanks, which could result in a leachate release. As a result, I recommend the leachate tank farm be moved off the top deck and to a site off the CCL and on native soil because the SET Event continues to expand.
- Waste temperatures of 183°F and 185°F are already present on the eastern side of the top deck of the CCL. As a result, it is not possible to “isolate and contain” this SET Event using a north-south vertical barrier as previously discussed. Thus, the only option for controlling odors and emissions is to cover the area with a geomembrane (discussed below) over which the temperature monitoring probes (TPs) have been installed. This means the geomembrane should cover from the west to the east side of the CCL and from the north

⁵ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

⁶ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

end to just south of TP06 shown in **Figure 1**. In other words, the exposed geomembrane cover would cover about 183 acres and leave only about 13 acres at the southern end of the CCL uncovered for current disposal operations.

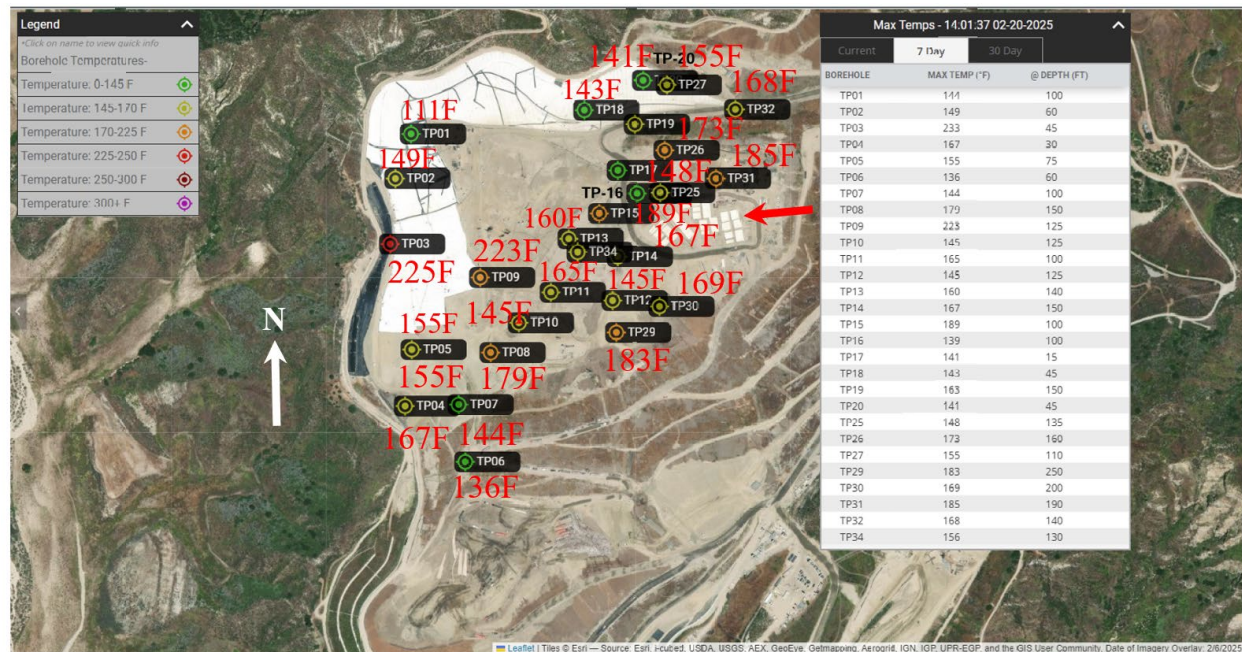


Figure 1. Temperature profiles over six weeks from 1/9/2025 to 2/19/2025 from SCS report dated February 20, 2025.

Figure 2 presents Sheet #1 from the SCS Report that presents the Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁷ The dashed pink line represents the extent of the SET Event as determined by SCS on February 20, 2025. This extent is slightly larger than the dashed blue line, which represents the extent of the SET Event on March 27, 2024 as reported by SCS in the initial Soil Reaction Break/Barrier Plan.⁸ **Figure 2** also presents my extent of the SET Event as of February 26, 2025 (see dashed red line) based on the Waste Borehole Maximum Temperature Profiles Over 6 Weeks from January 9, 2025 to February 19, 2025.⁹ **Figure 2** shows the western slope and entire top deck of the CCL is now part of the

⁷ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

⁸ SCS Engineers, Soil Reaction Break/Barrier Plan, Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, March 27, 2024, 17 p.

⁹ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

SET Event, which is a significant increase over the extent reported by SCS on March 27, 2024¹⁰ and February 20, 2025.¹¹ Based on **Figure 2**, SCS believes the SET Event only covers about 28 acres as of February 20, 2025 whereas my extent of the SET Event covers about 90 acres.

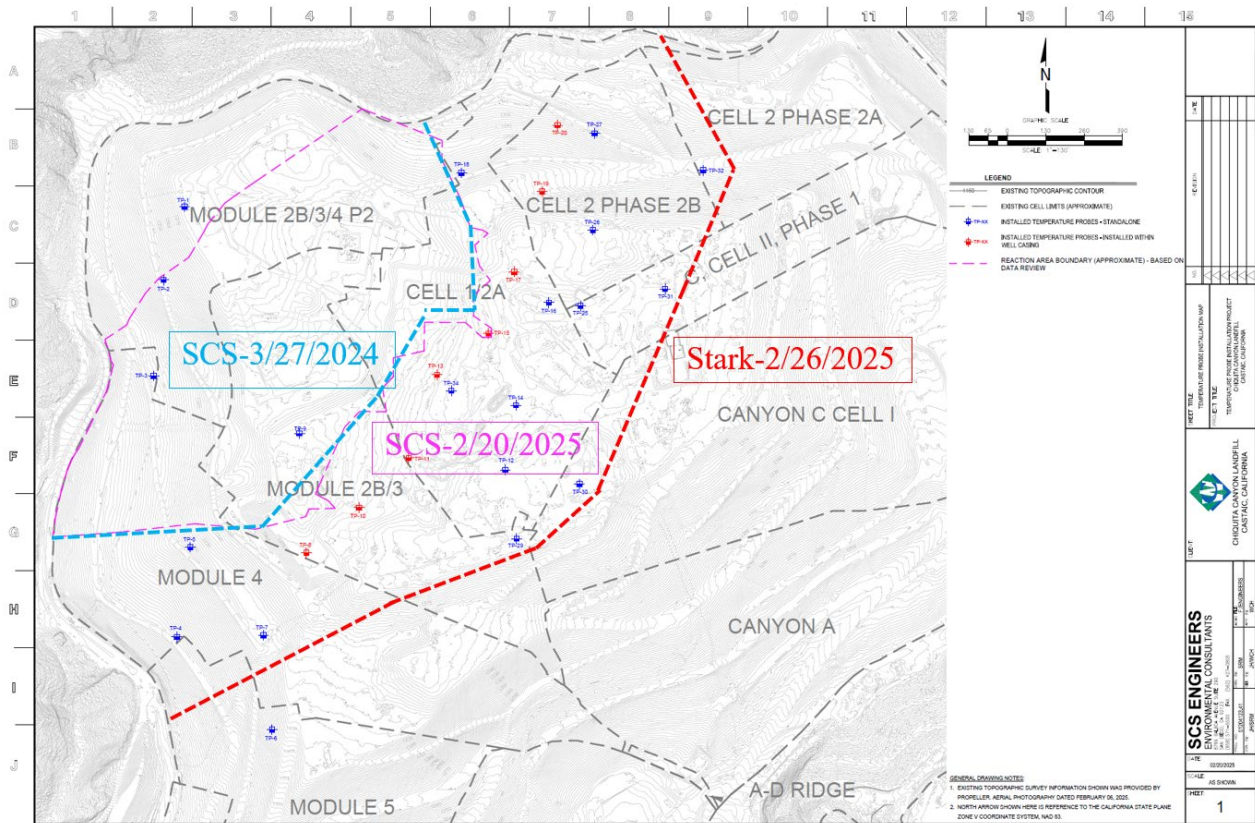


Figure 2. Extent of elevated temperatures from March 27, 2024 to February 26, 2025.

¹⁰ SCS Engineers, Soil Reaction Break/Barrier Plan, Chiquita Canyon Landfill, Castaic, California, South Coast AQMD Facility No. 119219, Project #: 01204123.21-13, March 27, 2024, 17 p.

¹¹ SCS Engineers, Solid Waste Borehole Maximum Temperature Profiles Over 6 Weeks for 1/9/2025 to 2/19/2025, Project #: 07224053.00, February 20, 2025, 31 p.

Weekly Fissures and Tension Cracks Report Dated February 17, 2025

CCL also presented their 4050 – Chiquita Reaction Area Tracking of Fissures and Tension Cracks weekly report on February 17, 2025¹². This report presents: (1) observations of new fissures and tension cracks, which are usually due to landfill settlement and/or slope instability, (2) exposed geomembrane tears and defects, and (3) other geosynthetic cover issues.

This weekly report dated February 17, 2025¹³ confirms that settlement has started to occur around the leachate tank farm, which reinforces the recommendation above that the tanks should be moved off the top deck and to a site off the CCL and on native soil. In particular, Area #148, which is just north of the tank farm (see red dot in **Figure 3**), experienced opening of significant fissures and tensions cracks that have been remediated but are likely to reappear as additional buried waste undergoes thermal breakdown. Area #154, which is located just south of the tank farm (see **Figure 3**), also recently experienced fissuring and tension crack development. Even more concerning is Area #147 experienced a significant sinkhole, which indicates a significant thermal breakdown of buried waste that resulted in a void developing below the interim soil cover. Area #147 is the next grid area north of Area #148.



Figure 3. Red dot shows location for fissures and tension cracks identified in weekly CCL report dated February 17, 2025¹⁴.

¹² Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹³ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁴ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

Figure 4 shows a tension crack in Grid #148 near the leachate tank farm on the top deck of the CCL. This photograph also reinforces the recommendation above that the tanks should be moved off the CCL. This photograph was taken during a South Coast Air Quality Management District (SCAMD), Inspection of the CCL on February 27, 2025.



Figure 4. Photograph of tension crack in Grid #148 near leachate tanks on top of CCL dated February 27, 2025¹⁵.

¹⁵ South Coast Air Quality Management District (SCAMD), Inspection Report - Chiquita Canyon Landfill, by Larry Israel, Gerardo Vergara, and Christin Ojeda, February 27, 2025, 21 p.

The weekly report dated February 17, 2025¹⁶ also discusses recent tears and defects in the exposed 30 mil thick white HDPE geomembrane cover. In particular, this weekly report presents photographs of four significant tears in the exposed geomembrane. For example, **Figure 5** presents two of these tears, which were repaired using an extrusion welded patch. Unfortunately, the location of these two tears is not identified in the weekly report dated February 17, 2025¹⁷. This indicates the 30-mil thick white HDPE geomembrane may be deteriorating in the presence of the SET Event temperatures and related activities and equipment, which is discussed below.



Photo 1



Photo 2

Figure 5. Photographs of exposed geomembrane tears identified in weekly CCL report dated February 17, 2025¹⁸.

The weekly report dated February 17, 2025¹⁹ also discusses other “Geosynthetic Cover” issues. In particular, this report presents fourteen photographs illustrating “instability under the cover”.

¹⁶ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁷ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁸ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

¹⁹ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

For example, **Figure 6** presents two of these photographs, which show settlement under the geomembrane due to thermal breakdown of the buried waste.



Photo 3



Photo 4

Figure 6. Photographs of other exposed geomembrane issues identified in weekly CCL report dated February 17, 2025²⁰.

Temporary Exposed Geomembrane Cover

Given the west side and top deck of the CCL are experiencing elevated temperature, I unfortunately think the only remedial option is to cover the entire landfill north of TP06 or north of the red and blue dashed line shown in **Figure 7**. The elevated temperatures have not manifested themselves on the eastern slope yet, but I anticipate leachate outbreaks could start occurring because elevated temperatures (183°F and 185°F as shown in **Figure 1**) are present at the crest of the eastern slope.

Currently, CCL is using a 30-mil thick high-density polyethylene (HDPE) geomembrane with a white reflective and textured surface. This geomembrane was manufactured by Solmax and shipped in 22.5 ft wide rolls from Canada to the CCL. An Ethylene Vinyl Alcohol (EVOH) geomembrane has been found to be better at containing odors and omissions during other long-term SET Events, e.g., Bridgeton Landfill. EVOH geomembranes are manufactured as a “sandwich” with the outside layers comprised of HDPE with an inner layer of semi-crystalline thermoplastic resin that resists odor and gas transmission.

Bridgeton Landfill near St. Louis has been experiencing a SET Event since 2011 and is covered with green colored 60 mil thick EVOH geomembrane. Given there is no mechanism to “isolate and contain” the CCL SET Event, I am anticipating this facility will continue to generate odors and emissions for many years to come. As a result, I recommend the CCL consider installing an

²⁰ Chiquita Canyon, Weekly Report - 4050 Chiquita Reaction Area Tracking of Fissures and Tension Cracks, by Nancy Bahena Hernandez, February 17, 2025, 39 p.

exposed EVOH geomembrane over the area to the north of the red and blue dashed line shown in **Figure 7**.

The exposed EVOH geomembrane could consist of a tan (easier to UV stabilize, reduces heat, and better matches dry surroundings) or green (less visible during wet periods) 40 or 60 mil thick EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile. A tan EVOH geomembrane color is recommended because there are a number of tan geomembranes that have been in exposed for a number of years, so a suitable UV stabilized formulation is available.

The EVOH geomembrane should be continuously seamed and continuously tied into the existing exposed 30 mil HDPE geomembrane cover along the top deck. The EVOH geomembrane can be welded to the existing 30 mil thick HDPE exposed geomembrane because the outside layers are comprised of HDPE and thus can be welded with traditional HDPE welding equipment. As the existing 30-mil thick exposed white HDPE geomembrane deteriorates with time, it should be replaced with the selected EVOH geomembrane.

The selected EVOH geomembrane (GM) should have a life span of about 10 years due to the large amount of waste that is being impacting by the SET Event. Given the long and steep slopes, a double-sided textured EVOH GM may be required. However, to facilitate walking on the EVOH GM, the exposed side should probably be textured. The EVOH GM also should be able to withstand a temperature of about 180°F because TP15 is showing a waste temperature of 175°F at a depth of only 15 feet. Finally, the EVOH GM should exhibit a methane permeance of less than 2.5×10^{-13} m/s obtained using ASTM D1434²¹ to control benzene and other emissions.

The total area proposed for the EVOH geomembrane cover is about 100 acres, i.e., the area not covered with the 30-mil thick white HDPE geomembrane. The nonwoven geotextile underlying the EVOH geomembrane will be installed on a prepared subgrade and provide a cushion and gas and liquid transmission layer under the geomembrane. Alternatively, a geonet with two heat-bonded nonwoven geotextiles could underlie the EVOH geomembrane and provide a higher transmissivity than a geotextile.

