

1
2
3
4
5
6
7
8
9
10
11
12
13

**BEFORE THE HEARING BOARD OF THE
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

In The Matter Of

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT,

Petitioner,

vs.

CHIQUITA CANYON, LLC a Delaware
Corporation,
[Facility ID No. 119219]

Respondent.

Case No. 6177-4

**DECLARATION OF ROBERT DICK,
P.E., B.C.E.E.**

Health and Safety Code § 41700, and
District Rules 402, 431.1, 3002, 203, 1150

Hearing Date: June 4 and 17, 2025

Hearing Time: 9:30 A.M.

Place: Hearing Board
South Coast Air Quality
Management District,
21865 Copley Drive
Diamond Bar, CA 91765

I, Robert Dick, declare as follows:

1. I am of sufficient age and am competent to testify in this proceeding. I make this declaration based upon personal knowledge and am competent to testify to the facts set forth herein.

Background and Experience

2. As discussed in detail in my prior declarations in Case No. 6177-4, I serve as the Senior Vice President and Solid Waste Division Leader and Business Unit Director for SCS Engineers, Inc. (“SCS”) and have worked with SCS for approximately 35 years. I am a licensed professional engineer with over 35 years’ experience on civil and environmental engineering projects related to solid waste management. My work focuses largely on municipal solid waste landfills like the Chiquita Canyon Landfill (the “Landfill”). I was retained by Chiquita Canyon, LLC (“Chiquita”) to provide expert consulting services related to managing the elevated temperature landfill (“ETLF”) conditions currently being experienced by the Landfill and any resulting impacts, including odors and liquids.

1 3. I serve on the Reaction Committee as the subject matter expert for chemical
2 reaction(s) within landfills, which can result in atypical landfill conditions, such as heat
3 accumulation, certain changes in landfill gas and leachate composition, distinct odors, accelerated
4 settlement, formation of significant subsurface pressures, and elevated levels of hydrogen,
5 dimethyl sulfide, and non-methane organic compounds.

6 4. This declaration is made for the status and modification hearing being held on June
7 4 and 17, 2025 on the Stipulated Order for Abatement in Case No. 6177-4 with the South Coast
8 Air Quality Management District (“South Coast AQMD”), most recently modified on April 16,
9 2025 (“Modified Stipulated Order”).

10 **Compliance with the April Modified Stipulated Order**

11 5. The Modified Stipulated Order contains 101 conditions, many with multiple
12 subparts, requiring Chiquita to take a wide range of actions designed to slow and stop the landfill
13 reaction, and mitigate any impacts.

14 6. The chart attached hereto as **Attachment 1** lists conditions that I have been involved
15 with at Chiquita, their requirements, and the current status of compliance.

16 7. Attached hereto as **Attachment 2** is a table summarizing the main reports prepared
17 and submitted to South Coast AQMD pursuant to **Conditions 12, 26, 32, 83, and 96**, as well as
18 other notable reports and updates prepared and submitted by the Reaction Committee pursuant to
19 the Stipulated Order, their respective statuses, and the Reaction Committee member in charge of
20 each report. Each report that has been submitted to South Coast AQMD has also been posted on
21 Chiquita’s Odor Mitigation website (<https://chiquitacanyon.com/odor-mitigation/>).

22 8. On January 31, 2025, pursuant to **Condition 66(a)(vi)**, SCS submitted the Proposal
23 to Assess the Viability and Functionality of Landfill Gas Wellfield Automated Remote Monitoring
24 System. The proposal, attached hereto as **Exhibit S**, presents the proposed activities planned to
25 facilitate the assessment of the viability, functionality, and feasibility of the primary remote
26 monitoring system (“RMS”) components as well as a proposed schedule for such activities.

