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** **SUPPLEMENTAL DECLARATION OF PATRICK SULLIVAN, BCES, CPP, REPA** Health and Safety Code § 41700, and District Rules 402, 431.1, 3002, 203, 1150 Hearing Date: June 4, 17, and 24, 2025 Hearing Time: 9:30 A.M. Place: Hearing Board South Coast Air Quality Management District, 21865 Copley Drive Diamond Bar, CA 91765

I, Patrick Sullivan, 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.

2. This declaration supplements my prior declaration submitted on May 30, 2025, and is for the status and modification hearing being held on June 4, 17, and 24, 2025 on the Stipulated Order for Abatement in Case No. 6177-4 with the South Coast Air Quality Management District ("South Coast AQMD"), most recently modified on April 16, 2025 ("Modified Stipulated Order").

3. Based on my review of the data for the past twenty-nine months, conditions are improving at the Chiquita Canyon Landfill (the "Landfill"). Odor complaint counts are down significantly since their 2024 levels, including a reduction between 65% and 75% compared to the same months in 2024. Rule 402 notice of violation ("NOV") counts have similarly decreased by 35% to 75% compared to the same months in 2024. Onsite data such as landfill gas recovery data and surface emissions data from aerial surveillance and flux chamber studies show that the potential for offsite emissions from the Landfill is decreasing. Offsite air quality data shows that the ambient air quality in

the communities surrounding the Landfill is improving and rarely, if ever, exceeds health protective thresholds.

Odor complaint and NOV data show decreasing trends.

4. Based on the testimony of Mr. Laurance Israel and Dr. Baitong Chen, it is my understanding that South Coast AQMD considers odor complaints and Rule 402 NOVs as the key metrics for determining improvements, Chiquita Canyon, LLC's ("Chiquita") compliance with this Modified Stipulated Order, and Chiquita's progress in mitigating the reaction. However, in my experience, subjective odor complaints are not reliable evidence for determining the existence or source of any alleged odors and certainly should not be the primary determinant as to whether such impacts are occurring.

5. My team and I have reviewed and analyzed over 29,000 rows of odor complaint data as well as the approximately 340 Rule 402 NOVs received from South Coast AQMD related to this Elevated Temperature Landfill ("ETLF") event. It is my opinion that, for the reasons described in more detail below, while odor complaints and NOVs are insupportably high and should not be the key basis on which to ground decisions and determinations regarding the Landfill and its ETLF event, they have, in any event, substantially decreased since 2024, which correlates to the timing of improvements made at the Landfill.

Wind direction and odor surveillance data show that odor complaint counts attributed to the Landfill are higher than the data supports.

6. My analysis of wind direction and odor surveillance data suggests that we are receiving a substantial percentage of complaints of odors alleged to be coming from the Landfill that are, in fact, highly unlikely to be coming from the Landfill based on basic fate and transport principles, e.g., the wind was blowing in the wrong direction at the time and place the complaint was made.

7. My team and I conducted a wind direction test to understand whether and when odor complaints could have come from the Landfill based solely on meteorological data. We used the same meteorological dataset that was used during studies completed in 2020 and 2021 and approved by South Coast AQMD. Landfill meteorological data comes in five-minute increments. In conducting this test, we reviewed all the meteorological data from the hour prior to each complaint and created a line from the

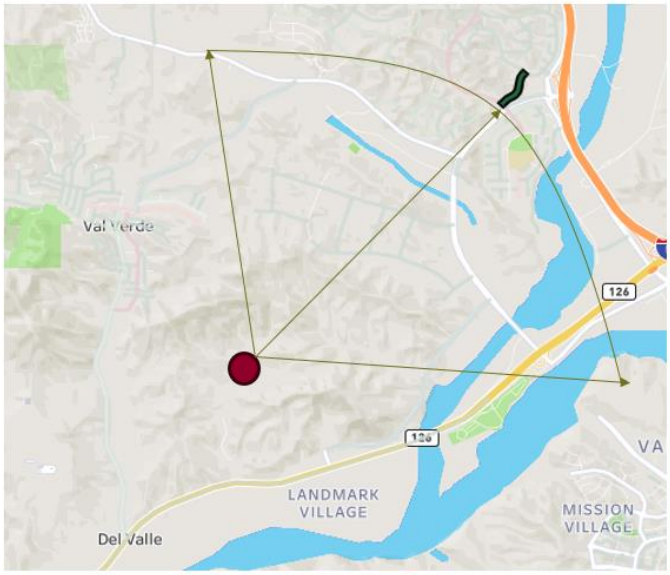
Landfill to the complaint location as identified in the information provided by South Coast AQMD for the purpose of these hearings.

8. Note, however, that the data provided by South Coast AQMD for the purpose of these hearings did not include the exact location of each complaint. Rather, we received only street names without cross streets where we could pinpoint the complaint location for our analysis. Since some of these streets are quite long, we were forced to make assumptions regarding where the odors may have occurred along these streets. Since we are only provided street names, we assumed that the complaints were occurring at the mid-point of each street. Had we been provided the actual complaint location with a specific address, coordinates, or even cross streets, we could have completed a more comprehensive analysis linked to exact complaint locations. Also, many of the complaints lack any useful odor descriptions that could be used to ascertain what the source of the odor may be.

9. If any of the wind directions recorded by the Landfill's meteorological station were within a conservative 50 degrees of the direction of this complaint location line (for a total of a 100-degree spread) at any time within the hour proceeding the complaint, we found it was possible that that odor could potentially have come from the Landfill.[1] However, if the wind directions were more than 50 degrees away from the complaint location line in either direction for the entire hour prior to the complaint, then we found it was not possible for the odor to have potentially come from the Landfill. A graphical illustration of this test is shown below in **Figure 1** and on page 2 of **Exhibit TTTT** for reference.

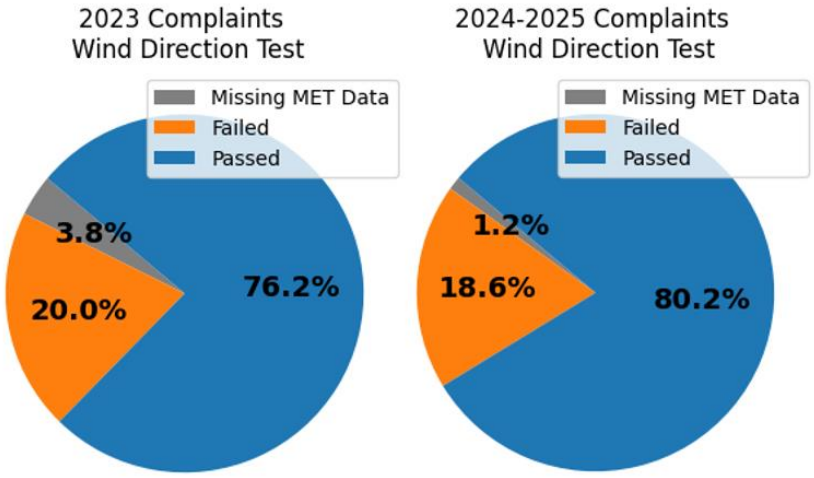
[1] I have seen other similar studies conducted with 60- or 90-degree spreads; however, we increased this to 100 degrees to account for the lack of exact complaint locations. We also used a full hour prior to address the fact that wind conditions do commonly change throughout the day in this area, and we wanted to make sure we accounted for any change that occurred in that period.