The EVOH geomembrane could be installed by deploying the manufactured rolls across the top deck and down the sideslopes. The perimeter edge of the new EVOH geomembrane cover will either be welded to the existing 30 mil thick white HDPE geomembrane or anchored along the perimeter of the CCL. Of course, the CCL should design appropriate long-term ballasting for the existing HDPE geomembrane and the proposed EVOH geomembrane because of the long duration of other SET Events. The EVOH geomembrane should be installed by an experienced contractor

²¹ ASTM D1434-23, Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting, ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428, <https://compass.astm.org/document/?contentCode=ASTM%7CD1434-23%7Cen-US&proxycl=https%3A%2F%2Fsecure.astm.org&fromLogin=true>.

and crews in accordance with CCL project specifications and an accompanying QA/QC Plan. Given the long-term application of the EVOH geomembrane, the installation should be monitored in accordance with the QA/QC Plan by an experienced third-party engineering firm. A final certification report should be prepared under the direction of a certified engineer and be submitted to the CCL and proper local authority, e.g., Los Angeles Regional Water Quality Control.

Pipe penetrations of the HDPE and EVOH geomembrane cover should be sealed utilizing a suitable pipe boot and pipe clamp or seal. These boots can be the source of significant odor release and/or oxygen intrusion so these pipe boots and seals should be inspected and monitored regularly for vapor emissions so defects due to total and differential can be remediated quickly.

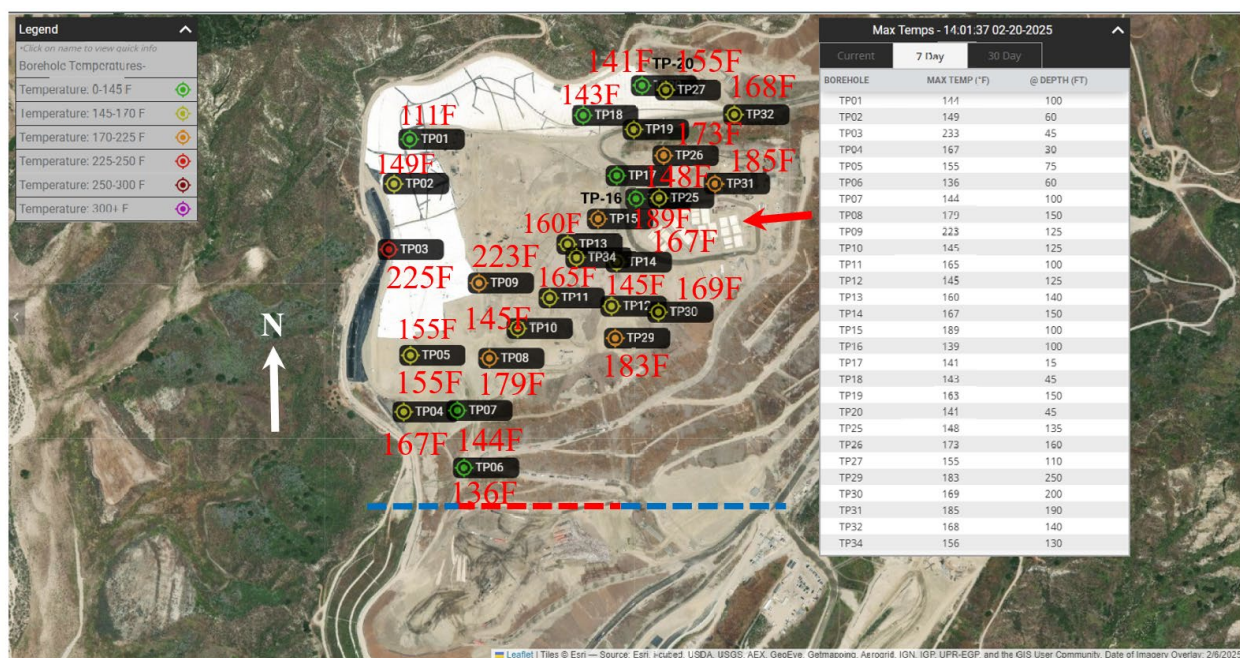


Figure 7. Extent of elevated temperatures on February 26, 2025 and location of a possible vertical barrier to isolate southernmost 13 acres.

Proposed Vertical Barrier

This section discusses installing a thermal barrier south of TP06 (see dashed red and blue line in **Figure 7**). A thermal barrier is recommended along the dashed red and blue line in **Figure 7** for at least the following reasons:

- CCL is using the approximately 13 acres south of the dashed red and blue line in **Figure 7** for disposal operations so elevated temperatures should be prevented from reaching this area, so the landfill continues to have an area to dispose of on-site wastes.
- Ensure continued ingress and egress from the CCL.
- Reduce the amount of waste that can be consumed by the SET Event and thus reduce the duration of odors and emissions to the surrounding communities.
- Maintain stability of the southern sideslope.

The red dashed line in **Figure 7** roughly delineates the location of a thermal barrier already constructed by CCL. The extent and depth of the thermal barrier are not known, so I request this information be provided by CCL. The blue dashed lines in **Figure 7** indicate the existing thermal barrier should be extended east and west so the SET Event cannot go around or under the existing thermal barrier.

If the existing thermal barrier does not extend to near below the leachate level, vertical elements can be used to create a vertical thermal barrier to prevent the SET Event from impacting the southernmost 13 acres of the CCL. The vertical elements involve excavating a vertical shaft using a three or four-foot bucket auger drill rig, which is being used to install gas extraction wells at CCL. These vertical elements would be constructed along the dashed red and blue lines in **Figure 7**. After excavating the shaft, it could be backfilled with a soil-bentonite or soil-cement mix. The shafts would be tangent, i.e., touching, or overlapped (see **Figure 7**) to create a continuous barrier across the toe of the southern sideslope to prevent the SET Event from consuming the southernmost 13 acres. If heat transfer calculations require a wider thermal barrier, a second row of vertical elements could be constructed north or south of the initial row (see **Figure 7**). The secondary row would be tangent to the initial row and be centered at each intersection of the initial row as shown below (see **Figure 7**).

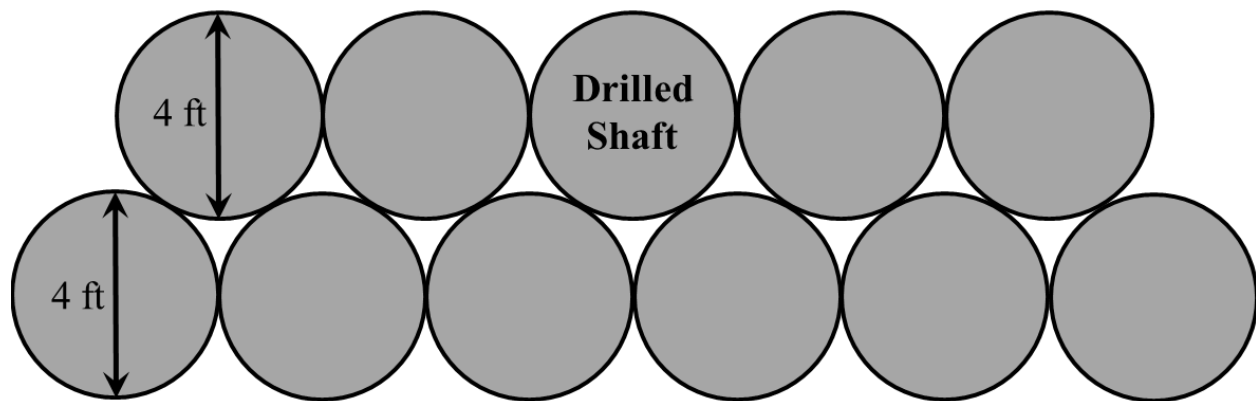


Figure 8. Possible configurations of 3 to 4 ft diameter vertical elements to comprise a heat barrier system south of TP06 to isolate southernmost 13 acres.

Summary

This section summarizes the main findings and recommendations presented in this report:

1. SET Event has expanded to the east side of the top deck of the CCL,
2. Leachate Tank Farm should be relocated off the top deck because the CCL is undergoing settlement under the tanks,
3. Due to the movement of the SET Event, the Tank Farm should be relocated to a site off the CCL and on native soil,
4. Given the extent of the SET Event, install 40 or 60 mil thick tan or green HDPE EVOH textured geomembrane underlain by a minimum 6 ounce per square yard (oz/sy) nonwoven geotextile over the approximately 100 acres currently exposed and weld it to the existing 30-mil thick white HDPE geomembrane or place it in a suitable anchor trench,
5. Submit a Request For Information (RFI) regarding the current extent and depth of the thermal barrier installed near the southern end of the CCL (see red dashed line in **Figure 7**), and
6. Expand the current thermal barrier so it reduces the potential for the SET Event to impact the southernmost 13 acres of the CCL.

Enclosure D – Cover Completion Report



January 17, 2025

Mr. Steve Cassulo
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

Subject: Final Completion Report of Milestone 2A-1 (Formerly Mitigation Measure #2A), Chiquita Canyon Landfill, Castaic, California

Dear Mr. Cassulo,

On behalf of Chiquita Canyon, LLC (Chiquita), Tetra Tech and SCS Engineers hereby submit this final completion report for the installation of the 30-mil High Density Polyethylene (HDPE) geosynthetic cover (also referred to as a geomembrane cover) over portions of the reaction area at the Chiquita Canyon Landfill (Landfill), pursuant to Milestone 2A-1 (formerly referred to as Mitigation Measure #2A) of the June 6, 2024 Compliance Order (Compliance Order) issued by the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA).

Milestone 2A-1 Completion

Pursuant to the LEA's December 6, 2024 approval of Chiquita's Updated Installation Schedule (most recently updated November 22, 2024, corrected December 3, 2024), Chiquita has completed installation of the 30-mil HDPE geosynthetic cover in accordance with Milestone 2A-1 of the Compliance Order. See Attachment 1 for Chiquita's Updated Installation Schedule and Attachment 2 for the LEA's December 6, 2024 approval. This final completion report describes the installation of the geosynthetic cover, shows the approximate area over which the geosynthetic cover and the landfill gas (LFG) surface collectors were installed, and provides photos of various aspects of the geosynthetic cover installation.

Chiquita installed approximately 44.6 acres of geosynthetic cover in accordance with Milestone 2A-1 of the Compliance Order as of December 27, 2024. Additionally, as of January 3, 2025, approximately 1.3 acres of geosynthetic cover was installed over the disposal area in accordance with the west toe drain workplan. See Attachment 3 for approximate limits of geosynthetic cover installed as of January 10, 2025, and Attachment 4 for the technical data sheet for the geosynthetic cover material.

Chiquita installed the geosynthetic cover in phases over the following portions of the Landfill: (1) the west slope of the reaction area; (2) the top deck of the reaction area; and (3) the north slope of the reaction area. Phases were necessary because of the various preparatory tasks required for cover installation. Chiquita sequenced the work so that the preparatory tasks were completed ahead of the entry of the cover installation crew and so that cover installation was continuous.

For each section of geosynthetic cover installed, Chiquita completed the following tasks:

- Chiquita removed the green waste and vegetation that was growing on the area that would be covered and prepared the subgrade for cover installation.
- The existing benches were regraded as necessary to maintain positive drainage.
- Surface landfill gas collectors were installed in the area to prevent landfill gas from building up pressure under the geosynthetic cover once it was installed.
- Portions of the Landfill's existing gas collection and control system (GCCS) were taken off-line, and the laterals, headers, and vacuum lines were disconnected and temporarily relocated until the geosynthetic cover was installed over that area. Once installed, the laterals, headers, and vacuum pipes were reinstalled above the geosynthetic cover, reconnected, and brought back on-line. The GCCS laterals, headers, and vacuum pipes were installed over the geosynthetic cover so that adjustments could be made to maintain positive drainage and gas collection within the pipe network.
- Geomembrane pipe boots were installed around vertical LFG wells to provide a continuous seal of the geosynthetic cover to control surface emissions.
- A sandbag ballast system was placed on top of the geosynthetic cover to help prevent uplift of the cover.

Photos showing various stages of the geosynthetic cover installation are included in Attachment 5.

LFG Surface Collectors

Chiquita has constructed surface collectors beneath the geosynthetic cover to extract excess LFG beneath the cover in general accordance with the design drawings submitted in accordance with Mitigation Measure #2A. The exact routing and locations of surface collectors were adjusted during construction to adapt to grading and settlement. A plan showing the "as-built" alignments of the LFG surface collectors is included in Attachment 5.

CCL has implemented the use of a portable thermal oxidizer (TOX) that utilizes permanent line power with a generator backup in case of power failure; the permanent power supplying the TOX has been in place since August 19, 2024. Before utilizing permanent power, the TOX was powered by a generator separate from the flare station. This was implemented in accordance with Mitigation Measure #1 of the January 26, 2024 letter from the LEA to CCL regarding the Landfill Reaction Area Updated Installation Plan of the Geomembrane Cover and in accordance with Condition 22 of the Stipulated Order for Abatement with the South Coast Air Quality Management District (SCAQMD) in Case No. 6177-4 (Stipulated Order). See Attachment 7 for Chiquita's February 2, 2024 response to LEA Mitigation Measure #1 for additional information.

CCL has completed installation of additional LFG isolation valves on headers throughout the LFG collection system and has placed the TOX at the south end of the reaction area, allowing it to prioritize extraction from the reaction area and the surface collectors underneath the geosynthetic cover. This is being implemented in accordance with LEA Mitigation Measure #2 described in the LEA's January 26, 2024 letter. See Attachment 7 for additional information.



Sincerely,

A handwritten signature in black ink, appearing to read 'Julie H'.

Julie Hauenstein, P.E.
Project Manager
Tetra Tech
(909) 835-8167

A handwritten signature in black ink, appearing to read 'Bill Haley'.

Bill Haley, P.E.
Project Director
SCS ENGINEERS
(858) 524-9525

Attachments:

1. Chiquita Request for Extension of Milestone 2A-1 and Updated Installation Schedule, November 22, 2024 (corrected December 3, 2024)
2. LEA Response to Request for Extension of Milestone 2A-1 and Updated Installation Schedule, December 6, 2024.
3. Figure illustrating the approximate limits of the Geomembrane Cover installed as of January 10, 2025
4. 30 mil HDPE Geomembrane Technical Data Sheet
5. Photo showing various stages of the geosynthetic cover installation
6. Plans showing the locations of the LFG surface collectors and details
7. Response to the Review and Conditions of Mitigation Measure #2A Chiquita Canyon Landfill, Castaic, California, SCS Engineers, February 2, 2024

cc: John Perkey, Waste Connections
Kelly Kincella, Waste Connections
Kate Logan, Waste Connections
Nicole Ward, Waste Connections
Amanda Froman, 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
Ken Habaradas, Los Angeles County Department of Public Health
Karen Gork, LEA
Eric Morofuji, 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
Ai-Viet Huynh, Los Angeles County Department of Regional Planning
Wes Mindermann, CalRecycle



Janelle Heinzler, CalRecycle
Jeff Lindberg, California Air Resources Board
Vanessa Aguila, California Air Resources Board
Jack Cheng, South Coast Air Quality Management District
Larry Israel, South Coast Air Quality Management District
Enrique Casas, Los Angeles Regional Water Quality Control Board
Tyler Holybee, United States Environmental Protection Agency
Mark Anthony Relon, United States Environmental Protection Agency
Laura Friedli, United States Environmental Protection Agency
Joshua Wirtschafter, United States Environmental Protection Agency

Attachment 1
Chiquita Request for Extension of Milestone 2A-1 and Updated Installation
Schedule, November 22, 2024 (corrected December 3, 2024)



December 3, 2024

Mr. Steve Cassulo
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

**Subject: Request for Extension of Milestone 2A-1 (Formerly Mitigation Measure #2A),
Chiquita Canyon Landfill, Castaic, California**

Dear Mr. Cassulo,

On behalf of Chiquita Canyon, LLC (Chiquita), Tetra Tech hereby submits this request for an extension of the December 6, 2024 deadline to complete installation of the 30-mil HDPE geosynthetic cover over the reaction area of the Chiquita Canyon Landfill (Landfill) (Milestone 2A-1), pursuant to the June 6, 2024 Compliance Order (Compliance Order) issued by the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA). Chiquita hereby requests an additional six-week extension to the December 6, 2024 deadline to January 17, 2025, for the forgoing reasons.