27 ///

1 **Reaction Area Determinations**

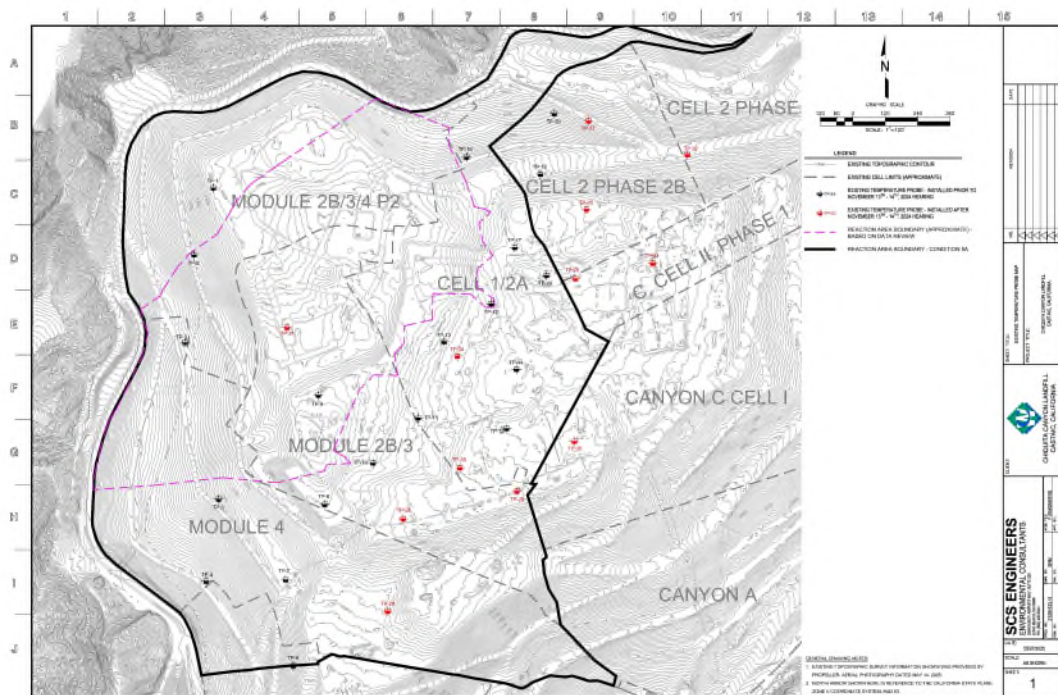
2 9. As required by **Condition 9** of the Stipulated Order, the Reaction Committee
3 evaluates on a monthly basis the boundary of the reaction area and prepares a Reaction Area
4 Determination Report with the determination, supporting evidence and assumptions, an
5 explanation for the determination, and relevant data maps. True and correct copies of the Reaction
6 Area Determination Reports submitted since the date of my last declaration are attached hereto as

7 **Exhibits A through I.**

8 10. The Reaction Committee considers the data and parameters set forth in **Condition**
9 **9(a)** and **9(b)** and other data and parameters as documented in the monthly determinations reports.
10 The April 16, 2025 modification to Condition 9(b) memorialized the data and parameters that the
11 Reaction Committee considers when making its determination. These data and parameters include:

- 12 a. Landfill gas wellhead temperatures in excess of approximately 160 degrees
13 Fahrenheit;
- 14 b. Poor gas quality (defined as methane levels of less than 30 percent) in conjunction
15 with methane-to-carbon dioxide ratios less than 1.0;
- 16 c. The concentration of hydrogen in the landfill gas measured greater than 2 percent by
17 volume;
- 18 d. The concentration of carbon monoxide in the landfill gas measured greater than
19 2,000 ppm;
- 20 e. Accelerated settlement of the landfill surface, defined as approximately 18 inches or
21 greater within a 60-day period, and cracks in landfill cover. This corresponds to a
22 strain value (i.e., settlement rate) rate of 3 percent per year for areas with a 300-foot
23 waste column depth;
- 24 f. First-hand observations of Landfill and/or SCS engineering, construction, and
25 operations and maintenance field personnel who are on-site related to:
- 26 i. Atypical excess leachate quantities (presence and quantity of liquids);
- 27
- 28