Figure 1. *Diagram of wind direction test.*



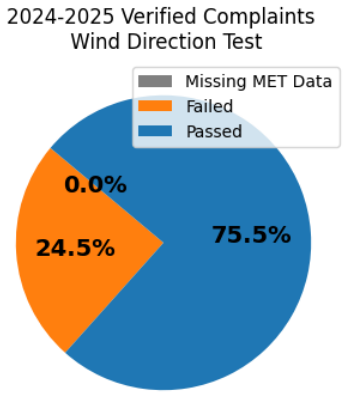
10. After conducting this test, we found that around 20% of the complaints analyzed, including both verified and unverified complaints, failed the test. This means that these complaints originated from locations that were not within 100 degrees of the complaint line, meaning that it was unlikely that an odor from these complaint locations originated from the Landfill. Note, however, that this does not mean that the Landfill was the source for the remaining 80% of the complaints; it simply means that the Landfill could not be ruled out as a potential source based solely on wind direction data. Pie graphs depicting the wind direction test results using data from January 6, 2023 through April 30, 2025 are below in **Figure 2** and on page 3 of **Exhibit TTTT**.

Figure 2. *Wind direction test results for unverified and verified complaints.*



11. We then performed this same test using solely the verified complaint data and found that the verified complaints actually performed worse than the unverified complaints.[2] A pie graph of the wind direction test results for just the verified complaints from April 8, 2024 through April 30, 2025 is below in **Figure 3** and on page 3 of **Exhibit TTTT**. This suggests that the accuracy of the complaints did not improve with alleged verification by South Coast AQMD that these complaints came from the Landfill. In turn, this means that the total odor complaint counts attributed to the Landfill are unsupported by the data, and at least some of the Rule 402 NOVs, which are based on verified complaints, were issued based on complaints that are very unlikely to have come from the Landfill since it is my understanding that South Coast AQMD typically bases NOVs on the verification of six complaints within a single calendar day related to the same odor event.

Figure 3. *Wind direction test results for verified complaints.*

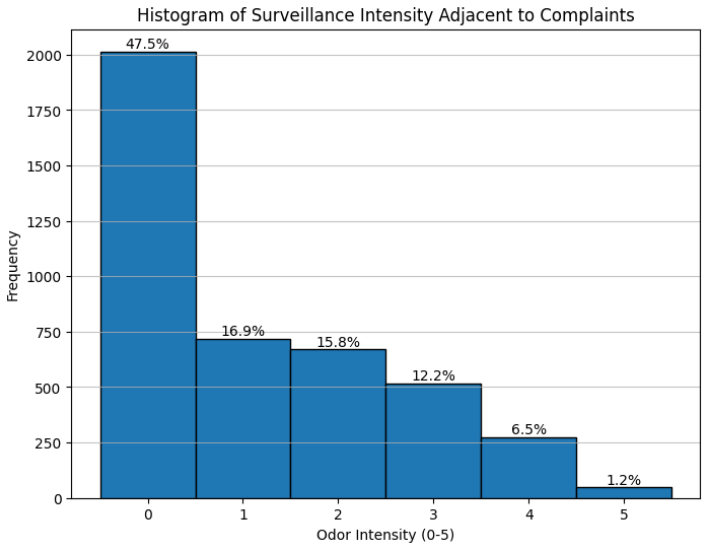


12. To further assess the veracity of the odor complaint counts, we compared the odor intensity data from the odor surveillance logs collected under Condition 1 of the Stipulated Order and discussed in more detail below against the odor complaints received by South Coast AQMD. In particular, we looked at odor surveillance data that was taken within one kilometer of the complaint location and within one hour that the complaint was made. A graphical summary of this comparison using data from September 25, 2023 through April 30, 2025 is below in **Figure 4** and on page 4 of **Exhibit TTTT**. Almost half of the complaints where a match could be made between the complaint and surveillance were made at a time when the nearby odor surveillance logged no odor. This further

[2] Note that "verified" refers to South Coast AQMD's odor complaint verification process, and that my declaration does not opine on the reliability of this verification process.

supports that odor complaint counts and intensity ratings from those complaints, which are used in determining whether NOVs should be issued, are higher than the data supports.

Figure 4. *Histogram of odor surveillance intensity near complaint locations and times.*



13. Although I do not have the data to prove it with statistical certainty, it is also my opinion that other subjective factors also impact odor complaint counts. While Mr. Israel testified that subjective factors, such as people giving up on calling in complaints, might be contributing to the decrease in odor complaints, it is also likely that similarly subjective factors such as these hearings, the lawsuits filed against Chiquita, hearings and key dates in those lawsuits, etc. contribute to an increase in complaint counts. Again, these factors are too subjective to prove with any statistical certainty, but it should be noted that additional factors also influence odor complaints. Theories that cannot be proven with data, such as that people may be giving up on calling in complaints, must be ignored in any data-based analysis.

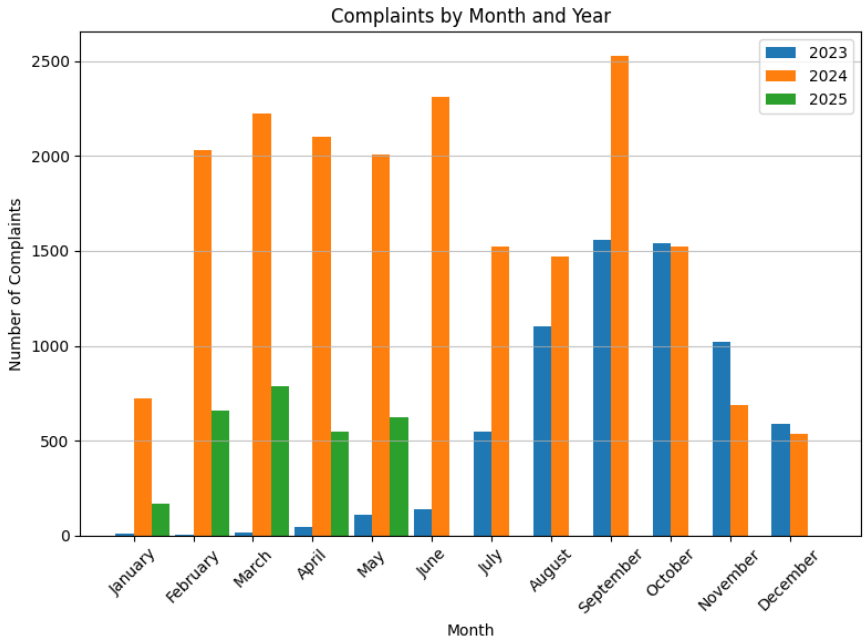
14. It is for all of these reasons that it is my opinion that odor complaint counts and Rule 402 NOVs should not be the only or the primary factors considered when assessing the status of the reaction and Chiquita's implementation of the Stipulated Order. Instead, the Hearing Board should consider the full suite of data points that Chiquita is required to collect under this Stipulated Order as well as under its other enforcement orders from other agencies. A variety of these data points are discussed in more