Milestone 2A-1 Extension Request

Approximately 42.9 acres of geosynthetic cover have been installed to date in accordance with Milestone 2A-1 of the Compliance Order. There remains approximately 1.5 acres of 30-mil HDPE geosynthetic cover to be installed on the west slope of the Landfill. See Attachment 1 for approximate limits of geosynthetic cover installed as of November 13, 2024.

On September 24, 2024, Tetra Tech, on behalf of Chiquita, requested an extension from the LEA to complete installation of the approximately 3.4 additional acres of geosynthetic cover on the west slope of the Landfill. In that letter, Chiquita proposed an updated installation schedule, noting that the schedule was subject to change based on weather, site conditions, and unanticipated events. Chiquita also identified several tasks associated with the west toe drainage project that had to be completed before the additional 3.4 acres of geosynthetic cover could be placed. *See Attachment 2.* The LEA responded with a letter dated October 11, 2024, granting Chiquita an extension until December 6, 2024 to complete the work.

Work to install the west toe drain commenced on August 8, 2024 and is ongoing. As communicated to the LEA in Chiquita's weekly updates for August through November, earthwork crews have continued installation of the west toe drain, bench collectors, top deck access roads, and operations layer over the existing geosynthetic cover. In addition, liner crews have continued work on the west toe drain, including opening and re-covering the scrim for excavation work, making repairs to the existing primary liner within the west toe drain footprint, and installing geosynthetics (cushion geotextile and drainage geocomposite).

Per the most recent extension request, the west toe drain installation project was estimated to take approximately twelve (12) weeks; however, the west toe drain installation is expected to be completed on November 26, 2024, for a total of approximately fifteen (15) weeks of construction. Delays associated with the west toe drain installation included the following:

- The quantity of required existing primary geomembrane repairs exceeded what was originally anticipated;
- There were progress delays due to high winds on November 6, 7, and 12, 2024; and
- Modifications to the design were implemented to improve the longevity and long-term performance of the west toe drain. These modifications included the following:
 - The coverage of the 60-mil geomembrane was extended to the top of the bench rather than to a mere small flap over the toe drain. The original design for the west toe drain included approximately 0.5 acres of 60-mil geomembrane. To date, approximately 2.4 acres of 60-mil geomembrane has been placed, which encompasses the 1.8 acres that was previously covered by scrim and a portion of the surrounding 1.6 acres on the west slope (see Attachment 1); and
 - The volume of earth fill over the 60-mil geomembrane was increased to provide buttressing of the west toe drain.

A secondary drain is now required on the bench above the west toe drain to collect liquid from the surface collectors under the 30-mil geomembrane on the slope above. The secondary drain is anticipated to take approximately two weeks to construct. The sequencing of the 30-mil geosynthetic cover installation is affected by the addition of the secondary drain and will extend the geosynthetic cover installation timing by approximately one week.

In summary, the west toe drain installation took three additional weeks than what was originally estimated. Construction of the secondary drain is anticipated to take approximately two additional weeks, and the anticipated 30-mil geosynthetic cover installation duration will be extended by approximately one additional week. Chiquita hereby requests an extension until **January 17, 2025** to complete the work associated with Milestone 2A-1.

The following proposed timeline provides an updated installation schedule and is subject to change based on weather, site conditions, and unanticipated events. Chiquita will update the LEA should the below proposed timelines change:

Updated Estimated Duration	Updated Estimated Dates	Updated Estimated Efforts and Goals re: Milestone 2A-1
15 weeks	Aug 8 – Nov 26	Complete installation of the west toe drain
3.5 weeks	Nov 20 – Dec 13	Complete installation of 30-mil geosynthetic cover on approximately 2.4 acres of the west toe drain
2 weeks	Dec 16 – Dec 27	Complete installation of the secondary drain



2 weeks	Dec 30 – Jan 10	Complete installation of 30-mil geosynthetic cover on approximately 1.0 additional acre on the west slope between the west toe drain and current 30-mil geosynthetic cover termination
1 week	Jan 13 – Jan 17	Finalize reporting

Expansion of the Geosynthetic Cover

As part of the west toe drain construction, refuse that was removed from the west toe was disposed of on the top deck adjacent to the southeast termination of the 30-mil geosynthetic cover. The geosynthetic cover will be expanded to cover the disposal area in accordance with the West Toe Drain Workplan. While the west toe drain installation project is expected to be complete on November 26, Chiquita is in the process of constructing the north toe termination and additional grading south of the west toe drain construction project and is reserving the above-described disposal area for any potential refuse encountered as part of this remaining work. Therefore, the disposal area is not planned to be covered with the 30-mil geosynthetic cover until the north toe termination project and the additional grading south of the west toe drain is completed. The north toe termination project is expected to be completed on or around November 27, 2024 and the grading south of the west toe drain is expected to be completed on or around December 13, 2024. The disposal area is approximately 1.4 acres (see Attachment 1). The disposal area currently has a minimum of 12-inches of intermediate soil cover over the refuse in accordance with 27 CCR 20700 and is expected to be covered with geosynthetic cover within approximately three weeks of completion of the project scope associated with the toe termination on the north and west. This timing is not included in the above-described estimated schedule for completion of the geosynthetic cover associated with Milestone 2A-1.

Please let us know if you have any questions or concerns regarding this extension request.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Julie H'.

Julie Hauenstein, P.E.
Project Manager
Tetra Tech
(909) 835-8167

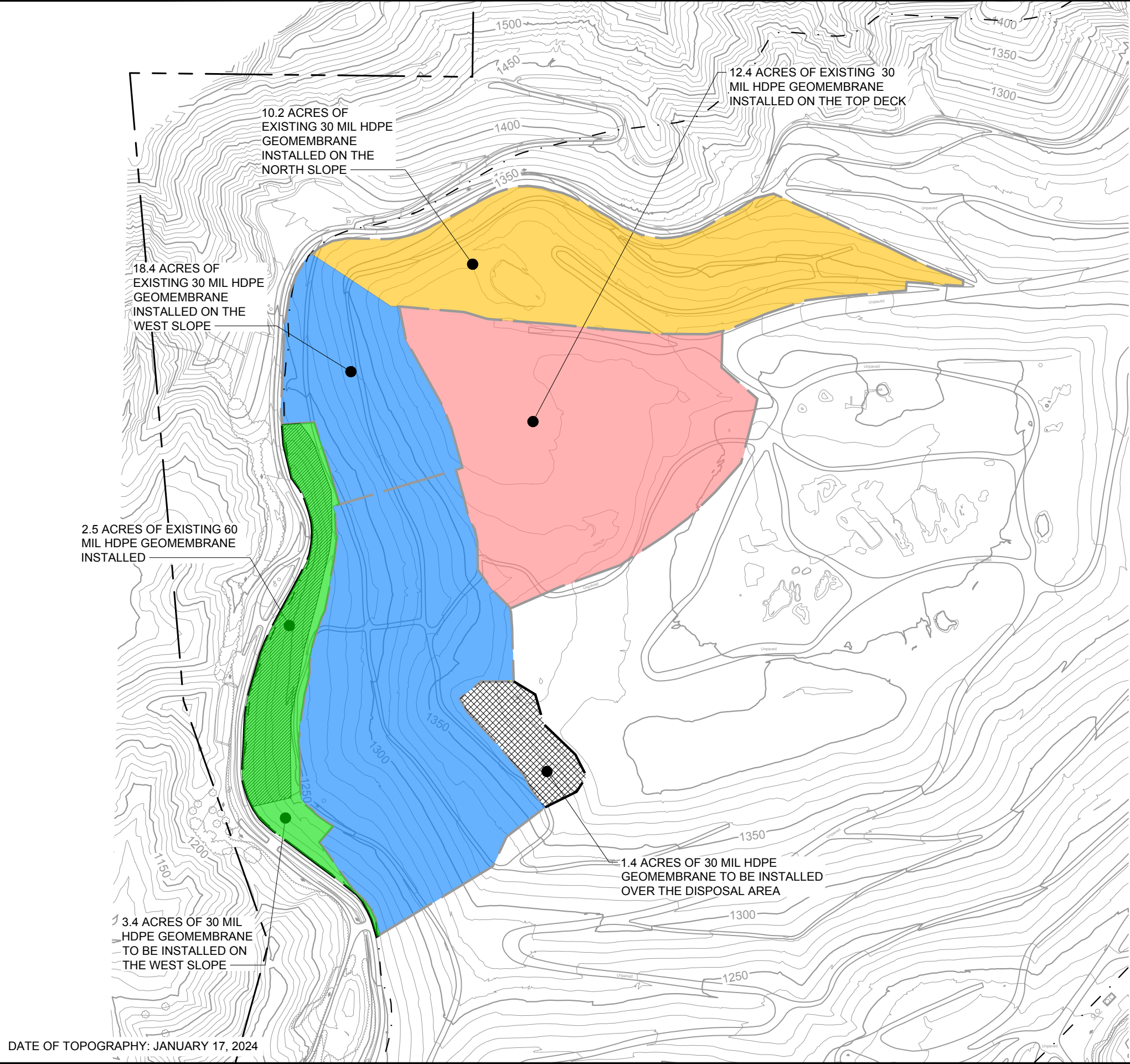
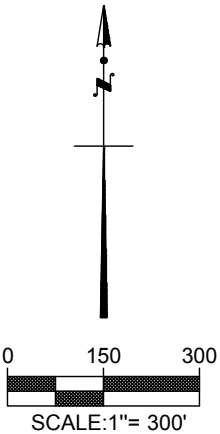
Attachments: 1. Approximate Limits of Geosynthetic Cover (11/13/24)
2. Previous Request for Extension Regarding Milestone 2A-1 and 4-4 (9/24/24)



cc: Kelly Kincella, Waste Connections
Nicole Ward, Waste Connections
Amanda Froman, 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
Ken Habaradas, Los Angeles County Department of Public Health
Karen Gork, LEA
Eric Morofuji, 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
Ai-Viet Huynh, Los Angeles County Department of Regional Planning
Wes Mindermann, CalRecycle
Janelle Heinzler, CalRecycle
Jeff Lindberg, California Air Resources Board
Vanessa Aguila, California Air Resources Board
Jack Cheng, South Coast Air Quality Management District
Larry Israel, South Coast Air Quality Management District
Douglas Cross, Los Angeles Regional Water Quality Control Board
Tyler Holybee, United States Environmental Protection Agency
Mark Anthony Relon, United States Environmental Protection Agency
Laura Friedli, United States Environmental Protection Agency
Joshua Wirtschafter, United States Environmental Protection Agency

Attachment 1

P:\Waste Connections\Chiquita\Odor Control\CAD\SheetFiles\Figures\FIGURE 1 - APPROXIMATE LIMITS OF GEOSYNTHETIC COVER 2024-11-13



NOTES:
1. EXISTING LINER LIMITS PER NOVEMBER 13, 2024 AERIAL PHOTO.

- LEGEND**
- 50— 2024 MAJOR CONTOUR
 - 2024 MINOR CONTOUR
 - - - - - PROPERTY BOUNDARY
 - . - . - PERMITTED LIMIT OF REFUSE
 - — — — — EXISTING LIMIT OF LINER
 - — — — — PROPOSED LIMIT OF LINER

**TETRA TECH**
21700 Copley Drive, Suite 200
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WASTE CONNECTIONS			
DESIGNED BY: J.H.M.	DATE: 06-2024		
DRAWN BY: R.L.	PROJ. NO.: 2024-0122		
CHECKED BY: D.J.P.			
APPROVED BY: J.M.H.			

CHIKUITA CANYON LANDFILL

APPROXIMATE LIMITS OF
GEOSYNTHETIC COVER

FIGURE 1

Attachment 2



September 24, 2024

Mr. Steve Cassulo
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

Subject: Request for Extension of Milestone 2A-1 (Formerly Mitigation Measure #2A) and Milestone 4-4, Chiquita Canyon Landfill, Castaic, California

Dear Mr. Cassulo,

On behalf of Chiquita Canyon, LLC (Chiquita), Tetra Tech and SCS Engineers (SCS) hereby submit this request for an extension of two deadlines for requirements set forth in the June 6, 2024 Compliance Order issued by the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA) with respect to the Chiquita Canyon Landfill (CCL or Landfill): (1) the October 23, 2024 deadline to complete installation of the 30-mil HDPE geosynthetic cover over the reaction settlement area in accordance with Milestone 2A-1, and (2) the 120-day period (November 22, 2024 deadline, and no later than November 28, 2024) to demonstrate compliance with 27 CCR Section 20921 in accordance with Milestone 4-4.

Milestone 2A-1 Extension Request

Approximately 41 acres of geosynthetic cover have been installed to date in accordance with Milestone 2A-1 of the Compliance Order. There remains 1.8 acres of scrim on the west slope and an additional 1.6 acres surrounding the scrim of remaining cover to be installed. *See Attachment 1.*

On August 2, 2024, Tetra Tech, on behalf of Chiquita, requested an extension from the LEA to complete installation of the approximately 3.4 additional acres of geosynthetic cover on the west slope of the Landfill. In that letter, Chiquita proposed an updated installation schedule, noting that the schedule was subject to change based on weather, site conditions, and unanticipated events. *See Attachment 2.* Chiquita noted in the extension request and prior correspondence with the LEA that the area of the Landfill covered by the scrim would be replaced once liquid levels in the area have dropped. Chiquita further noted in the extension request that the 1.8 acres of Landfill that is currently covered by the scrim cannot be replaced until after the toe drain work is complete and the liquid levels in the area have dropped, and that the installation of the approximate 1.6 acres of area surrounding the existing scrim also cannot be completed until after the toe drain work is complete because the installation of the geosynthetic cover over that area would cut off access to the west toe drain installation. The LEA responded with a letter dated August 13, 2024, granting Chiquita an extension until October 23, 2024 to complete the work.

Work on installation of the west toe drain commenced on August 8, 2024 and is ongoing. As communicated to the LEA in Chiquita's Mitigation Measure #2A Weekly Updates for August and September, earthwork crews have continued installation of the west toe drain, installation of the bench collectors, installation of the top deck access roads and operations layer over the existing geosynthetic cover. In addition, liner crews continued working on the west toe drain, including opening and re-covering the scrim for excavation work, making repairs to the existing primary liner within the west toe drain footprint, and placing cushion geotextile and drainage geocomposite.

The west toe drain installation was originally estimated to take approximately six weeks. However, the first four weeks were extremely slow due to the restricted size of the initial work zone. Chiquita was able to modify the work plan and obtain approval from the Response Multiagency Coordination Group to open up the work zone to improve production, but production is still limited due to multiple crews working in the same area, multiple layers involved in the project, and because of the increased volume of leachate in certain of the sections and the additional processing time to manage and control the leachate. Several tasks associated with the west toe drainage project must still be completed before the additional 3.4 acres of geosynthetic cover can be placed, including but not limited to excavation and removal of undesirable materials; repairing the primary liner; placing rock and installing perforated drainage, gas pipes, and sumps.