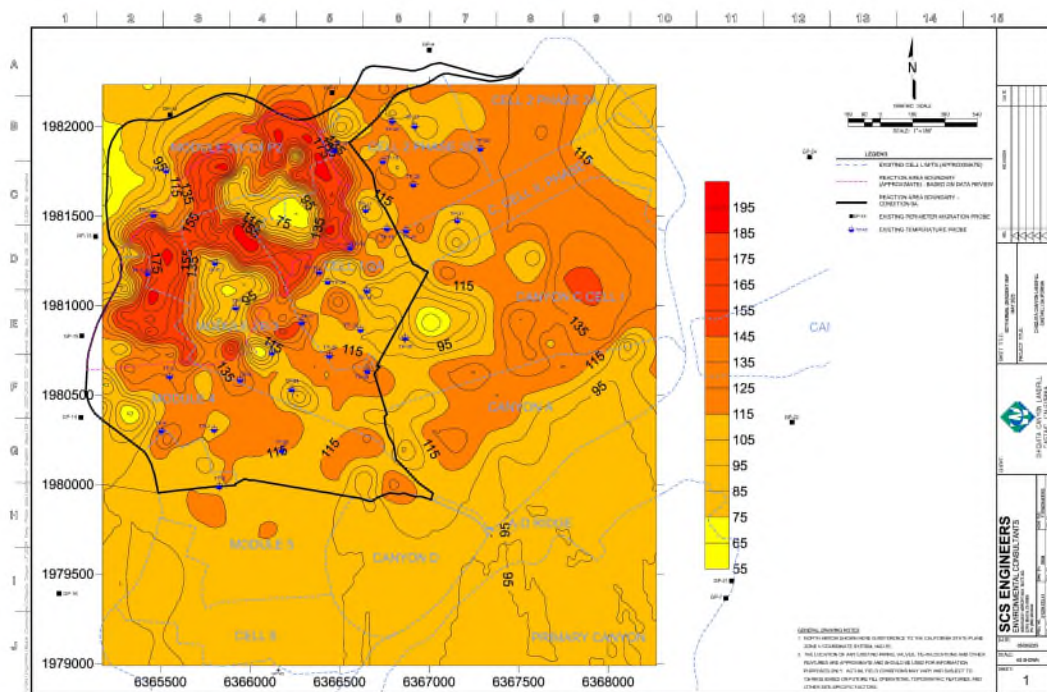
- ii. Instances of pressurized leachate emitting from the landfill surface, from boreholes during drilling, and from landfill gas wells;
 - iii. The characteristics of the odors originating from select areas of the waste footprint;
 - g. Observations of subsurface waste conditions and characteristics as noted on borehole drilling logs for recently installed new wells and/or probes;
 - h. Subsurface temperatures recorded at the in-situ waste temperature probes;
 - i. Temperature of gas or liquids measured at depth within the landfill gas well riser pipe; and
 - j. Subsurface temperature and pressures associated with drilling activities.
11. With respect to the in-situ waste temperature probes, since November 2024, Chiquita has installed 12 additional probes, bringing the total number of such probes to 32. The new in-situ temperature probes are depicted as red markings in the map below.



12. In-situ waste temperature probes measure temperatures at specific depths within the waste mass. At landfills experiencing an ETLF event, like Chiquita, it is expected to see maximum temperatures near or slightly below the vertical midpoint of the landfill. At depths of more than

1 100 feet, which is considered to be deep within the waste mass, it is common for ETLF landfills to
2 reach temperatures of 250 degrees Fahrenheit or greater. However, when making monthly reaction
3 area determinations, the Reaction Committee closely analyzes in-situ temperature measurements
4 above 160 degrees Fahrenheit for signs that the organisms that break down waste during the
5 standard decomposition process have become impeded (for example, poor gas quality).

6 13. In-situ waste temperature probe data are a separate dataset from landfill gas
7 temperature data collected from wellheads. Wellheads measure gas temperatures at the point
8 where the gas exits the Landfill. Wellhead temperature data is displayed in an isothermal gradient
9 range map, like the image below taken from the May 9, 2025 Reaction Area Determination Report
10 **(Exhibit I)**.



13 14. This map can be read like a contour map; however, the lines represent temperatures,
14 rather than elevations. The hotter areas are shown in red, while cooler temperatures are shown in
15 yellow. As the above image shows, even within the Reaction Area there are areas where the
16 wellheads show cooler temperatures, even some less than 75 degrees Fahrenheit.

17 ///

1 **Modifications to the Reaction Area Boundary**

2 15. The monthly boundary determinations show that the ETLF conditions remain
3 generally consistent with the initial delineation developed in October 2023. While the Reaction
4 Committee adjusted the data-driven boundary (magenta line), it has not adjusted the Condition
5 9(a) Reaction Area boundary (black line). Recent changes to the data-driven boundary line are
6 detailed below.