detail below, and collectively, these data points provide multiple lines of evidence that substantial improvements have been made.

Odor complaint and NOV counts have significantly decreased since 2024.

15. Even if South Coast AQMD complaint and NOV data is considered, 2025 odor complaint and Rule 402 NOV counts are significantly lower than they were in 2024. A graph of the monthly average odor complaint counts from 2023 through May 2025 is below in **Figure 5** and on page 5 of **Exhibit TTTT**. The 2023 data is depicted by the blue vertical bars, the 2024 data is depicted by the orange vertical bars, and the 2025 data is depicted by the green vertical bars. This graph shows a clear decrease in complaint counts in the first half of 2025 as compared with the first half of 2024.[3] There is still room for further improvement, but these counts show that conditions at the landfill are getting better, including reductions of 65% to 75% over 2024 levels.

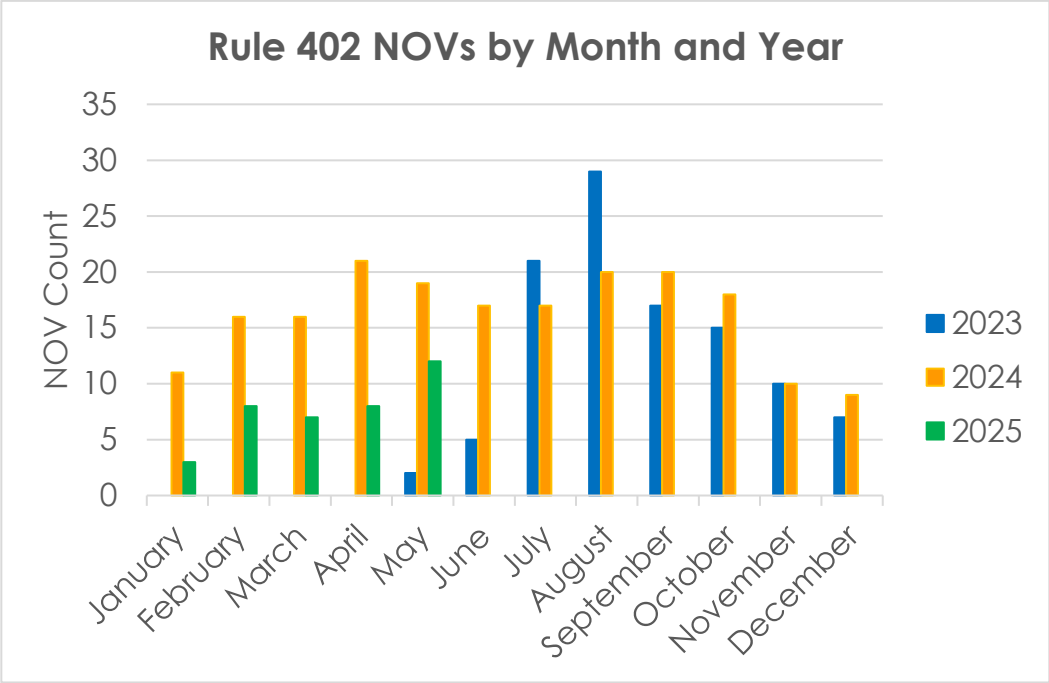
Figure 5. *Graph of odor complaint data by month and year.*



[3] Note that through May 2025, we see an overall decrease in the number of complaints for all of the same months as compared to 2024. While the May 2025 counts are slightly up from the April 2025 counts, we do not expect to see a significant increase in complaints moving into the summer months. Although we would expect to see an increase in complaint counts in the summer months as meteorological conditions change, we do not expect that these summer wind conditions will significantly increase complaints this year given the overall decrease from 2024 counts and all the improvements Chiquita has made onsite.

16. A similar trend can be seen with the Rule 402 NOV data. A graph of the number of Rule 402 NOVs issued by South Coast AQMD from 2023 through May 2025 is below in **Figure 6** and on page 6 of **Exhibit TTTT**. As with the odor complaint data, the 2023 data is in blue, the 2024 data is in orange, and the 2025 data is in green. This graph shows that the number of Rule 402 NOVs received in 2025 is significantly less than the number of Rule 402 NOVs received in 2024. Again, there is still room for improvement, but these counts also show that conditions are getting better, including reductions of 35% to 70% over 2024 levels.

Figure 6. *Graph of Rule 402 NOVs by month and year.*



Onsite data show that the potential for offsite emissions is decreasing.

17. In accordance with the Stipulated Order and Chiquita's other enforcement orders, Chiquita and its contractors, including SCS Engineers, Inc. ("SCS"), have been extensively measuring and monitoring a variety of onsite data points to assess the status of the reaction and Chiquita's overall efforts to mitigate the ETLF event. This data shows that conditions are improving onsite, meaning that the potential for offsite emissions and other impacts has decreased and continues to decrease. Some of the key onsite data points that illustrate these conclusions are landfill gas recovery data, onsite air

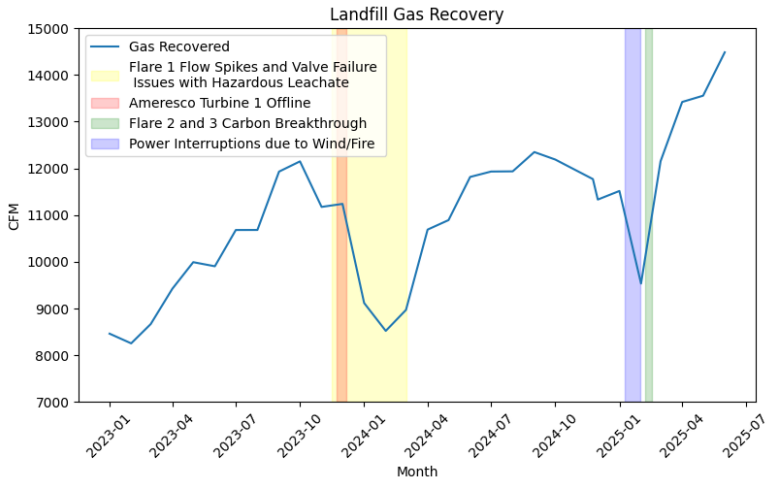
monitoring data, and surface emissions data obtained from regular drone flyovers and flux chamber studies.