Chiquita hereby requests an extension until **December 6, 2024** to complete the work associated with Milestone 2A-1.

The following proposed timeline provides an updated installation schedule and is subject to change based on weather, site conditions, and unanticipated events. Chiquita will update the LEA should the below proposed timelines change:

Updated Estimated Duration	Updated Estimated Dates	Updated Estimated Efforts and Goals re: Milestone 2A-1
12 weeks	Aug 8 – Nov 1	Complete installation of the west toe drain
4 weeks	Nov 4 – Nov 29	Complete geosynthetic cover on the approximately 3.4 additional acres of geosynthetic cover on the west slope
1 week	Dec 2 – Dec 6	Finalize reporting

Milestone 4-4 Extension Request

In accordance with Milestone 4-1 of the Compliance Order, SCS, on behalf of Chiquita, submitted its *Landfill Gas Extraction Well Completion Report* on July 31, 2024, confirming completion of the installation of the additional 107 landfill gas (LFG) extraction wells in accordance with the February 26, 2024 Remediation Plan approved by the LEA. The installation of the 107th well (CV-2468) on July 25, 2024 triggered the beginning of the 120-day compliance period relating to methane concentrations described in Milestone 4-4 of the Compliance Order. As noted in the July



31 submittal, and as further described below, the ability to comply with Milestone 4-4 is influenced by ongoing work at the Landfill, including the west slope toe drain installation.

Milestone 4-4 relates to methane levels at perimeter monitoring wells GP-13 and GP-15, which are immediately adjacent to the west side scrim. Until the west slope toe drainage installation work is complete, and the scrim is replaced with the geosynthetic cover, the methane levels at the nearby GP-13 and GP-15 wells will be impacted by the inability to pull sufficient gas from the west slope while the slope is still exposed and not covered in accordance with Milestone 2A-1. In addition, while all of the 107 wells associated with the gas collection and control system (GCCS) have been installed, the system itself is currently being expanded in conjunction with the geomembrane cover installation project. For example, the gas collection piping in the west side area is currently temporary and while it has reduced/prevented emissions, the system is not yet at sufficient capacity for methane gas extraction. Final piping cannot be installed until the 30-mil HDPE geomembrane cover is fully installed in that area. As the permanent piping is installed upon completion of the geomembrane cover project, the overall gas extraction will increase.

Moreover, as the LEA is aware, the sub-grade liner in the west slope of the Landfill is damaged, and efforts to repair the liner are ongoing. Until those repairs are complete, there remains a potential avenue for methane gas migration. Repairs of the sub-grade liner are expected to be completed by November 1, 2024, in conjunction with the completion of the west toe drain work as noted in the above timeline table, which is subject to change based on weather, site conditions, and unanticipated events.

Because compliance with the methane concentration limits in Milestone 4-4 is dependent on completion of the west slope toe drain installation work, replacement of the west side scrim and installation of the 30-mil HDPE geomembrane cover, completion of the GCCS, and repair of the sub-grade liner, Chiquita hereby requests an extension of the 120-day compliance period to approximately 180 days or January 21, 2025 to allow time for the gas system to begin functioning optimally after the completion of Milestone 2A-1. SCS continues to expect, based on prior experience, that the methane readings will improve and drop below 5 percent by volume after completion of the above-described work.

Please let us know if you have any questions or concerns regarding the above extension requests.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Julie H'.

Julie Hauenstein, P.E.
Project Manager
Tetra Tech
(909) 835-8167

William C. Haley, P.E.
Project Director
SCS Engineers
(303) 221-1719

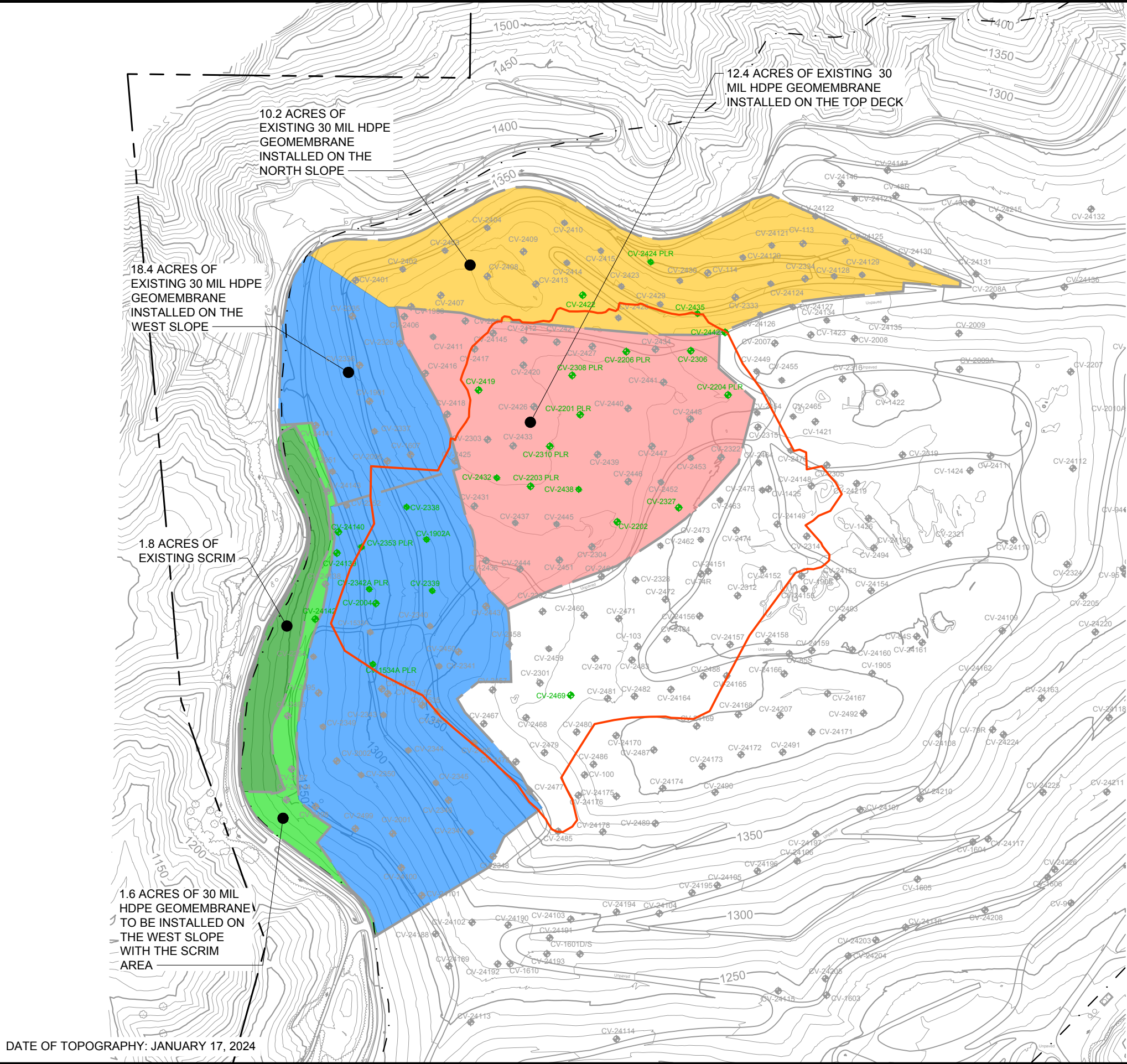
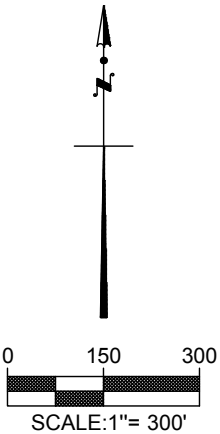


Attachments: 1. Approximate Limits of Geosynthetic Cover (9/18/24)
2. Request for Extension Regarding Milestone 2A-1 (8/2/24)

cc: Kelly Kincella, Waste Connections
Nicole Ward, Waste Connections
Steve Cassulo, Waste Connections
Amanda Froman, 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
Ken Habaradas, Los Angeles County Department of Public Health
Karen Gork, LEA
Eric Morofuji, LEA
Renee Jensen, LEA Counsel
Blaine McPhillips, County Counsel
Emiko Thompson, Los Angeles County Public Works
Alex Garcia, Los Angeles County Department of Regional Planning
Ai-Viet Huynh, Los Angeles County Department of Regional Planning
Wes Mindermann, CalRecycle
Janelle Heinzler, CalRecycle
Jeff Lindberg, California Air Resources Board
Vanessa Aguila, California Air Resources Board
Jack Cheng, South Coast Air Quality Management District
Larry Israel, South Coast Air Quality Management District
Douglas Cross, Los Angeles Regional Water Quality Control Board
Tyler Holybee, United States Environmental Protection Agency
Mark Anthony Relon, United States Environmental Protection Agency
Laura Friedli, United States Environmental Protection Agency
Joshua Wirtschafter, United States Environmental Protection Agency

Attachment 1

P:\Waste Connections\Chiquita\Olor Control\CAD\Sheet\Files\Figures\FIGURE 1 - APPROXIMATE LIMITS OF GEOSYNTHETIC COVER 2024-09-11



- NOTES:
- EXISTING LINER LIMITS PER SEPTEMBER 18, 2024 AERIAL PHOTO
 - LIMIT OF SETTLEMENT AS OF SEPTEMBER 11, 2024.
 - WELLS SHOWING SIGNS OF A REACTION AS OF SEPTEMBER 6, 2024 DATA PER SCS ENGINEERS. A REACTIVE WELL IS A VERTICAL WELL THAT EXHIBITS ALL OF THE FOLLOWING CHARACTERISTICS:
 - LANDFILL GAS (LFG) WELLHEAD TEMPERATURES IN EXCESS OF APPROXIMATELY 160 DEGREES FAHRENHEIT.
 - POOR GAS QUALITY (DEFINED AS METHANE LEVELS OF LESS THAN 30 PERCENT) IN CONJUNCTION WITH METHANE-TO-CARBON DIOXIDE (CH₄:CO₂) RATIOS LESS THAN 1.0.
 - THE CONCENTRATION OF HYDROGEN (H₂) IN THE LFG MEASURED GREATER THAN 2 PERCENT BY VOLUME.

- LEGEND
- 50 2024 MAJOR CONTOUR
 - 2024 MINOR CONTOUR
 - PROPERTY BOUNDARY
 - PERMITTED LIMIT OF REFUSE
 - EXISTING LIMIT OF LINER
 - PROPOSED LIMIT OF LINER
 - CLOSED LIMIT OF REFUSE
 - LIMIT OF SETTLEMENT
 - EXISTING VERTICAL WELL
 - EXISTING VERTICAL WELL - PRESSURIZED LEACHATE RELEASE
 - EXISTING VERTICAL WELL - REACTIVE
 - EXISTING HORIZONTAL WELL

TETRA TECH
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WASTE CONNECTIONS		CHIKUITA CANYON LANDFILL	
DESIGNED BY: J.H.M.	DATE: 06-2024	APPROXIMATE LIMITS OF GEOSYNTHETIC COVER	
DRAWN BY: R.L.	PROJ. NO.: 2024-0122		
CHECKED BY: D.J.P.			
APPROVED BY: J.H.M.		FIGURE 1	

Attachment 2



August 2, 2024

Mr. Steve Cassulo
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

Subject: Request for Extension Regarding Milestone 2A-1 (Formerly, Mitigation Measure #2A), Chiquita Canyon Landfill, Castaic, California

Dear Mr. Cassulo,

On behalf of Chiquita Canyon, LLC (Chiquita), Tetra Tech hereby submits this request for an extension of the August 2, 2024 deadline to complete installation of the approximately 3.4 additional acres of geosynthetic cover on the west slope in compliance with Milestone 2A-1 at the Chiquita Canyon Landfill (CCL or Landfill).

As of today, August 2, 2024, Chiquita has installed approximately 41 acres of geosynthetic cover at the Landfill. Chiquita stated in its updated installation schedule submitted to the LEA on May 14, 2024 that the approximate 1.8 acres of area temporarily covered by scrim on the west slope was not included in the August 2, 2024 compliance deadline, as it was dependent on lowering of the liquid levels. More specifically, Chiquita stated, "The area of the Landfill currently covered by the scrim will be replaced by the 30 mil HDPE Geomembrane Cover once liquid levels in the areas have dropped. This area is currently not included in this schedule." The LEA acknowledged this exclusion from the schedule in its May 29, 2024 letter responding to Chiquita, stating in relevant part, "The area of the landfill that is currently covered by the scrim will be replaced once liquid levels in the area have dropped according to the Workplan and is not currently included in the July 12, 2024 deadline." This workplan refers to the draft toe drain workplan submitted on May 14, 2014, together with the updated installation schedule. The LEA's Compliance Order subsequently extended the July 12, 2024 deadline to August 2, 2024.

Chiquita has begun preparing for the west toe drain project as outlined the May 14, 2024 draft west toe drain workplan and further described in its weekly geosynthetic capping status updates submitted to the LEA on July 26, 2024 and today. Chiquita is working together with its regulators to finalize a workplan and ensure adequate health and safety measures are in place. At this time, Chiquita anticipates construction on the west toe drain work to commence the week of August 5. The 1.8 acres of landfill that is currently covered by the scrim cannot be replaced until after the toe drain work is complete and the liquid levels in the area have dropped, as further explained in the workplan. The installation of the approximate 1.6 acres of area surrounding the existing scrim also cannot be completed until after the toe drain work is complete because the installation of the geosynthetic cover over that area would cut off access to the west toe drain installation.

The following proposed timeline provides an updated installation schedule and is subject to change based on weather, site conditions, and unanticipated events.

Estimated Duration	Estimated Dates	Estimated Efforts and Goals re: Mitigation Measure #2A-1
6 Weeks	August 7 – September 18	Installation of the west toe drain
4 Weeks	September 18 – October 16	Complete geosynthetic cover on the west slope, approximately 3.4 additional acres of geosynthetic cover
1 Week	October 16 – October 23	Finalize reporting

We will follow up with additional response to the LEA's July 31, 2024 letter.