7 16. In December 2024, the Reaction Committee adjusted the data-driven boundary 130
8 feet to the southeast to exclude well CV-1901 and approximately 70 feet to the north to exclude
9 well CV-2349. The Reaction Committee also adjusted the data-driven boundary approximately 50
10 feet to the southeast to include well CV-2475 and 20 feet to the east to include well CV-2449. The
11 Reaction Committee's full analysis regarding its determination as well as a map of the revised
12 boundary is set forth in **Exhibit M**.

13 17. In January 2025, the Reaction Committee also adjusted the data-driven boundary
14 approximately 40 feet to the southeast to encompass well CV-2328 and adjusted the boundary 20
15 feet to the east to include well CV-2315. The Reaction Committee's full analysis regarding its
16 determination as well as a map of the revised boundary is set forth in **Exhibit N**.

17 18. These expansions do not indicate that the reaction is worsening or that the mitigation
18 efforts are ineffective; rather, the Reaction Committee simply decided that the data presented and
19 reviewed warranted a change in the boundary determination.

20 ///

21 ///

22 ///

23 ///

24 ///

25 ///

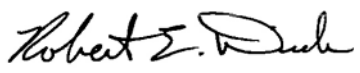
26 ///

27 ///

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to my personal knowledge.

Executed on May 30, 2025 in Powhatan, Virginia.



Robert Dick
Senior Vice President
SCS Engineers

**BEFORE THE HEARING BOARD OF THE
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

In The Matter Of

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT,

Petitioner,

vs.

CHIQUITA CANYON, LLC a Delaware
Corporation,
[Facility ID No. 119219]

Respondent.

Case No. 6177-4

**ATTACHMENT 1 TO DECLARATION
OF ROBERT DICK, P.E., B.C.E.E.**

Health and Safety Code § 41700, and
District Rules 402, 431.1, 3002, 203, 1150

Hearing Date: June 4 and 17, 2025

Hearing Time: 9:30 A.M.

Place: Hearing Board
South Coast Air Quality
Management District,
21865 Copley Drive
Diamond Bar, CA 91765

STIPULATED ORDER CONDITIONS CHART

Condition No.	Summary of Requirement(s)	Status
9(a), 9(b)	The Reaction Committee must review applicable data, make a determination about whether to revise the Reaction Area map, and submit the determination, supporting evidence and assumptions and explanation for the determination, revised Reaction Area map (if applicable), isothermal gradient range map consisting of wellhead temperature measurements, wellhead carbon monoxide range map, and vertical temperature profiles for temperature probes at least once per month.	Compliance ongoing; most recently submitted on September 6, 2024, October 7, 2024, November 7, 2024, December 10, 2024, January 10, 2025, February 10, 2025, March 10, 2025, April 10, 2025, and May 9, 2025. True and correct copies of these determinations are attached hereto as Exhibits A through I and are posted on Chiquita's Odor Mitigation website (https://chiquitacanyon.com/odor-mitigation/).
12	Complete the formation of the Reaction Committee and provide the names and credentials of all persons included in the Reaction Committee.	Completed; submitted on October 5, 2023; updated on April 5, 2024.
12(f)	Host a monthly virtual meeting with all members of the Reaction Committee and South Coast AQMD technical staff.	Compliance ongoing; most recently held on August 27, 2024, September 26, 2024, October 23, 2024,