Chiquita's landfill gas recovery has significantly improved since 2023, decreasing the potential for offsite emissions and any related impacts.

18. Landfill gas recovery data demonstrates the amount of landfill gas that Chiquita's landfill gas collection and control system collects and sends to Chiquita's control units. Chiquita's control units consist of three permanent flares and two portable thermal oxidizers. Chiquita is currently working to install and begin operating a third portable thermal oxidizer. Each of these units control Chiquita's landfill gas by burning the gas to convert potentially harmful constituents in the gas into harmless constituents. The more gas that Chiquita collects and sends to the control units, the fewer surface emissions will be emitted, thereby reducing the potential for offsite emissions and related offsite impacts.

19. My team and I have reviewed Chiquita's landfill gas recovery data collected between January 1, 2023 and June 4, 2025 and have summarized it below in **Figure 7** and on page 7 of **Exhibit TTTT**. As depicted in this graph, while there have been some fluctuations in landfill gas recovery over time, Chiquita has significantly increased its total recovery since the start of 2023.

Figure 7. *Graph of landfill gas recovery since the start of 2023.*



20. As shown in the chart in **Figure 8** below and on page 8 of **Exhibit TTTT**, in the last three months, March 2025 through May 2025, the average landfill gas recovery, excluding leachate vapor flow, was about 13,000 cubic feet per minute ("cfm"). In the first half of June 2025, the average

recovery, excluding leachate vapor flow, was over 14,400 cfm. Since early 2023, gas recovery has increased from 8,500 cfm to about 14,500 cfm, an approximately 70% increase in recovery.

Figure 8. *Chart of average landfill gas recovery since March 2025.*

Time Period	Total Average Gas Recovery (cfm)	Leachate Vapor Flow (cfm)	Average Gas (cfm)
March 2025	13,286	1,134	12,152
April 2025	14,268	847	13,421
May 2025	14,371	816	13,555
June 1-16, 2025	15,090	652	14,438

21. In my opinion, this overall increase is due to the significant improvements Chiquita has been making to the landfill gas collection and control system, including the installation of a new permanent flare (Flare 3), completing the installation of almost 46 acres of geosynthetic cover, drilling around 292 additional wells since 2023, installing and upgrading pipes and headers, installing and modifying the portable thermal oxidizers, installing and operating nearly 170 pumps in the gas wells to remove liquids and make the gas wells more effective, and modifying the gas blower systems. All of these activities have led to the significant increase in landfill gas recovery, in turn reducing the potential for offsite emissions from the Landfill.

22. Another key way in which Chiquita has increased its landfill gas recovery is by decreasing downtime of the permanent flares. This has been a focus of my team. One of the biggest steps we have taken since 2023 to decrease flare downtime is to connect the flare station to permanent grid power. Originally, Chiquita's flares were powered by generators, but these generators tended to go down a lot, which would cause the flares to go down. To address these power issues, and as required by Condition 88 of the Stipulated Order, in December 2024, we connected the flare station to direct grid power. By hooking the flare station up to direct power, we were able to remove the generators and use them as backup as needed. This greatly reduced the downtime of the flares. While there have been flare downtime events due to other issues, the number of events related to power issues and issues with the generators has decreased significantly. Over the last three months, the downtime for power issues has decreased to less than 0.003% of the operating flow (about 1 cfm loss of flow due to power issues). Below in **Figure 9** and on page 9 of **Exhibit TTTT** is a chart showing the impact of direct power at the

flare station. This chart demonstrates the significant improvements to flare uptime that Chiquita has made, especially in the past four months.

Figure 9. *Chart of average landfill gas recovery, highlighting the impact of direct power at the flare station.*

Period	Average Gas Recovery - Uptime Only	Average Gas Recovery-Downtime Included	Flow Decrease due to Power
	(cfm)	(cfm)	(cfm)
Aug-24	12,641	12,441	78
Sep-24	13,790	13,197	214
Oct-24	13,615	13,184	42
Nov-24	13,650	12,727	711
Dec-24	12,876	12,424	265
Jan-25	13,326	13,275	54
Feb-25	11,952	11,093	32
Mar-25	13,465	13,286	0
Apr-25	14,999	14,268	1
May-25	14,993	14,371	0
June 1-16	15,287	15,053	0

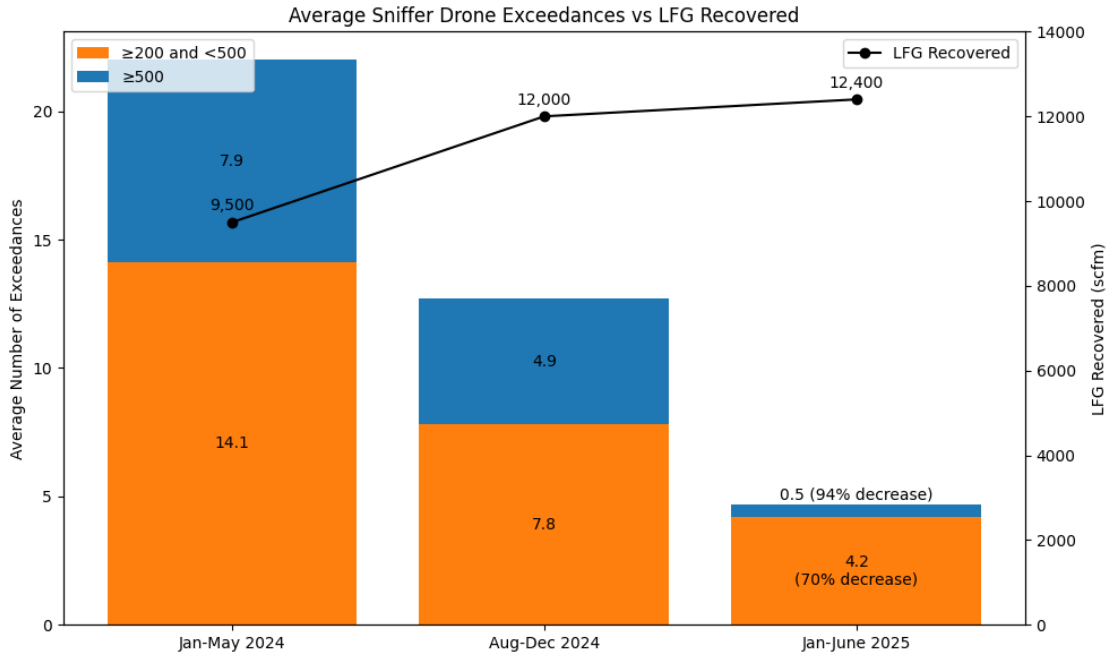
Surface emissions data similarly shows that landfill conditions are improving and decreasing the potential for offsite impacts.