Sincerely,



Julie Hauenstein, P.E
Project Manager
(909) 835-8167

cc:

Nicole Ward, Chiquita
Steve Cassulo, Chiquita
Amanda Froman, Chiquita
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
Ken Habaradas, Los Angeles County Department of Public Health
Karen Gork, LEA
Eric Morofuji, LEA
Renee Jensen, LEA Counsel
Blaine McPhillips, County Counsel
Emiko Thompson, Los Angeles County Public Works
Alex Garcia, Los Angeles County Department of Regional Planning
Ai-Viet Huynh, Los Angeles County Department of Regional Planning
Wes Mindermann, CalRecycle
Janelle Heinzler, CalRecycle
Jeff Lindberg, California Air Resources Board
Vanessa Aguila, California Air Resources Board
Jack Cheng, South Coast Air Quality Management District
Larry Israel, South Coast Air Quality Management District
Douglas Cross, Los Angeles Regional Water Quality Control Board
Thanne Berg, United States Environmental Protection Agency

Attachment 2

**LEA Response to Request for Extension of Milestone 2A-1 and Updated
Installation Schedule, December 6, 2024.**



BARBARA FERRER, Ph.D., M.P.H., M.Ed.
Director

MUNTU DAVIS, M.D., M.P.H.
County Health Officer

ANISH P. MAHAJAN, M.D., M.S., M.P.H.
Chief Deputy Director

NICHOLE QUICK, M.D., M.P.H.
Deputy Director for Health Protection

LIZA FRIAS, REHS
Director of Environmental Health

SCOTT ABBOTT, REHS, M.P.A.
Assistant Director of Environmental Health

5050 Commerce Drive
Baldwin Park, California 91706
TEL (626) 430-5374 • FAX (626) 813-3000

www.publichealth.lacounty.gov/eh/

December 6, 2024

Via Electronic Correspondence

Steve Cassulo
Steven.Cassulo@Wasteconnections.com
District Manager
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

**SUBJECT: CHIQUITA CANYON LANDFILL (CCL) (SWIS NO. 19-AA-0052) LEA
RESPONSE TO CCL REQUEST FOR ADDITIONAL TIME EXTENSION
OF MILESTONE 2A-1**

Dear Mr. Cassulo,

On November 22, 2024, the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), received a "Request for Extension of Milestone 2A-1" (Additional Extension Request), as prepared by Tetra Tech, dated November 22, 2024, for Chiquita Canyon Landfill (CCL). The request was resubmitted on December 3, 2024, to correct an error identified in the initial submission.

In accordance with the Compliance Schedule set forth in the LEA's Compliance Order dated June 6, 2024 (Order), CCL was granted multiple time extensions to complete the installation of the geosynthetic cover over the reaction area (Milestone 2A-1). The most recent approval was issued in a letter dated October 11, 2024, which LEA granted the time extension until December 6, 2024.

The LEA, in collaboration with California Department of Resources Recycling and Recovery (CalRecycle), reviewed the Additional Extension Request and approved the time extension until January 17, 2025.

The proposed timeline and updated installation schedule are approved, as shown in the table below. The final date to complete all required work in the updated installation schedule, which includes submittal of the final completion report, is January 17, 2025. Please continue with the weekly updates on the progress of the geosynthetic cover installation and any changes to the updated installation schedule.



BOARD OF SUPERVISORS

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Holly J. Mitchell
Second District

Lindsey P. Horvath
Third District

Janice Hahn
Fourth District

Kathryn Barger
Fifth District

Updated Estimated Duration	Updated Estimated Dates	Updated Estimated Efforts and Goals re: Milestone 2A-1
15 weeks	Aug 8 – Nov 26	Complete installation of the west toe drain
3.5 weeks	Nov 20 – Dec 13	Complete installation of 30-mil geosynthetic cover on approximately 2.4 acres of the west toe drain
2 weeks	Dec 16 – Dec 27	Complete installation of the secondary drain
2 weeks	Dec 30 – Jan 10	Complete installation of 30-mil geosynthetic cover on approximately 1.0 additional acre on the west slope between the west toe drain and current 30-mil geosynthetic cover termination
1 week	Jan 13 – Jan 17	Finalize reporting

Due to the approval of the Additional Extension Request, the LEA has amended the Compliance Schedule, and the revised deadline to achieve full compliance with 27 CCR Section 20750 is January 17, 2025.

If you have any questions, please contact Eric Morofuji at (213) 668-2206.

Sincerely,

Ken Habaradas, Environmental Health Services Manager
Los Angeles County Department of Public Health

Enclosed: Additional Extension Request, December 3, 2024

Cc: (Via Electronic Correspondence Only)

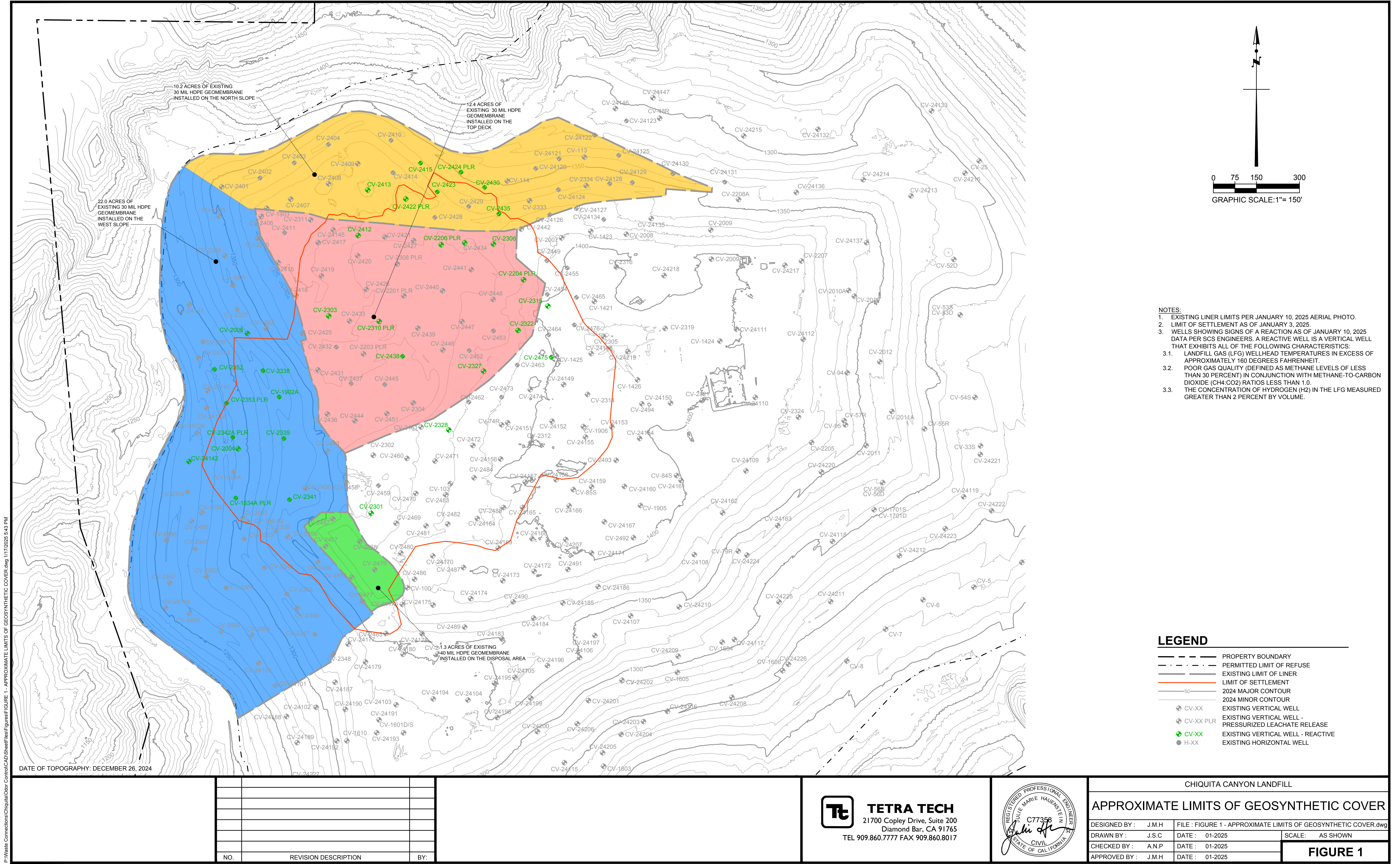
- Robert Ragland, Los Angeles County Department of Public Health
- Liza Frias, Los Angeles County Department of Public Health
- Nichole Quick, M.D., Los Angeles County Department of Public Health
- Shikari Nakagawa-Ota, Los Angeles County Department of Public Health
- Eric Morofuji, Los Angeles County 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
- Ai-Viet Huynh, Los Angeles County Department of Regional Planning
- Wes Mindermann, CalRecycle (wes.mindermann@calrecycle.ca.gov)
- Janelle Heinzler, CalRecycle (janelle.heinzler@calrecycle.ca.gov)
- Jeff Lindberg California Air Resources Board (jeff.lindberg@arb.ca.gov)
- Vanessa Aguila, California Air Resources Board (vanessa.aguila@arb.ca.gov)
- Jack Cheng, South Coast Air Quality Management Board (jcheng@aqmd.gov)
- Larry Israel, South Coast Air Quality Management Board (lisrael@aqmd.gov)

Steven Cassulo
December 6, 2024
Page 3 of 3

- Douglas Cross, Los Angeles Regional Water Quality Control Board (dcross@waterboards.ca.gov)
- Linda Lye, California Environmental Protection Agency (linda.lye@calepa.ca.gov)
- Joel Jones, United States Environmental Protection Agency (Jones.Joel@epa.gov)

Attachment 3

**Figure illustrating the approximate limits of the Geomembrane Cover
installed as of January 10, 2025**



P:\Waste Connectors\Chiquita\Ode Central\CAD\Sheets\Figures\FIGURE 1 - APPROXIMATE LIMITS OF GEOSYNTHETIC COVER.dwg 1/17/2025 5:43 PM

Attachment 4
30 mil HDPE Geomembrane Technical Data Sheet

PROPERTY ⁽¹⁾	TEST METHOD	FREQUENCY	UNIT Imperial	1084228
SPECIFICATIONS				
Thickness (Nominal $\pm 10\%$) (11)	ASTM D5994	Every roll	mils	30
Asperity Height (min. avg.)	ASTM D7466	Every roll	mils	16
Resin Density	ASTM D1505	Certified	g/cc	> 0.932
Melt Index - 190°C/2.16 kg (max.)	ASTM D1238	Certified	g/10 min	1.0
Density	ASTM D792	One per batch	g/cm ³	≥ 0.940
Carbon Black Content	ASTM D4218	Every 2 rolls	%	2.0 - 3.0
Carbon Black Dispersion	ASTM D5596	Every 10 rolls	Category	Cat. 1 & Cat. 2
OIT - Standard (min. avg.)	ASTM D8117	Per formulation	min	100
Tensile Properties (min. avg) (2)	ASTM D6693	Every 5 rolls		
Strength at Yield			lbs/in	63
Elongation at Yield			%	12
Strength at Break			ppi	45
Elongation at Break			%	100
Tear Resistance (min. avg.)	ASTM D1004	Every 10 rolls	lbf	21
Puncture Resistance (min. avg.)	ASTM D4833	Every 10 rolls	lbf	45
Dimensional Stability	ASTM D1204	Certified	%	± 2
Stress Crack Resistance (SP-NCTL)	ASTM D5397	One per batch	hr	500
Oven Aging - % retained after 90 days	ASTM D5721	Per formulation (5)		
HP-OIT (min. avg.)	ASTM D5885		%	80
UV Resistance - % retained after 1,600 hr	ASTM D7238	Per formulation (5)		
HP-OIT (min. avg.)	ASTM D5885		%	50
SUPPLY SPECIFICATIONS(Roll dimensions may vary $\pm 1\%$)				
Roll Dimension - Width	-		ft	22.5
Roll Dimension - Length	-		ft	830
Area (Surface/Roll)	-		ft ²	18675
Color (one side) (4)	-			White

NOTES

1. Testing frequency based on standard roll dimensions and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
4. Black or grey spots may be visible on the textured surface. Smooth edge may not have the same consistent shade of color as the membrane itself. The colored layer may cause the carbon black content results to be higher than 3%.
5. Certified by core (black) formulation on geomembrane roll or molded plaque.
11. The minimum average thickness is $\pm 10\%$ of the nominal value.

* All values are nominal test results, except when specified as minimum or maximum.

* The information contained herein is provided for reference purposes only and is not intended as a warranty or guarantee. Final determination of suitability for use contemplated is the sole responsibility of the user. SOLMAX assumes no liability in connection with the use of this information.

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

Attachment 5

Photo showing various stages of the geosynthetic cover installation



Photo #1
January 31, 2024
Surface Collector Bench Crossing Installation – West Slope



Photo #2
February 29, 2024
Subgrade Preparation – West Slope



Photo #3
February 29, 2024
Top Deck Anchor Trench – Top of West Slope



Photo #4
March 1, 2024
Top Deck Anchor Trench with Geosynthetic Cover Installed – Top of West Slope



Photo #5
April 10, 2024
Geosynthetic Cover Installation – North Slope



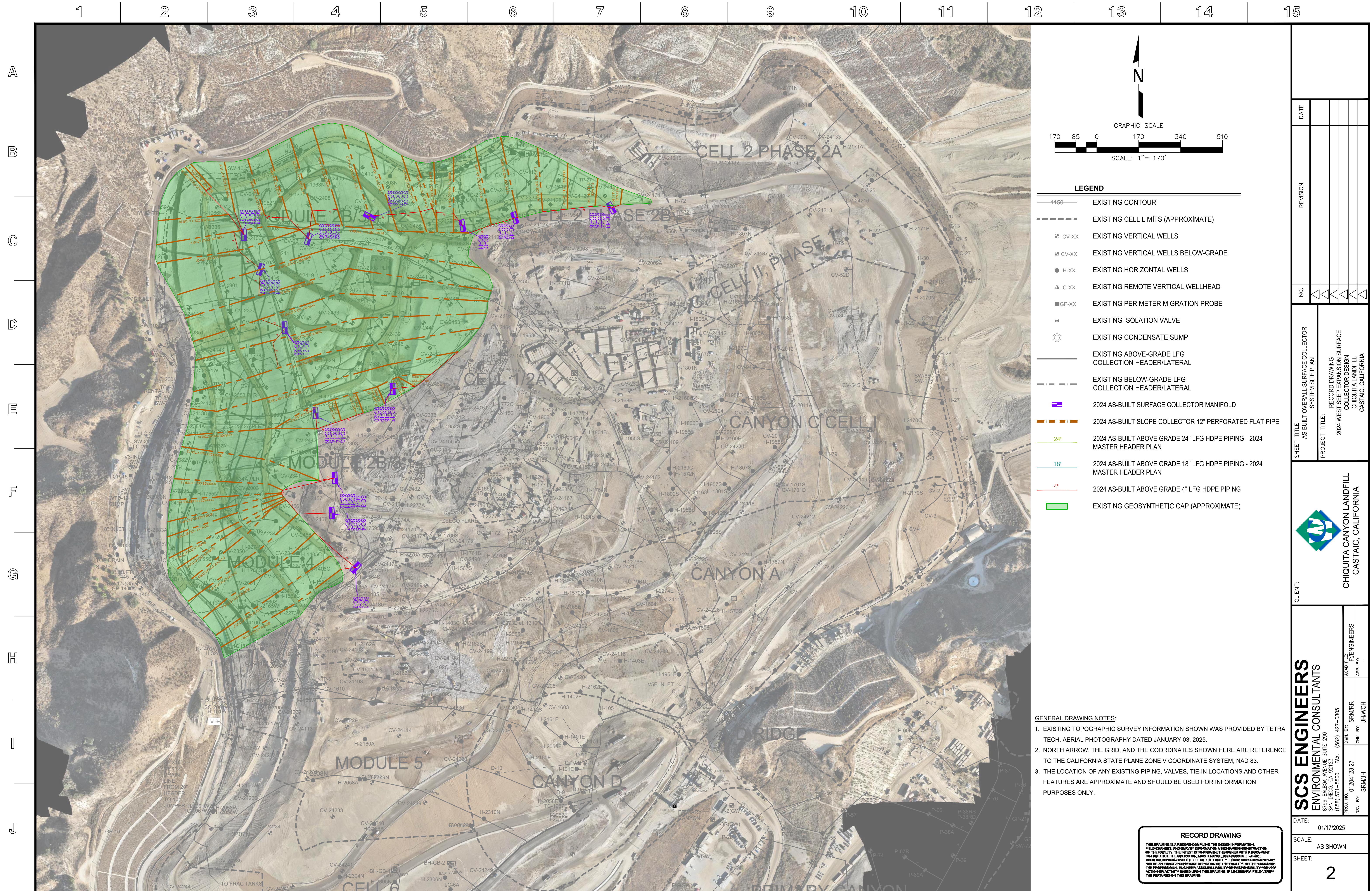
Photo #6
April 10, 2024
Geosynthetic Cover Seaming – North Slope