Condition No.	Summary of Requirement(s)	Status
		November 20, 2024, December 18, 2024, January 15, 2025, February 19, 2025, March 19, 2025, and May 21, 2025. No meeting was held in April because the timing of the meeting overlapped with the scheduled April 2025 hearing.
12(f)(i)	Provide proposed agendas 10 calendar days prior to the meeting.	Compliance ongoing; most recently submitted on November 8, 2024, December 7, 2024, January 3, 2024, February 7, 2025, March 7, 2025, and May 11, 2025.
12(f)(i)	Provide any tables, graphs, or documents 2 calendar days prior to the meeting.	Compliance ongoing; most recently submitted on November 20, 2024, December 18, 2024, January 15, 2025, February 14, March 17, 2025, and May 19, 2025.
12(f)(iv)	Post on Chiquita's Odor Mitigation website a summary of each meeting.	Compliance ongoing; most recently posted on September 16, 2024, October 16, 2024, November 12, 2024, December 10, 2024, January 7, 2025, February 4, 2025, March 11, 2025, and April 8, 2025. True and correct copies of these summaries are attached hereto as Exhibits J through Q and are posted on Chiquita's Odor Mitigation website.
12(g)(ii)	Submit a report on the cause of the alleged chemical reaction(s) resulting in the elevated well temperatures, elevated levels of DMS formation in the landfill gas, and formation of elevated levels of non-methane organic compounds in the landfill gas, in addition to solutions to slow and stop the reaction(s) in the landfill.	Completed; submitted on December 8, 2023.
12(h)	Post on Chiquita's Odor Mitigation website all expert reports submitted pursuant to Condition 12.	Compliance ongoing; see Chiquita's Odor Mitigation website.
39	Maintain and update regularly Chiquita's Odor Mitigation webpage.	Compliance ongoing; see Chiquita's Odor Mitigation website.
40	Host a public one-hour community meeting to provide updates with regards to implementation of the Stipulated Order and post materials to the website each	Compliance ongoing; most recently held on August 8, 2024, September 12, 2024, October 10, 2024, November 7, 2024, December 12,

Condition No.	Summary of Requirement(s)	Status
	calendar month following a month in which Chiquita receives three or more Rule 402 notices of violation from South Coast AQMD.	2024, January 9, 2025, February 6, 2025, March 6, 2025, April 24, 2025, and May 8, 2025. Meeting information is posted on Chiquita's Odor Mitigation website.
50	Follow the direction of the Environmental Protection Agency ("EPA") to implement the Master Work Plan submitted to EPA under the Unilateral Administrative Order ("UAO"). Submit any monthly progress reports submitted to EPA in accordance with the UAO to South Coast AQMD.	Compliance ongoing.
66	Install and operate a remote monitoring system in 20 wellheads, measuring the gas temperatures at each of the wells. Increase the monitoring frequency for temperature and pressure at landfill gas collection wells within the Reaction Area to twice monthly.	Installation completed; compliance ongoing.
66(a)(i), 66(a)(ii)	Submit finalized contracts to install and operate the remote wellhead temperature monitoring system and relevant known information of the remote monitoring system.	Completed; submitted on September 17, 2024 and posted on Chiquita's Odor Mitigation website.
66(a)(iii)	Contact at least three reputable vendors for each remote monitoring system device and components that have identified issues/concerns and obtain proposed solutions and recommendations for each such concern. Submit the documented correspondence of the results of the communication.	Completed; submitted on October 11, 2024 and posted on Chiquita's Odor Mitigation website.
66(a)(iv)	Submit findings and solutions to issues documented in Condition 66(a)(ii) and (iii), including any inventory of vertical wells and temperature monitoring probe network infrastructure.	Completed; submitted on October 30, 2024 and posted on Chiquita's Odor Mitigation website.
66(a)(v)	Reaction Committee to submit its determination of the location for installation of the remote monitoring system equipment.	Completed; submitted on October 15, 2024 and posted on Chiquita's Odor Mitigation website.
66(a)(v)	Notify South Coast AQMD that the remote monitoring system for temperature	Completed; submitted on December 24, 2024. A true and correct copy of

Condition No.	Summary of Requirement(s)	Status
	in at least 20 wellheads was installed and operational in the initial Reaction Area as defined by Condition 9(a).	the notification is attached hereto as Exhibit R and posted on Chiquita's Odor Mitigation website.
66(a)(vi)	Reaction Committee to submit a proposal to assess the viability and functionality of a remote monitoring system which measures temperature and pressure within a well with a pump located in the Reaction Area.	Completed; submitted on January 31, 2025. A true and correct copy of the proposal is attached hereto as Exhibit S and posted on Chiquita's Odor Mitigation website.
67	Designate an Inspection Liaison responsible for coordinating an exchange of information between Chiquita and South Coast AQMD.	Completed.
92	Submit any file(s) with a cumulative size larger than 35 MB via a shared link by email.	Compliance ongoing.