23. Chiquita's surface emissions data obtained from regular drone flyovers and flux chamber studies similarly reflects a decreased potential for offsite emissions from the Landfill. Chiquita voluntarily conducts instantaneous aerial surveillance monitoring for surface emissions, using a Sniffer drone, on a biweekly basis. A graph of this Sniffer drone data from January 10, 2024 through June 9, 2025 as compared with landfill gas recovery data is below in **Figure 10** and on page 10 of **Exhibit TTTT**.[4] This graph depicts exceedances of the methane emissions thresholds for corrective action as measured by the Sniffer drone. There are two limits displayed, over 500 parts per million by volume ("ppmv") and between 200 and 500 ppmv. The bar graph shows the number of exceedances of these limits during the stated time period. The line graph shows the landfill gas recovery rate during the same time period. Note that although I use the term "exceedance," this does not mean that there has been a violation of any rule or regulation. This is just an exceedance of a regulatory threshold. Once an exceedance is detected, we conduct follow-up corrective actions to address and remediate the

[4] Note that because the Sniffer drone is more consistent in terms of the number of events flown per month, the area flown, the route the drone flies, and the monitoring methodology performed by the drone, this data is already normalized for many of the factors discussed below with respect to the traditional surface emissions monitoring data.

exceedance. This graph shows the impact that an increase in landfill gas recovery can have on decreasing surface emissions. As noted above, these improvements were also driven by activities such as the installation of the geosynthetic cover. We have seen a 90% reduction in exceedances of the 500 ppmv level since the first half of 2024 (70% for 200 ppmv values).

Figure 10. *Graph of average Sniffer drone aerial surveillance monitoring exceedances and average landfill gas recovery.*



24. Chiquita also obtains surface emissions monitoring data through flux chamber studies, which measure the rate at which certain constituents are emitted through the surface of the landfill. These flux chamber studies illustrate significant improvements in surface emissions since 2024. As stated in my prior declaration submitted on May 30, 2025, to date, Chiquita has conducted four flux chamber studies. The results of each of the four flux chamber studies are summarized in the table shown in **Figure 11** and on page 11 of **Exhibit TTTT**.

Figure 11. *Chart of flux chamber study results.*

	Event			
Compound	**1 (8/23)**	**2 (3/24)**	**3 (11/24)**	**4 (3/25)**
Carbon dioxide	41,312	327,049	216,177	100,526
Methane	3,357	11,456	6,880	4,756
Total VOC	207	853	61	26.1
Ethanol	18.3	NQ	0.42	0.23
Acetone	17.6	51	1.30	1.38
Dimethyl sulfide	15.2	57.9	0.93	0.95
Tetrahydrofuran	13.6	107	0.06	0.23
Benzene	9.33	104	0.27	0.90
Methanol	9.09	NQ	0.51	0.79
Methyl ethyl ketone (MEK)	9.06	51.2	0.24	0.30
Propylene	6.62	29.8	0.69	0.41
Isopropyl alcohol (IPA)	3.72	15.2	0.18	0.51
Isopropyl toluene	3.25	13.7	0.25	0.42
Toluene	2.00	18.6	0.22	0.29
Total Xylenes	1.52	9.79	0.30	0.48
Ethylbenzene	1.14	10.1	0.16	0.20
Hydrogen sulfide	0.13	3.81	0.72	0.24
Note: NQ = Not Quantified				

As shown by this table, the November 2024 and March 2025 studies show a marked decrease in emissions for almost every compound measured. These results suggest that Chiquita's mitigation efforts have likely increased Chiquita's ability to capture and control landfill gas. In turn, this means that the potential for offsite emissions has decreased significantly.

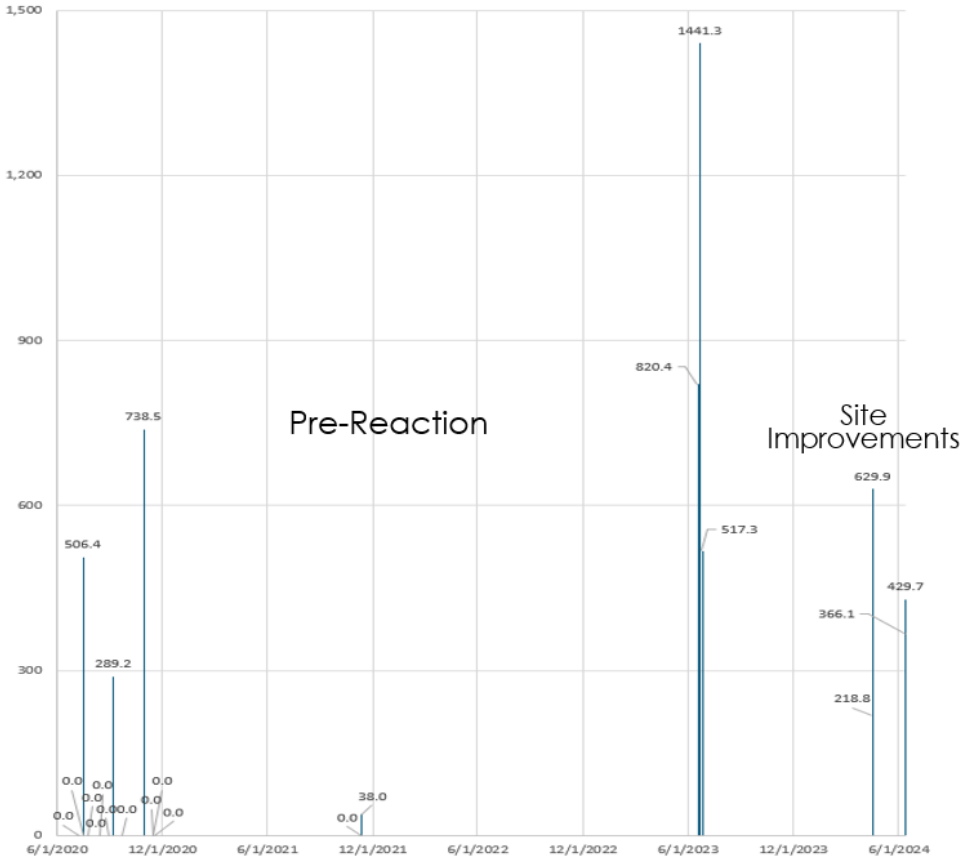
25. I strongly disagree with Dr. Chen's testimony that flux chamber studies are merely screening tools. The U.S. Environmental Protection Agency ("EPA") and the California Air Resources Board ("CARB") both recognize the validity of flux chamber studies for assessing surface emissions from landfills. U.S. EPA has published guidelines to help state programs implement assessments of gas emissions using a flux chamber in its Measurement of Gaseous Emission Rates from Land Surfaces Using an Emission Isolation Flux Chamber User Guide (NTIS PB86-223161, EPA/600/8-86/008). Additionally, CARB has prescribed flux chamber testing as the default methodology for testing of landfill surface emissions as part of the two-step program under its Emission Inventory Criteria and