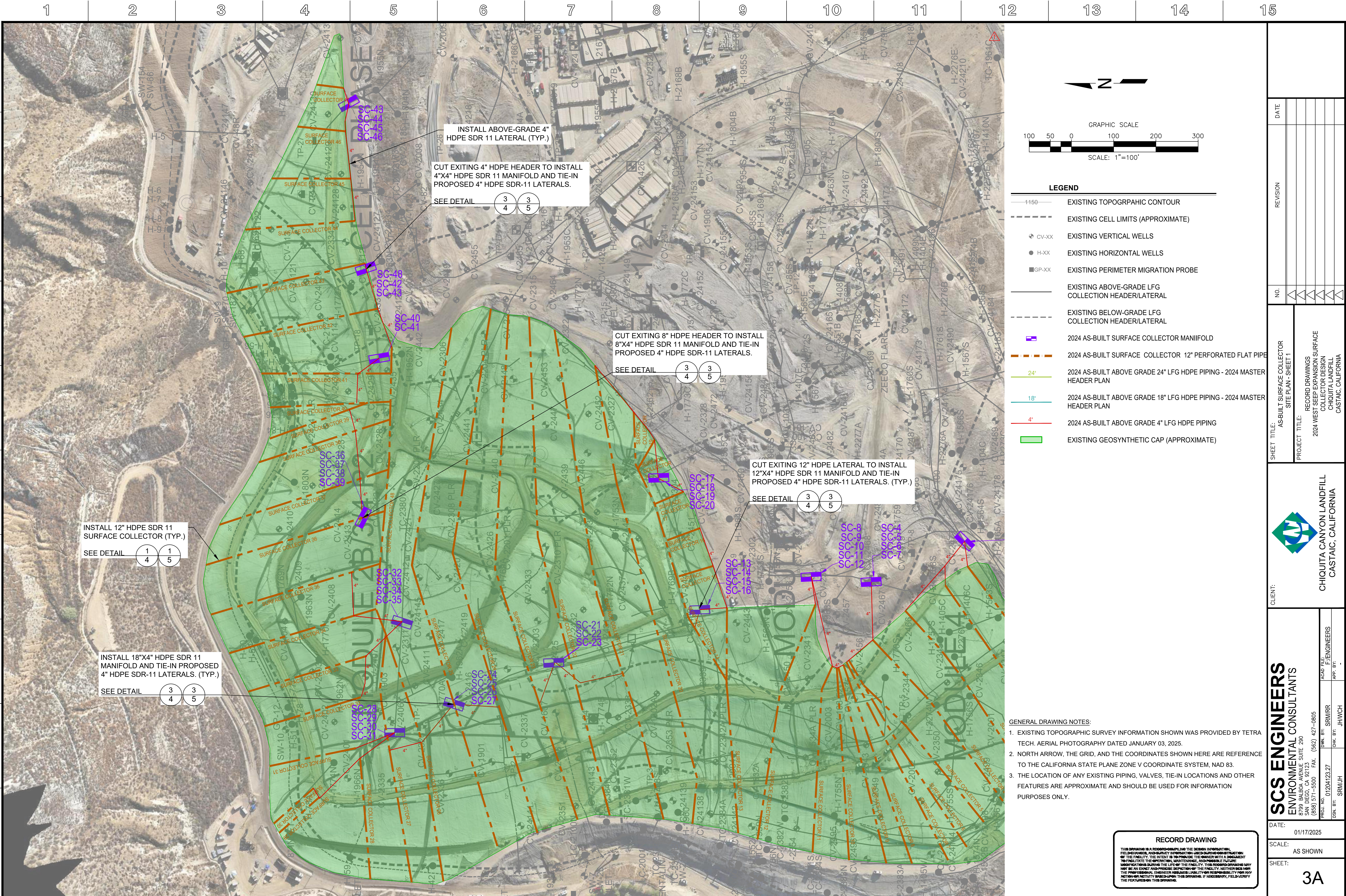
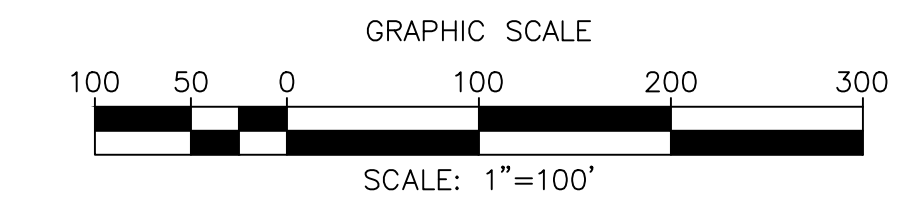


Photo #7
November 1, 2024
Access Road Drainage Crossing – Top Deck

Attachment 6

Plans showing the locations of the LFG surface collectors and details





LEGEND	
---	EXISTING TOPOGRAPHIC CONTOUR
- - -	EXISTING CELL LIMITS (APPROXIMATE)
CV-XX	EXISTING VERTICAL WELLS
H-XX	EXISTING HORIZONTAL WELLS
GP-XX	EXISTING PERIMETER MIGRATION PROBE
---	EXISTING ABOVE-GRADE LFG COLLECTION HEADER/LATERAL
- - -	EXISTING BELOW-GRADE LFG COLLECTION HEADER/LATERAL
[Symbol]	2024 AS-BUILT SURFACE COLLECTOR MANIFOLD
[Symbol]	2024 AS-BUILT SURFACE COLLECTOR 12" PERFORATED FLAT PIPE
[Symbol]	2024 AS-BUILT ABOVE GRADE 24" LFG HDPE PIPING - 2024 MASTER HEADER PLAN
[Symbol]	2024 AS-BUILT ABOVE GRADE 18" LFG HDPE PIPING - 2024 MASTER HEADER PLAN
[Symbol]	2024 AS-BUILT ABOVE GRADE 4" LFG HDPE PIPING
[Symbol]	EXISTING GEOSYNTHETIC CAP (APPROXIMATE)

- GENERAL DRAWING NOTES:
- EXISTING TOPOGRAPHIC SURVEY INFORMATION SHOWN WAS PROVIDED BY TETRA TECH. AERIAL PHOTOGRAPHY DATED JANUARY 03, 2025.
 - NORTH ARROW, THE GRID, AND THE COORDINATES SHOWN HERE ARE REFERENCE TO THE CALIFORNIA STATE PLANE ZONE V COORDINATE SYSTEM, NAD 83.
 - THE LOCATION OF ANY EXISTING PIPING, VALVES, TIE-IN LOCATIONS AND OTHER FEATURES ARE APPROXIMATE AND SHOULD BE USED FOR INFORMATION PURPOSES ONLY.

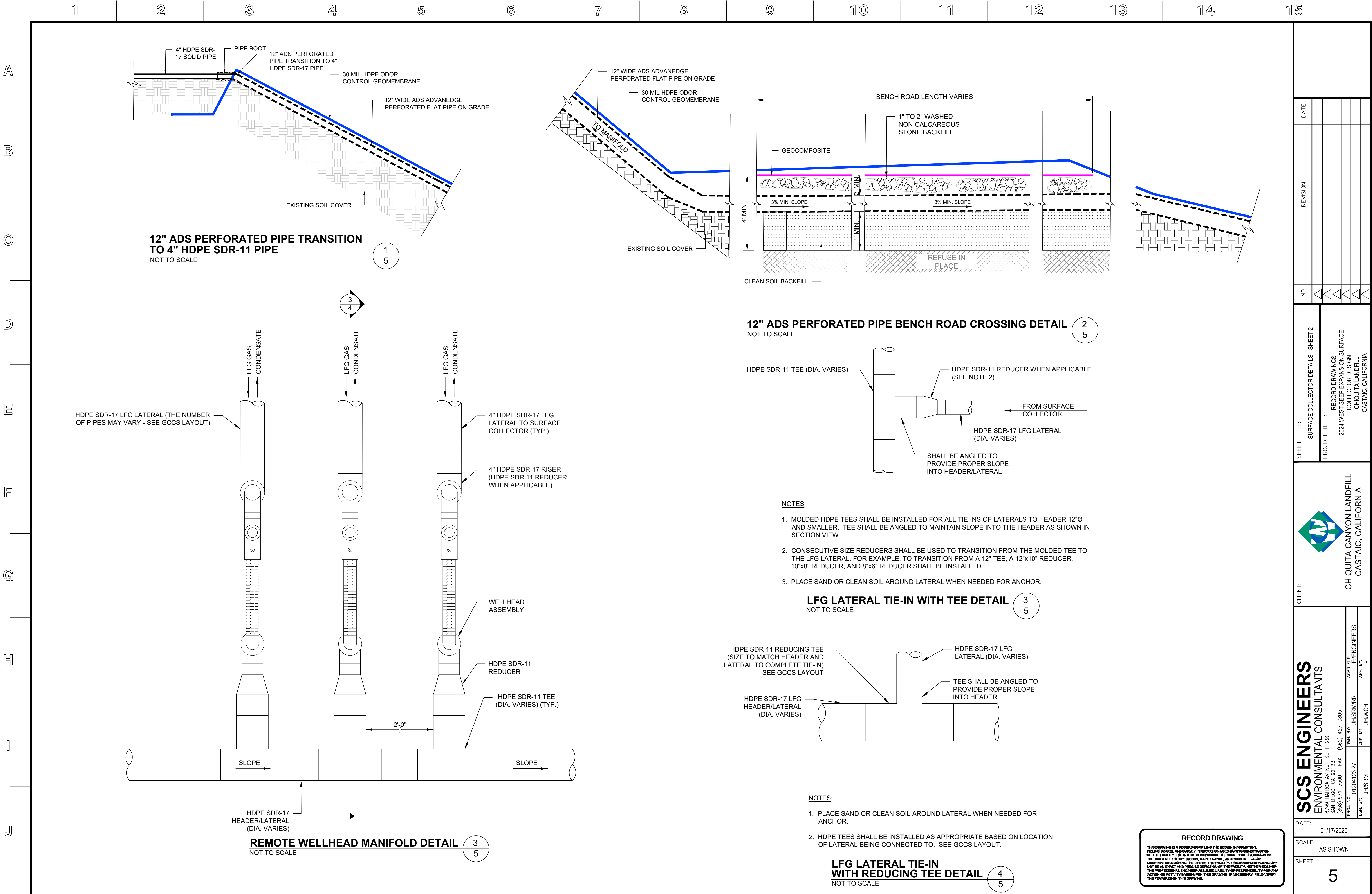
RECORD DRAWING

THIS DRAWING IS A RECORD-DRAWING OF THE DESIGN INFORMATION, FIELD MEASUREMENTS, AND SURVEY INFORMATION USED IN THE CONSTRUCTION OF THE FACILITY. THE INTENT IS TO PROVIDE THE OWNER WITH A DOCUMENT TO FACILITATE THE OPERATING MAINTENANCE, AND POSSIBLE FUTURE MODIFICATIONS DURING THE LIFE OF THE FACILITY. THIS RECORD DRAWING MAY NOT BE AN EXACT AND PRECISE REPRESENTATION OF THE FACILITY. NEITHER SCS NOR THE PROFESSIONAL ENGINEER ASSUMES LIABILITY FOR RESPONSIBILITY FOR ANY ACTS OR OMISSIONS MADE WHILE PREPARING THIS DRAWING. IF NECESSARY, FIELD VERIFY THE FEATURES ON THIS DRAWING.

CLIENT:	SHEET TITLE: AS-BUILT SURFACE COLLECTOR SITE PLAN - SHEET 1		NO.	REVISION		DATE	
	PROJECT TITLE: RECORD DRAWINGS 2024 WEST SEEP EXPANSION SURFACE COLLECTOR DESIGN CHICUITA LANDFILL CASTAIC, CALIFORNIA						
SCS ENGINEERS ENVIRONMENTAL CONSULTANTS 2500 BALBOA AVENUE, SUITE 250 SAN DIEGO, CA 92125 (619) 571-5500 FAX: (619) 427-0805		DATE:		01/17/2025		SHEET:	
		SCALE:		AS SHOWN			
DRAWN BY: SMWRR CHECKED BY: JHWCH		PROJECT NO: 01204123-27		APP. BY:		3A	
ACAD FILE: F:\ENGINEERS		CHICUITA CANYON LANDFILL CASTAIC, CALIFORNIA					



SECTION 3



Attachment 7

**Response to the Review and Conditions of Mitigation Measure #2A Chiquita
Canyon Landfill, Castaic, California, SCS Engineers, February 2, 2024**

February 2, 2024

Mr. Steve Cassulo
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

Subject: Response to the Review and Conditions of Mitigation Measure #2A
Chiquita Canyon Landfill, Castaic, California

Dear Mr. Cassulo,

On behalf of Chiquita Canyon, LLC (Chiquita), SCS Engineers (SCS), hereby submits this letter to provide additional information to the County of Los Angeles (County), Solid Waste Local Enforcement Agency (LEA), regarding the cover option, Mitigation Measure #2A. On December 19, 2023 and in subsequent communication on December 20, 2023 and January 23, 2024, Chiquita provided a workplan with an installation schedule and details on cover installation and landfill gas(LFG) management underneath the cover. In a letter from the LEA to Chiquita dated January 26, 2024, the LEA approved the updated workplan, schedule, and landfill gas management details with the following conditions:

1. Provide a system and procedure to ensure that landfill gas (LFG) does not accumulate underneath the geomembrane cover in the event the LFG collection and control system is inoperative due to power outage. The system and procedure can include the use of a thermal oxidizer with its own power supply, as discussed on January 19, 2024.
2. Provide a system and procedure to prioritize LFG extraction from the reaction area over other areas of the landfill in order to prevent the accumulation of LFG under the geomembrane cover should the LFG collection and control system lose vacuum, as discussed on January 19, 2024.
3. Submit weekly updates to the LEA for the geomembrane cover installation which, is to commence in the week of January 28, 2024.
4. Complete the geomembrane cover installation by March 25, 2024 (8 weeks from the start date of January 29, 2024).

Chiquita will send weekly updates to the LEA for the geomembrane cover installation starting this week, as required by Condition 3, and agrees to the installation schedule in Condition 4, weather permitting.

In response to Condition 1, Chiquita has implemented the use of a portable thermal oxidizer (TOX) that utilizes generator power separate from the flare station. Additionally, Chiquita is in the process of installing permanent utility power to the TOX so that it will run off separate utility power with a generator backup in case of a power failure. Between the flare station and the separately powered TOX with generator backup, Chiquita can continue to collect LFG in the event of a failure at the flare station, which will prevent LFG from accumulating underneath the geomembrane cover.