**BEFORE THE HEARING BOARD OF THE
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

In The Matter Of

SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT,

Petitioner,

vs.

CHIQUITA CANYON, LLC a Delaware
Corporation,
[Facility ID No. 119219]

Respondent.

Case No. 6177-4

**ATTACHMENT 2 TO DECLARATION
OF ROBERT DICK, P.E., B.C.E.E.**

Health and Safety Code § 41700, and
District Rules 402, 431.1, 3002, 203, 1150

Hearing Date: June 4 and 17, 2025

Hearing Time: 9:30 A.M.

Place: Hearing Board
South Coast Air Quality
Management District,
21865 Copley Drive
Diamond Bar, CA 91765

CHART OF KEY REPORTS, INVESTIGATIONS, AND STUDIES

Condition No.	Title	Status	Reaction Committee Member
12(g)(i)	A report on known and possible methods for effective treatment of dimethyl sulfide (“DMS”) and preventative mechanisms for DMS formation in landfill gas.	Completed; submitted on April 30, 2024, as required.	Patrick Sullivan
12(g)(ii)	A report on the cause of the alleged chemical reaction(s) resulting in the elevated well temperatures, elevated levels of DMS formation in the landfill gas, and formation of elevated levels of non-methane organic compounds in the landfill gas, in addition to solutions to slow and stop the reaction(s) in the landfill.	Completed; submitted on December 8, 2023, as required.	Robert Dick
12(g)(iii)	A report on the feasibility and availability of continuous community emission monitoring system to conduct continuous monitoring and provide estimates of DMS concentrations at the facility fence line and within the affected community.	Completed; submitted on December 1, 2023, as required.	Patrick Sullivan

Condition No.	Title	Status	Reaction Committee Member
12(g)(iii)	A workplan for the installation of and operation of the continuous community emission monitoring system for DMS concentrations if monitoring is feasible.	The DMS Committee determined that continuous monitoring is not feasible. Notified South Coast AQMD on December 31, 2023, as required.	Patrick Sullivan
12(g)(iv)	A report on landfill best management practices and alternative methods to minimize the release of fugitive surface gas and minimize odors from fugitive surface gas, including cover practices at the Reaction Area and working face, and how best to address related odorous emissions	Completed; submitted on November 6, 2023, as required.	Neal Bolton
12(g)(v)	A report on the known health risks from acute and long-term exposure to DMS, including any action levels from other public health or government entities, and including a summary of recommended actions for persons exposed to DMS for acute and long-term durations.	Completed; submitted on January 15, 2024, as required.	Dr. Pablo Sanchez-Soria
12(g)(vi)	A report on the health impacts from ongoing and long-term exposure to hydrogen sulfide, or other speciated sulfur compounds, and any other hazardous air pollutants.	Completed; submitted on August 1, 2024, as required.	Dr. Pablo Sanchez-Soria & Dr. Richard Pleus
12(g)(vii)	A report on the development of a model to estimate the rate of liquid generation and the total quantity of liquid existing within the landfill waste mass at any given time.	Completed; submitted on June 25 2024, as required.	Neal Bolton
12(g)(viii)	An investigation into the existing landfill gas collection and conveyance piping materials, alternative landfill gas collection and conveyance piping materials, and current landfill conditions to determine appropriate piping for the current and expected future temperature conditions.	Completed; submitted on June 21, 2024, as required.	Srividhya Viswanathan
12(i)	Submit a report documenting the findings of the initial flux chamber study conducted pursuant to the direction of the	Completed; submitted by October 31, 2023, as required.	Patrick Sullivan