Guidelines ("EICG"). The EICGs are the guidelines to implement CARB's Regulation for the Reporting of Criteria Air Pollutants and Toxic Air Contaminants ("CTR") program, which was updated in 2022 for a more comprehensive program of emission inventories under various California programs, including AB 2588, AB 617, etc. South Coast AQMD must comply with the CTR and EICG like other air districts in the state. In fact, flux chamber studies are the best available method for estimating actual emission rates from landfills as compared with methods that only measure concentration.

26. Dr. Chen also erroneously testified that we're using flux chamber study data alone to draw conclusions regarding surface emissions and bigger picture trends. While flux chamber study data provides very strong support for my opinion that conditions are improving at the landfill and surface emissions are decreasing, this data is just one line of evidence among many. It is certainly not the sole basis for my opinions.

27. In addition to the Sniffer drone and flux chamber data, surface emissions reductions are also shown in publicly available aircraft survey data. Chiquita is not required to monitor or collect any surface emissions data using aircraft, but publicly available aircraft survey data provides additional information on methane emissions potentially from the Landfill. Aircraft capable of measuring methane emissions fly over the Landfill and reports of the recorded methane concentrations and emissions are made publicly available. These studies have been completed by the NASA Jet Propulsion Laboratory and other contractors hired by regulatory agencies for this type of research. SCS has reviewed and analyzed data from twenty-two individual aircraft survey events from the Carbon Mapper website, where this data is tracked and publicly published. A graph summarizing this data is below in **Figure 12** and on page 12 of **Exhibit TTTT**. This graph shows methane emissions recorded by these aircraft from September 6, 2020 through June 25, 2024. Before the reaction, in 2020, methane levels ranged from 0 to 738 kilograms of methane per hour ("kg CH_4/hr"). In June 2023, methane emissions increased to around 1,441 kg CH_4/hr as the reaction affected emission levels. By around June 2024, after Chiquita implemented many mitigation measures designed to address the reaction, methane emissions decreased back to near-2020 levels.

Figure 12. *Graph of methane emissions recorded by aircraft surveys from September 6, 2020 through June 25, 2024.*

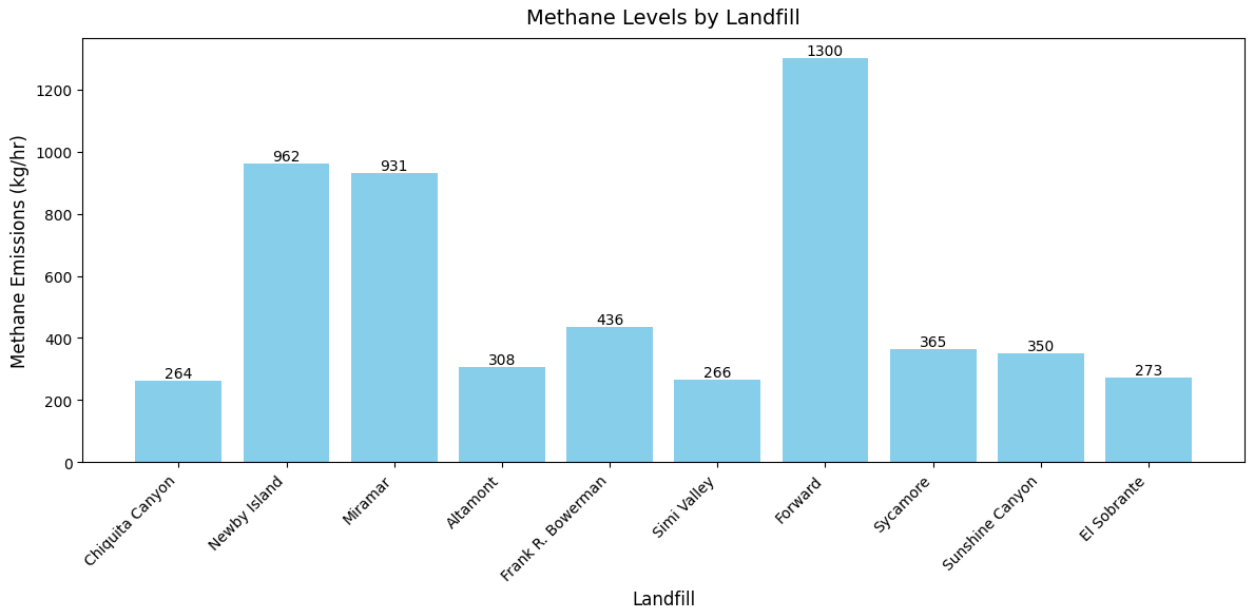


28. Chiquita also conducts traditional surface emissions monitoring as required by its Title V permit with South Coast AQMD and federal, state, and local air rules and regulations. Although Dr. Chen has attempted to show this data graphically in Exhibit 88, I strongly disagree that this data can be accurately graphed, and it cannot be trended as Dr. Chen has tried to do on a monthly basis. My team and I have worked on landfills and with surface emissions monitoring data for decades, and we do not trend this data over time because there are too many variables that affect the number of exceedances that may be noted on a particular day. Some key variables include the number of times these monitoring events are conducted each month, the area of the Landfill covered by each monitoring event, the wind speeds that existed during monitoring, the barometric pressure prior to and during monitoring, as well as various other factors that can affect the number and magnitude of exceedances on a given day or within a given monitoring event, including various seasonal impacts. I am well familiar with these variables and how they impact surface emissions monitoring on day to day and month to month timeframes

because I have personally conducted this monitoring in years past, regularly interact with the contractor currently conducting this monitoring at Chiquita, and have reviewed surface emissions monitoring data for over a hundred landfills and thousands of individual monitoring events. If anything, we may try to look for trends in this data across a multi-year period, but not month to month. We primarily use this monitoring as a leak detection program.