In response to Condition 2, Chiquita has already installed additional LFG isolation valves on headers throughout the LFG collection system and has placed the TOX at the south end of the reaction area, allowing it to prioritize extraction from the reaction area and the surface collectors underneath the geomembrane cover. In the event of a failure of the LFG collection system, the LFG isolation valves can be shut so that the TOX only applies vacuum to the reaction area, and this vacuum can be controlled and directed to different portions of the reaction area. Additionally, in the event that the TOX is not operable, the LFG isolation valves can be shut to re-direct vacuum from the flare station to prioritize extraction from the reaction area.

If you have any questions regarding information contained in this submittal, please contact the undersigned at 858-524-9525.

Sincerely,



Bill Haley, P.E.
Project Director
SCS ENGINEERS



Srividhya Viswanathan, P.E.
Vice President
SCS ENGINEERS

cc:

Nicole Ward, Waste Connections
Steve Cassulo, Waste Connections
Amanda Froman, Waste Connections
Cornelius Fong, SCS Field Services
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
Karen Gork, Los Angeles County LEA
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Ai-Viet Huynh, Los Angeles County Department of Regional Planning
Wes Mindermann, CalRecycle
Janelle Heinzler, CalRecycle
Jeff Lindberg, California Air Resources Board

Mr. Steve Cassulo

February 2, 2024

Page 3

Vanessa Aguila, California Air Resources Board

Jack Cheng, South Coast Air Quality Management District

Larry Israel, South Coast Air Quality Management District

Douglas Cross, Los Angeles Regional Water Quality Control Board

Thanne Berg, United States Environmental Protection Agency

Enclosure E – CCL Notice of Intent to Comply with DTSC ISE Order



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KShannon.@bdlaw.com

April 9, 2025

Via E-Mail

Daniel Ziarkowski, Branch Chief
Peter Ruttan, Project Manager
Department of Toxic Substances Control
Site Mitigation and Restoration Program
Legacy Landfills Office
8800 Cal Center Drive
Sacramento, CA 95826
Dan.ziarkowski@dtsc.gov
Peter.ruttan@dtsc.gov

**Re: Chiquita's Sufficient Cause Defenses and Notice of Intent to Comply with
DTSC's April 2, 2025 Imminent and Substantial Endangerment Order**

Dear Mr. Ziarkowski and Mr. Ruttan:

I. NOTICE OF INTENT TO COMPLY

Chiquita Canyon, LLC ("Chiquita"), Chiquita Canyon, Inc., and Waste Connections US, Inc. received an Imminent and Substantial Endangerment Determination and Order ("Order"), Docket No. HAS-FY24/25-082, on April 2, 2025, from the Department of Toxic Substances Control ("DTSC").¹ The Order states that the underground reaction, known as an Elevated Temperature Landfill ("ETLF") event, occurring at the Chiquita Canyon Landfill presents an imminent and/or substantial endangerment to the public health, welfare, or the environment because of the release and/or the threatened release of the hazardous substances at the Site; and that response action is necessary due to the release and/or threatened release of a hazardous substance.

¹ A copy of the Order is provided as Attachment A.

The Order requires Chiquita undertake three primary removal actions: (1) installation of a DTSC-approved landfill cover on all areas of the Site which are not presently covered by a geomembrane cover and to which the reaction area has expanded or has the potential to expand; (2) relocation of the leachate storage tanks within Tank Farm 9 from the “top deck” to a stable location within CCL; and (3) installation of a vertical barrier of inert material not subject to biological, thermal, or oxidative degradation to prevent the reaction from intruding into Cell 8A. In addition to these three primary removal actions, the Order requires Chiquita prepare three Removal Action Workplans (“RAWs”) to be approved by DTSC, and complete other various tasks subject to the Schedule in Paragraph 6.24 of the Order.

Paragraph 7 of the Order requires Chiquita to provide a written notice stating whether or not it will comply with the terms of this Order, describing, using facts that exist on or prior to the effective date of this Order, any “sufficient cause” defenses under California Health and Safety Code (“HSC”) §§ 78870 and 79055(a)(1)(B) or Comprehensive Environmental Response, Compensation and Liability Act (“CERCLA”) § 107(c)(3). In accordance with Paragraph 7 of the Order, Chiquita notifies DTSC that it will comply consistent with the intent expressed below and also sets forth herein “sufficient cause” defenses for any noncompliance.²

Nothing in this letter shall be construed to limit the rights, claims, and defenses Chiquita may have against DTSC or any other person in complying with this Order or in any future actions, including claims and defenses that requirements of the Order were not lawfully issued or were not compliant with the HSC, §§ 78850 – 79400, or CERCLA, 42 U.S.C. § 9601 *et seq.*, or the relevant guidance issued under each statutory scheme. Chiquita reserves the right to pursue all available state and federal constitutional defenses, including but not limited to, those related to procedural and substantive due process, takings, equal protection, and the dormant commerce clause. Chiquita also preserves the right to pursue any defenses available to it under the HSC, CERCLA, or any other applicable state or federal statute. Further, nothing in this letter, including Chiquita’s intention to comply with the Order, shall be construed as an admission of any factual allegation or legal conclusion in the Order or an admission of any liability for any matter described in the Order.

II. SUFFICIENT CAUSE DEFENSES

A. Reservation of Rights and Standard for “Sufficient Cause”

1. Reservation of Rights

Paragraph 7 of the Order requires that Chiquita’s “sufficient cause” defense use “facts that exist on or prior to the effective date of this Order.” Chiquita objects to this requirement

² Compliance with the terms of this Order are severable: “[t]he requirements of this Order are severable, and Respondents shall comply with each and every provision hereof, notwithstanding the effectiveness of any other provision.” Order, at ¶ 6.19.

because CERCLA and the HSC contain no provision authorizing DTSC to require a respondent to limit a “sufficient cause” defense to information available to the respondent prior to the effective date of the Order. Accordingly, Chiquita reserves its right to raise any “sufficient cause” defense, or any information in support thereof, whether or not mentioned in this letter or existing or known to Chiquita at the time of this letter.

2. Standard for “Sufficient Cause” Defense

Section 107(c)(3) of CERCLA provides that a party must establish “sufficient cause” not to comply with an Order. Parties have “sufficient cause” if they have a reasonable belief that they are not liable under the statutes or can show that the applicable provisions or guidance give rise to an objectively reasonable, good faith belief in the invalidity or inapplicability of the Order. *See Solid State Circuits, Inc. v. United States Environmental Protection Agency*, 812 F.2d 383, 390 (8th Cir. 1987); *see also Pakootas v. Teck Cominco Metals, Ltd.*, 452 F.3d 1006, n. 13 (9th Cir. 2006).

B. Chiquita Canyon, Inc. and Waste Connections US, Inc have “Sufficient Cause” for Noncompliance Because They Are Not Responsible Parties.

Chiquita objects to the Order naming Chiquita Canyon, Inc. (“CCI”) and Waste Connections US, Inc. (“WC-US”) as parties on the grounds that it is beyond the scope of DTSC’s authority to name either entity. Chiquita Canyon Landfill is owned and operated by Chiquita Canyon, LLC. Under HSC Section 78870, DTSC is authorized to issue an order to any “responsible party.” Under CERCLA Section 107(a), 42 U.S.C. § 9607(a), a potentially responsible party includes (1) the owner and operator of a facility; (2) any person who owned or operated any facility at the time of disposal of any hazardous substance at that facility; (3) any person who arranges for the transport of a hazardous substance; and (4) any person who accepts any hazardous substance for transport to sites selected by such person, from which there is a release or threatened release of a hazardous substance. The allegations in the Order specific to CCI and WC-US are wholly conclusory. The Order fails to allege sufficient facts to establish that either CCI or WC-US are responsible parties under the HSC or CERCLA. Nor could DTSC allege that CCI or WC-US are responsible parties because neither entity owns the Landfill, operates the Landfill, nor have arranged for disposal of hazardous substances on behalf of or at the Landfill.

As has been explained in numerous public filings, WC-US is the sole owner of CCI with its principal place of business in the Woodlands, Texas. CCI is the sole member of Chiquita Canyon, LLC with its principal place of business in the Woodlands, Texas. There are no allegations that CCI or WC-US operate the Landfill or disregard corporate form such that either

entity would be liable under an alter ego or veil piercing theory.³ In short, neither CCI nor WC-US are responsible parties. In fact, they are not even relevant parties.

C. Chiquita has “Sufficient Cause” for Noncompliance with Provisions of the Order that the Unilateral Administrative Order Preempts

Chiquita objects to any provisions of the Order that are in actual conflict with the Unilateral Administrative Order (“UAO”), EPA Docket No. RCRA 7003-09-2024-0001 and CERCLA 106-09-2024-05, In the Matter of Chiquita Canyon, LLC, issued by the U.S. Environmental Protection Agency (“EPA”) on February 21, 2024. Under the Supremacy Clause, state laws that “interfere with, or are contrary to the laws of Congress” are preempted and are therefore invalid. *Fireman’s Fund Ins. Co. v. City of Lodi*, California, 302 F.3d 928 (9th Cir. 2002). Therefore, conflict preemption exists where compliance with both the federal UAO and a state Order is a physical impossibility. Consequently, Chiquita has “sufficient cause” not to comply with any provisions of this Order that currently conflict with the UAO. Further, future EPA actions, and necessary compliance with federal law, may materially affect any agreements, positions, and actions taken by Chiquita in relation to this DTSC Order.

D. Chiquita Intends to Comply with Paragraphs 5.1.2(a) and 5.1.2(b) of the Order but Seeks Further Clarity from DTSC

Chiquita agrees that installation of additional cover may be an appropriate method for mitigating potential odor impacts, evidenced by the 44.6 acre 30-mil High Density Polyethylene geosynthetic cover Chiquita previously installed over portions of the reaction area pursuant to the LEA Compliance Order and South Coast AQMD Stipulated Order for Abatement. Chiquita finished installation of the geosynthetic cover on December 27, 2024. Chiquita also completed installation of an additional approximately 1.4 acres of geosynthetic cover over the west toe drain excavation project’s disposal area on January 3, 2025, and was planning to expand the cover as part of ongoing mitigation efforts.⁴ The cover has contributed to the substantial decrease of odors at the Landfill.

Installation of this cover was complex. For each section of geosynthetic cover, Chiquita had to complete various measures, including but not limited to: removal of green waste and vegetation in the area; regrading to maintain positive drainage; installation of surface landfill gas collectors; disconnecting and temporarily relocating portions of the landfill gas collection system, then reconnecting and installing the same after installation; installation of geomembrane

³ See *Gerritsen v. Warner Bros. Ent. Ins.*, 116 F. Supp. 3d 1104, 1136 (C.D. Cal. 2015); see also *United States v. Bestfoods*, 524 U.S. 51, 52 (1998).

⁴ See Final Completion Report of Milestone 2A-1 (Formerly Mitigation Measure #2A), Chiquita Canyon Landfill, Castaic, California, provided as Attachment B.

pipe boots; and installation of a sandbag ballast system.⁵ The efforts took more than a year to complete.

Chiquita intends to comply with the Order's requirement to expand the landfill cover. While Chiquita intends to comply to the best of its ability, it reserves the right to contest technical implementation and requirements of the cover, subject to continued negotiations with DTSC. Chiquita believes that DTSC and Chiquita can negotiate in good faith regarding the timing, size, and materials of the cover without court intervention, evidenced by the productive technical meeting between DTSC and Chiquita on April 8, 2025.

Similarly, while Chiquita disagrees with the underlying rationale, Chiquita agrees with DTSC that the tank farm should be relocated, and therefore generally intends to comply with the requirement to relocate the leachate storage tanks within Tank Farm 9 from the "top deck" to a stable location within the Landfill. As Chiquita's regulators, including DTSC, are aware, Chiquita has been diligently planning an effective and safe relocation of Tank Farm 9 since July 2024.⁶ Since then, Chiquita has regularly negotiated and planned the installation with LA County Fire, the Certified Unified Program ("CUPA") Agency, as well as EPA, California EPA, DTSC, and other Multi-Agency Critical Action Team agencies.⁷

Notably, Chiquita was ready to begin the relocation in December 2024. However, as demonstrated in the attached correspondence, the agencies ordered Chiquita to stop preparing Canyon B for relocation of the tank farm and since that time have not given a clear directive on permitting or approvals regarding technical requirements of the new installation, thereby preventing Chiquita from taking this action.

Based on the cooperative technical meeting between Chiquita and DTSC on April 8, 2025, Chiquita believes that the parties agree that the interim tank farm should be relocated into Cell 8B. Chiquita believes both parties will continue to work cooperatively to relocate the tank farm both on an interim and permanent basis. Should DTSC's position change regarding the relocation of the tank farm, Chiquita reserves the right to contest technical implementation and requirements of the tank farm relocation. Similar to the implementation of the expanded cover ordered under Paragraph 5.1.2(a), Chiquita believes court intervention is unnecessary at this time.

⁵ See Completion Report, at Attachment 5.

⁶ See 2024-07-19 Email Correspondence to LA County Fire, provided in Attachment C.

⁷ See Compilation of Email Correspondence between Chiquita and LA County Fire and EPA re Tank Farm Relocation, provided in Attachment D.

E. Paragraph 5.1.2(c) of the Order, “Protect Cell 8a From Intrusion of Subsurface Elevated Temperature Event”, is Arbitrary, Capricious, Harmful to the Community and Otherwise Not in Accordance with Law

Based on conversations during the technical meeting between DTSC and Chiquita on April 8, 2025, Chiquita understands that the barrier installed in the Summer of 2024 may satisfy Paragraph 5.1.2(c).⁸ However, if the barrier currently in place is not sufficient and DTSC seeks to order an additional barrier, including of the type outlined in Exhibit 6 to the DTSC Order (Comments on the November 26, 2024 Revised Soil Reaction Break/Barrier Plan and February 20, 2025 waste temperature data by Dr. Timothy Stark), Chiquita will not be able to comply.⁹

Chiquita’s technical experts are certain that a barrier like the one proposed in Dr. Stark’s comments will not substantially slow or stop the reaction but will instead vastly increase odors and damage the stability of the Landfill.¹⁰ This barrier will greatly increase the risk of a release of hazardous substances into the community. Moreover, the vertical barrier runs contrary to EPA guidance for treating ETLFs.¹¹ DTSC’s Order does not provide any evidence that considers the tremendous negative consequences of a barrier. The proposed remedy is therefore arbitrary, capricious, and otherwise not in accordance with law. Chiquita disagrees with DTSC’s theories on how heat and other ETLF conditions can potentially move, migrate, or expand into unaffected portions of the Landfill, as well as the approach and technical justifications for installing a break/barrier feature that is intended to mitigate such movement. Due to these foundational disagreements, Chiquita also rejects the approach and technical justifications for installing a break/barrier feature. Moreover, the agencies themselves have been inconsistent in communicating what technical measures are required to stop and slow the reaction.¹²

⁸ The barrier consists of a five-foot layer of soil across the length of Cell 8A’s interface with Cell 6. Importantly, this barrier was installed without having to dig through tons of dormant and decaying waste. For this reason, even if the barrier has limited utility in actually slowing the spread of the reaction, there was no danger of the potential extremely negative consequences associated with its construction. Uprooting thousands of tons of waste in constructing a new barrier will have an extreme negative outcome to the surrounding community and the landfill writ large, as further outlined above. *See generally* 2024-03-27 Soil Reaction Break/Barrier Plan, provided in Attachment E.