Condition No.	Title	Status	Reaction Committee Member
	Los Angeles County Department of Health.		
12(i)	Second flux chamber study to document results of the site-wide emission rates for compounds tested in Chiquita's flux chamber study events.	Completed; submitted by June 3, 2024, as required.	Patrick Sullivan
12(i)	Prepare a proposed protocol(s) for the flux chamber studies or use a previous flux study protocol, reviewed and approved by South Coast AQMD, if the proposed testing will follow all aspects of the prior approved protocol, with the exception of the testing/sampling locations onsite.	Compliance ongoing; submitted on December 29, 2023, as required.	Patrick Sullivan
12(i)	Conduct landfill gas flux study for, at a minimum, methane, non-methane organic compounds ("NMOC"), speciated hydrocarbons (C2-C12), toxic air contaminants ("TAC") analyzed by EPA Method TO-15 (including acrolein and additionally at least the ten highest concentration tentatively identified compounds), total reduced sulfur ("TRS"), and speciated sulfur compounds to determine the surface flux throughout the landfill starting with Quarter Four 2024 and once every four months thereafter. Submit reports detailing the operational conditions, methodology, quantity of tests and locations, sampling location determination, sampling results, data analysis, emission results, discussion of the results, and comparison of previous flux chamber test results to the current results.	Compliance ongoing; most recently submitted on January 15, 2025 and May 15, 2025, as required.	Patrick Sullivan
26	A report on the feasibility of temporary containment measures for the purposes of controlling leachate and possible discharges of pressurized leachate when drilling additional holes for wells, liquid pumps, temperature devices, or other purposes.	Completed; submitted on March 12, 2024, as required.	Neal Bolton
32, 32(a)	An air modeling report on odor and emission transport of odors from the landfill, including the identification of	Completed; submitted on December 1, 2023, as required.	Neal Bolton

Condition No.	Title	Status	Reaction Committee Member
	effective techniques to remedy potential odor impacts on the nearby community, an evaluation of the efficacy of odor control measures, and a recommendation on whether additional modeling is recommended to fully address the current odor circumstances at the landfill and potential odor impacts on the nearby community.		
32(b)	A proposal for an additional air modeling study.	Completed; submitted on January 15, 2024, as required.	Neal Bolton
32(b)(ii), 32(c)	A revised air modeling study proposal according to the comments received from South Coast AQMD.	Completed; submitted on May 8, 2024, with a further revision submitted on May 16, 2024 as required.	Neal Bolton
32(c)	A final written report on the additional air modeling.	Completed; submitted on September 2, 2024, as required.	Neal Bolton
56	A report detailing the parameters with respect to the sampling and analysis of vapors in the headspace of leachate tanks located in the Top Deck Tank Farm and complete laboratory analysis results.	Completed; submitted on April 18, 2024; revised on April 24, 2024, as required.	Dr. Pablo Sanchez-Soria & Patrick Sullivan
70	A report on the landfill's current landfill gas generation and projected landfill gas generation for the next five calendar years.	Completed; submitted on June 28, 2024, as required.	Patrick Sullivan
72(b)	A source report detailing final results within 30 days of analyzing samples of vapor flow in the piping used to vent the leachate storage tanks and landfill gas condensate tanks and route the vapors to the landfill gas control system.	Completed; submitted on November 15, 2024, as required.	Patrick Sullivan
72(c)	Within 30 days of submission of the 72(b) report, submit a recommendation from the Reaction Committee on additional vapor flow testing to South Coast AQMD. The Reaction Committee may submit further recommendations within 30 days of additional source testing under Condition 72.	Completed; most recently submitted on December 13, 2024 and May 16, 2025.	Patrick Sullivan

Condition No.	Title	Status	Reaction Committee Member
83	<p>Conduct a study and analysis and submit a report by March 31, 2025 of specific landfill operational events from June 1, 2024 through December 31, 2024 and their potential emission impacts to the surrounding community, as determined from an analysis of the air quality data recorded at monitoring stations MS-01 through MS-12.</p> <p>The report must also include a proposed scope for a continuation of the study for up to an additional 6 months, subject to review and approval by South Coast AQMD. The continuation of the study must proceed upon written approval by the South Coast AQMD.</p>	Completed; submitted on March 31, 2025, as required.	Patrick Sullivan
84	Evaluate the installation of windbreaks and/or wind flow disrupters along the western and northern borders of the facility, and/or ridgeline, such that there are not any distinguishable gaps in the border and/or ridgeline which may result in an odor channeling affect into the Val Verde community, to enhance the dispersion of odors from the facility and submit a report detailing the findings of the evaluation.	Completed; submitted by November 15, 2024, as required.	Neal Bolton
96	Update the prior estimates of and submit an updated report on the landfill's current and projected landfill gas generation originally prepared pursuant to Condition 70.	Completed; submitted on April 30, 2025, as required.	Patrick Sullivan