29. Further, it is important to keep in mind that this traditional surface emissions monitoring data solely considers methane, and methane has always existed around Chiquita, just like it has at any large landfill. Landfills are allowed to emit certain amounts of methane. Large landfills in particular are often significant sources of methane in an area. The graph below in **Figure 13** and on page 13 of **Exhibit TTTT** shows how Chiquita compares as a methane source, by rate of methane emissions, to other large, active landfills in California. This graph is compiled from methane concentration measurements taken by satellites and aircraft. These satellites and aircraft also collect meteorological and other data, and then use algorithms to calculate emission rates (as opposed to concentrations). While Chiquita is emitting methane, it is actually the smallest methane emitter among large, active California landfills based on the data derived from Carbon Mapper.

Figure 13. *Graph of methane emission rates by large, active California landfill.*



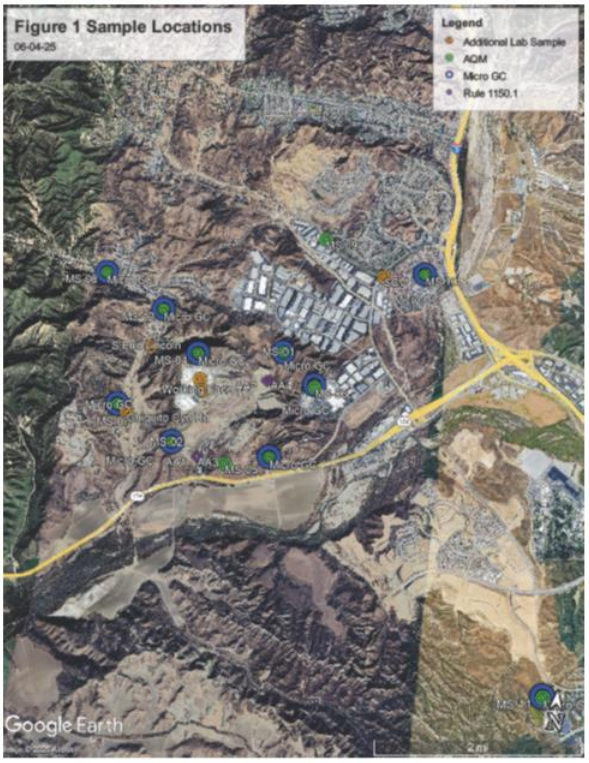
Offsite air monitoring data shows that air quality in the community is improving and rarely, if ever, exceeds health protective thresholds.

30. Chiquita's offsite air monitoring data also shows that conditions are improving. Chiquita's air monitoring program is summarized below in **Figure 14** and on page 14 of **Exhibit TTTT**. All data from this air monitoring program is publicly available on Chiquita's Community Air Monitoring Program website (https://chiquitacanyon.com/reports/community-air-monitoring-program/). Reports submitted to the Los Angeles County Department of Public Health and South Coast AQMD on this data are also publicly available on Chiquita's Odor Mitigation website. My team and I have reviewed and analyzed this air monitoring data, which includes over three million lines of data. Based on our review and analysis, the air quality in the community has improved since early 2024.

Figure 14. *Summary of Chiquita's air monitoring program.*

Air Monitoring Program

	Location/ Sample Name	Continuous			Weekly Discrete	24-Hour	12-Hour
		H_2S/ PM_{10}/ $PM_{2.5}$	SO_2	VOC via Micro-GC	307.91 - Sulfur TO-15 - Full List Odor Sampling	307.91 - Sulfur TO-15 - SIM	H_2S 1150.1 Table 1 VOCs
	Sample Schedule				Monday	Mon-Tues	Monthly
On-Site	MS-01	X	X	X	X		
On-Site	MS-02	X	X	X	X		
On-Site	MS-03	X	X	X	X		
On-Site	MS-04	X	X	X	X		
On-Site	MS-05	X	X		X		
On-Site	Working Face				X		
On-Site	Reaction Area				X		
On-Site	1150.1 Upwind						X
On-Site	1150.1 Downwind				X		X
Off-Site	MS-06	X	X	X	X	X	
Off-Site	MS-07	X	X	X	X	X	
Off-Site	MS-08	X	X	X	X	X	
Off-Site	MS-09	X	X		X	X	
Off-Site	MS-10	X	X	X	X	X	
Off-Site	MS-11	X	X	X	X	X	
Off-Site	MS-12	X	X	X	X	X	
Off-Site	SCV				X		
Off-Site	Chiquito Cyn Rd				X		
Off-Site	S End Lincoln				X		

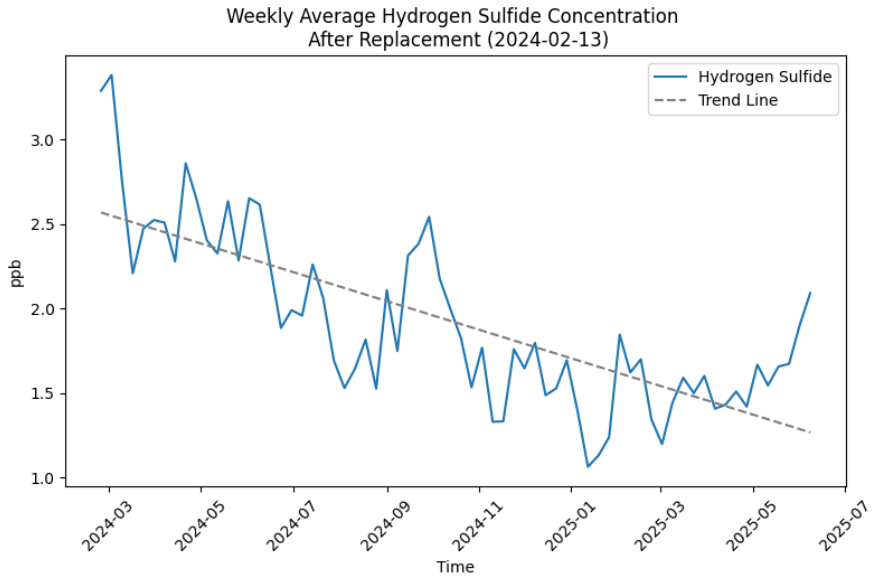


31. Landfills, like any other industrial sources, are permitted to emit air quality pollutants as long as those emissions and their impacts are within the limits of what the regulations allow. Therefore, it is not uncommon to find these pollutants in the ambient air around any landfill, especially for larger landfills like Chiquita Canyon. Furthermore, there are a variety of other sources of these pollutants (e.g.,

vehicles on major interstates and highways, gas stations, industrial plants, power plants, wastewater treatment facilities, warehouses, etc.), which contribute to the ambient levels of pollutants present in the air in the South Coast Air Basin. South Coast AQMD has studied the ambient levels of toxic pollutants as part of its Multiple Air Toxics Exposure Study ("MATES") and found many of the pollutants present in landfill gas emitted from Chiquita Canyon throughout the air basin. Note, however, that all offsite data presented in my declaration here lacks source attribution and therefore cannot be used to imply that detected air emissions are coming from the Landfill. The air quality data simply measures what is in the ambient air at the time the sample is taken, or the air is monitored.