⁹ Chiquita has maintained this position for nine months. *See* 2024-07-08 Revised Soil Reaction Break/Barrier Plan, provided in Attachment F. For additional background on the barrier requirement, *see* 2023-11-21, Letter re CalRecycle’s Review of Conditions at the Landfill, provided in Attachment G; *see also* 2023-12-7, Chiquita’s Response to November 21, 2023 Letter and Additional Mitigation Measures, provided in Attachment H.

¹⁰ *See* 2024-11-26, Chiquita Canyon Landfill’s Revised Soil Reaction Break/Barrier Plan, at 19, provided in Attachment I.

¹¹ [Elevated Temperature Landfill, U.S. Environmental Protection Agency \(last updated September 4, 2024\)](#).

¹² *See* 2024-09-24, LEA Response to Chiquita’s Revised Soil Reaction Break Barrier Plan, provided in Attachment J; 2024-11-26, Chiquita’s Response to LEA’s September 24, 2024 Letter re Revised Soil Reaction Break/Barrier Plan, provided in Attachment K; 2025-04-01 LEA Response to Chiquita’s Revised Soil Reaction Break Barrier, provided in Attachment L; *see also* Email Correspondence between Chiquita and the LEA re Request for Information, provided in Attachment M (the original attachments to the email correspondence include voluminous data and will be provided upon request). First, the agencies requested a shallow barrier consisting of a soil trench.

Chiquita has significant concerns that any barrier of this nature would pose health and safety concerns at the Landfill and in the surrounding community. The installation of a vertical barrier would significantly increase foul odors by exposing hundreds, if not thousands, of tons of decomposing waste to the air. Further, installation of the barrier would require turning down the vacuum on the gas collection system to prevent oxygen intrusion and in some instances disconnecting gas wells altogether. This would reduce the effectiveness of the gas collection system, which would likewise increase emissions. Due to the complexity of this installation, the odors would likely be amplified for years. By all measures in the past year, objective scientific measurements of offsite air quality have shown marked improvement and odor complaints from the surrounding community have also decreased.¹³

Additionally, extracting landfill gas to reduce heat and pressure is a crucial mitigation measure used to control the reaction. By slowing the extraction of landfill gas, not only would there likely be an increase in fugitive emissions, it would also encourage further propagation of the reaction — the exact issue that DTSC is attempting to prevent.

Further, installation of a vertical barrier as proposed by DTSC is not technically feasible, nor is it scientifically proven to be effective. It could very well cause significant damage to the community without doing anything to mitigate the reaction.¹⁴ Best management practices put forth by EPA guidance and accepted by the industry include heat removal through aggressive extraction of gas and leachate. The proposed barrier does neither, and is not otherwise recommended by EPA guidance. *See Solid State Circuits, Inc.* 812 F.2d at 390 (a party has “sufficient cause” if applicable guidance gives rise to an objectively reasonable, good faith belief in the invalidity or inapplicability of an ordered remedy).

With respect to technical feasibility, Exhibit 6 to DTSC’s Order shows a design that is not physically possible to install in a landfill. This report indicates that boreholes should be drilled into the landfill at a circumference that intrudes upon an existing borehole shaft, which is not feasible because the auger will migrate into the previous borehole so that they are touching.¹⁵ As Chiquita has repeatedly stated in its submissions, this is not technically possible.

Even if the borehole drilling was feasible there is no evidence that the barrier would be effective. Chiquita has identified no research or calculations addressing whether this method can

The published literature pertaining to ETLFs and landfill reactions shows that in ETLFs, heat accumulates in deeper zones of the waste mass. CCL is not aware of any documented instances of an ETLF in the United States experiencing a subsurface exothermic chemical reaction exclusively at a shallow depth of less than 50 feet. And here, the waste zone exhibiting the highest recorded temperatures at the landfill is generally between 80 and 150 feet below the landfill surface. Accordingly, a shallow barrier would prove ineffective in addressing potential expansion of a reaction, rendering the requirement arbitrary, capricious, and otherwise not in accordance with law.

¹³ See [Chiquita’s February 2025 Technical Addendum to the December 2024 State of the Landfill Report](#).

¹⁴ See *Supra*, note 12 Attachments.

¹⁵ See, Attachment F, at 19.

adequately prevent heat transfer under ETLF conditions. DTSC also points to no evidence supporting this theory.

After the April 8, 2025 technical meeting, Chiquita believes that there may be a path forward that does not require installation of an additional break/barrier feature. Accordingly, here, too, Chiquita believes that, at this time, as long as DTSC agrees that the current barrier is sufficient, court intervention is unnecessary.

III. CONCLUSION

Chiquita has been working diligently to address the issues associated with the ETLF event while simultaneously complying with applicable regulations and mitigating associated potential adverse environmental effects. DTSC should consider Chiquita's efforts and Chiquita's continued cooperation with DTSC as we work with the Department to resolve the impacts of the unprecedented reaction event. Chiquita believes that the parties can negotiate in good faith to reach an agreement on the installation of an expanded cover and the relocation of the tank farm. Chiquita continues to believe that the barrier, however, would not mitigate the reaction and would instead create significant adverse impacts. As it stands currently, Chiquita has controlled the reaction. Hazardous materials have not entered any watershed, no long-term public health effects have been identified, and odors have decreased.

Sincerely,

Mega Morze

Megan Morgan
Kaitlyn Shannon
Jacob P. Duginski

Counsel for Chiquita Canyon, LLC, Chiquita Canyon, Inc., and Waste Connections US, Inc.

Attachments A – 2025-04-02 Imminent and Substantial Endangerment Order
B – Final Completion Report of Milestone 2A-1
C – 2024-07-19 Email Correspondence to LA County Fire
D – Compilation of Email Correspondence between Chiquita and LA County
Fire and EPA re Tank Farm Relocation

E – 2024-03-27 Soil Reaction Break/Barrier Plan
F – 2024-07-08 Revised Soil Reaction Break/Barrier Plan
G – 2023-11-21 Letter re CalRecycle’s Review of Conditions at the Landfill
H – 2023-12-7 Chiquita’s Response to November 21, 2023 Letter and
Additional Mitigation Measures
I – 2024-11-26 Chiquita Canyon Landfill’s Revised Soil Reaction
Break/Barrier Plan
J – 2024-09-24 LEA Response to Chiquita’s Revised Soil Reaction Break
Barrier Plan
K – 2024-11-26 Chiquita’s Response to LEA’s September 24, 2024 Letter re
Revised Soil Reaction Break/Barrier Plan
L – 2025-04-01 LEA Response to Chiquita’s Revised Soil Reaction Break
Barrier
M – Email Correspondence between Chiquita and the LEA re Request for
Information

cc: Thanne Berg, Department of Toxic Substances Control
Colin Kelly, Department of Toxic Substances Control
David Sadwick, Department of Toxic Substances Control
Lisa Winebarger, Department of Toxic Substances Control

Enclosure B – LEA November 20, 2025 Letter



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County Health Officer

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November 20, 2025

Via Electronic Correspondence

Mr. Steve Cassulo, District Manager
Steven.cassulo@wasteconnections.com
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

SUBJECT: LEA COMMENTS ON THE RESPONSE LETTERS AND THE DRAFT REMOVAL ACTION WORKPLAN TO ADDRESS THE EXTENSION OF COVERED AREA SUBMITTED BY CHIQUITA CANYON LANDFILL (CCL), SWIS NO. 19-AA-0052

Dear Mr. Cassulo,

The Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), is responding the following three (3) submittals received from Chiquita Canyon Landfill's (CCL) addressing the LEA's May 1, 2025, Compliance Order (Order), Section 4.1:

- ***“CCL’s Response to U.S. EPA’s, DTSC’s, and the LEA’s Requirement to Expand the Geomembrane Cover,”*** dated August 15, 2025. This letter served as CCL’s response to the U.S. Environmental Protection Agency’s (EPA) July 24, 2025 letter titled *“Additional Work required under UAO for Geomembrane Cover Expansion.”* The submittal also addressed the Department of Toxic Substances Control (DTSC) April 1, 2025 Imminent and Substantial Endangerment Order, and the LEA’s May 1, 2025 Compliance Order requiring expansion of the geomembrane cover.

- ***“Response to LEA Comments on the DRAFT RAW: Extension of Covered Area, for May 1, 2025 Compliance Order Mitigation Measure 4.1,”*** dated August 18, 2025. This letter served as CCL’s response to the LEA’s August 1, 2025 comment letter on the *“Draft Removal Action Workplan (Draft RAW): Extension of Covered Area,”* dated May 2025, prepared by Civil and Environmental Consultants, Inc. (CEC).
- ***“Revised Draft Removal Action Workplan (Revised RAW): Extension of Covered Area,”*** dated October 2025. This document, prepared by CEC, was submitted to address Section 4.1 of the LEA’s Order.

CCL’s response letters and the Draft RAW propose to install additional geomembrane cover in five-acre segments, which CCL asserts would effectively control emissions while minimizing disturbance to the landfill gas control system. CCL further proposed to discontinue the installation during the rainy season and instead, conduct repairs to the existing geomembrane cover. CCL’s estimated installation schedule did not have a completion date and is described as “To Be Determined,” allowing for adjustments based on field conditions and unforeseen delays.

The LEA, in consultation with the California Department of Resources Recycling and Recovery (CalRecycle), has determined these submittals are unacceptable. Furthermore, since CCL has failed to install a vertical soil barrier and the reaction continues to expand, the LEA’s current directive is for CCL to install the approved geomembrane cover over all areas to which the reaction has expanded or has the potential to expand as stated in Section 4.1 of LEA’s Order. The entire facility where waste is disposed (Main Canyon waste management area) shall be covered by August 31, 2026. As part of compliance with Section 4.1, CCL must also:

1. By December 15, 2025, provide an estimated schedule for the 60 ml geomembrane cover installation, with final completion of no later than August 31, 2026.
2. Employ the necessary resources to complete geomembrane coverage over the entire facility where waste is disposed (Main Canyon waste management area) by August 31, 2026.
3. Continue to install the required geomembrane cover during the winter months to ensure completion within the required timeframe, as CCL has done previously.

The LEA reserves the right to issue a new directive or order if site conditions or available data indicate that additional corrective actions are necessary to protect public health and the environment.

Ensure to obtain all permits and approvals from Federal, State and Local agencies as required by the law and regulations.

Mr. Steve Cassulo
November 20, 2025
Page 3 of 3

If you have any questions, please email me at emorofuji@ph.lacounty.gov or call me at (213) 668-2206.

Sincerely,



Eric Morofuji, EHS III
Solid Waste Management Program
Local Enforcement Agency (LEA)

Enclosed: CalRecycle comment letter for Directive 4.1 – Expansion of the Geomembrane Cover Schedule dated October 3, 2025.

Cc: (Via Electronic Correspondence Only)

- Robert Ragland, Los Angeles County Department of Public Health
- Liza Frias, Los Angeles County Department of Public Health
- Azar Kattan, J.D., M.P.H, Los Angeles County Department of Public Health
- Ken Habaradas, Los Angeles County LEA
- Karen Gork, Los Angeles County LEA
- Renee Jensen, LEA Counsel (rjensen@bgsplaw.com)
- Blaine McPhillips, Senior Deputy County Counsel
- Emiko Thompson, Los Angeles County Department of Public Works
- Alex Garcia, Los Angeles County Department of Regional Planning
- Ai-Viet Huynh, Los Angeles County Department of Regional Planning
- Wes Mindermann, CalRecycle (wes.mindermann@calrecycle.ca.gov)
- Todd Thalhamer, CalRecycle (todd.thalhamer@calrecycle.ca.gov)
- Rachel Beck, CalRecycle (rachel.beck@calrecycle.ca.gov)
- Janelle Heinzler, CalRecycle (janelle.heinzler@calrecycle.ca.gov)
- Jeff Lindberg California Air Recourses Board (jeff.lindberg@arb.ca.gov)
- Jack Cheng, South Coast Air Quality Management Board (jcheng@aqmd.gov)
- Larry Israel, South Coast Air Quality Management Board (lisrael@aqmd.gov)
- Enrique Casas, Los Angeles Regional Water Quality Control Board (enrique.casas@waterbaords.ca.gov)
- Amy Miller, United States Environmental Protection Agency (Miller.Amy@epa.gov)
- Joel Jones, United States Environmental Protection Agency (Jones.Joel@epa.gov)
- Peter Ruttan, Department of Toxic Substances Control (Peter.Ruttan@dtsc.ca.gov)



Department of
Resources Recycling and Recovery

Yana Garcia
Secretary for Environmental Protection
Zoe Heller
CalRecycle Director

October 3, 2025

Via Email: kgork@ph.lacounty.gov

Karen Gork
Chief Environmental Health Specialist
Los Angeles County Department of Public Health
5050 Commerce Drive
Baldwin Park, California 91706

**Subject: Chiquita Canyon Landfill (19-AA-0052) Technical Review – Directive 4.1,
Expansion of the Geomembrane Cover Schedule and Directive 4.2
Relocation of Tank Farm 9 at Chiquita Canyon Landfill**

Dear Ms. Gork:

CalRecycle staff is providing this letter in response to your request for technical assistance in the proposed schedule for the additional geomembrane cover and relocation of Tank Farm 9.

The following comments are provided to the Los Angeles County Department of Public Health [Local Enforcement Agency (LEA)] as assistance to support the program in carrying out its responsibilities at permitted disposal sites. The final determination as to the comments to be provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in Title 14, California Code of Regulations (14 CCR), Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the Public Resources Code.

Directive 4.1 Comments

CalRecycle staff have reviewed the proposed Chiquita Canyon Landfill (CCL) Proposed Cover Installation and Repair Plan for Directive 4.1 and find it inadequate. Since CCL has chosen not to install any barriers in the main fill, the Subsurface Elevated Temperature (SET) Event has the potential to expand to the entire waste area. CCL's current strategy of using an unproven heat exchange and pressure control methodology is not preventing the SET from expanding or controlling the emissions and/or odors at the facility. According to the South Coast Air Quality Management District, the facility has received over 4,600 complaints and 80 Notices of Violation since January 1, 2025. The SET Event continues to expand and impact the community.

CalRecycle staff recommends that the LEA consider requiring the entire Main Canyon Fill waste management unit to be covered by July 1, 2026. The CCL has previously demonstrated its ability to install a geomembrane liner during the winter months, and it should continue this approach. Currently, the CCL is using only one drill rig and one liner crew; the CCL should employ the necessary resources to complete the entire waste area within the recommended timeframe.

Directive 4.2 Comments

The CCL relocated the hazardous waste treatment and leachate storage facility, known as Tank Farm 9, from the top deck to the bottom of the facility at Cell 8B. CalRecycle staff have provided comments for consideration to the Department of Toxic Substances Control (DTSC) regarding this temporary location. CalRecycle staff consider the current location temporary and susceptible to being affected by the current and future SET Events, which may require relocating the facility again. CalRecycle staff recommends that the LEA consider requiring the CCL to take the necessary actions as soon as practicable to establish a permanent location for the leachate treatment facility (Tank Farm 13) that will not be impacted by the current and future SET Events.

If you have comments or questions, please call (916) 341-6356 or email Todd.Thalhamer@Calrecycle.ca.gov.

Sincerely,



Todd Thalhamer, P.E.
Senior Waste Management Engineer
Engineering Support Branch

Cc Via Email:

Peter Ruttan, Department of Toxic Substances Control (Peter.Ruttan@dtsc.ca.gov)
Todd Sax, CalEPA (Todd.Sax@calepa.ca.gov)