32. A graph of hydrogen sulfide concentration data from February 20, 2024 to June 9, 2025, is below in **Figure 15** and on page 15 of **Exhibit TTTT**. This graph shows that hydrogen sulfide has steadily decreased since 2024. This graph summarizes and depicts the weekly average hydrogen sulfide concentrations from the offsite air monitoring stations after their hydrogen sulfide sensors were replaced at South Coast AQMD's request in late 2023 and into early 2024 because, as Mr. Stephen Dutz explained in his testimony, the units were beyond their useful life and required replacement.[5]

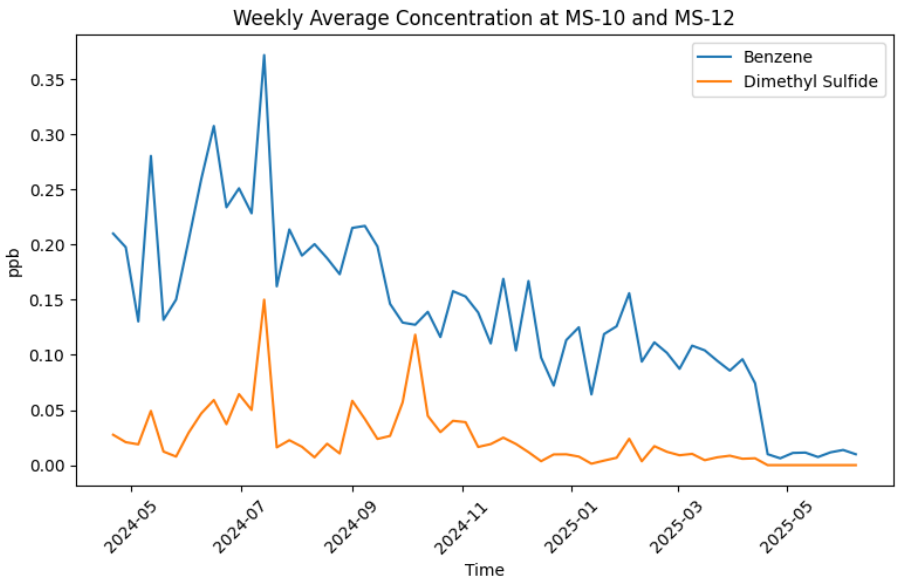
Figure 15. *Graph of weekly average hydrogen sulfide concentration data from the offsite air monitoring stations.*



[5] Note that while hydrogen sulfide concentrations are decreasing as a whole, the May and June 2025 data increases slightly as compared with the March and April 2025 data. However, I do not think this means hydrogen sulfide concentrations are going back up significantly; instead, I think this is the typical slight increase that we would expect to see leading into the summer months as meteorological conditions change.

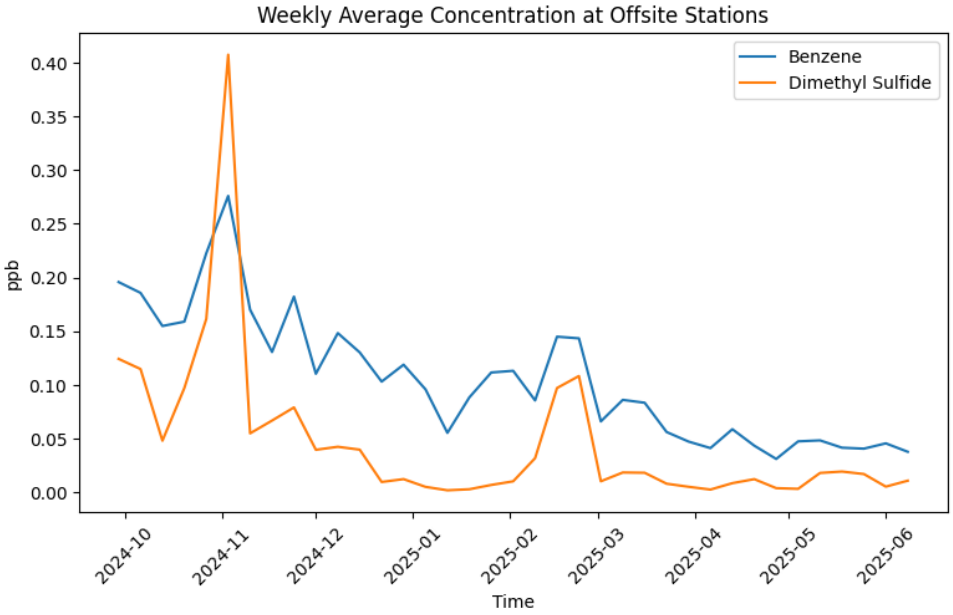
33. A graph of benzene and dimethyl sulfide concentration data recorded from April 21, 2024 to June 9, 2025 is below in **Figure 16** and on page 16 of **Exhibit TTTT**. Concentrations of both benzene and dimethyl sulfide have also decreased since 2024. I selected benzene for analysis since it is a key chemical of concern due to potential health impacts. I selected dimethyl sulfide for analysis since its concentrations in Chiquita's landfill gas have increased significantly with the reaction, and it has a very low odor detection threshold. This graph summarizes and depicts the weekly average concentrations of benzene and dimethyl sulfide at two of the offsite air monitoring stations, MS-10 and MS-12. I summarize data from only MS-10 and MS-12 in this exhibit because these are the two air monitoring stations for which we have had the micro-gas chromatograph ("microGC") units installed for the longest period of time. We now have the units installed at other offsite air monitoring stations, but they were installed later on so we have less data from those stations.

Figure 16. *Graph of weekly average benzene and dimethyl sulfide concentrations at MS-10 and MS-12.*



34. Below in **Figure 17** and on page 17 of **Exhibit TTTT** is a graph of the weekly average concentrations of benzene and dimethyl sulfide recorded from September 23, 2024 through June 9, 2025 at all of the offsite air monitoring stations with microGC units. Overall, the trendline for these concentrations is downward, although there appears to be variability based on wind conditions and/or the influence of other sources (e.g., vehicles).

Figure 17. *Graph of weekly average benzene and dimethyl sulfide concentrations at all offsite air monitoring stations with microGCs.*



35. We have also compared this air monitoring data to health protective thresholds called relative exposure levels or RELs. The REL is the concentration at or below which no adverse health effects are anticipated for a specified exposure duration. Because I am not a toxicologist or a health impacts expert, I am not opining as to the health-related implications of the RELs but only providing a numerical evaluation. Below in **Figure 18** and on page 18 of **Exhibit TTTT** is a chart showing the number of times there have been exceedances of the acute RELs for the constituents shown from June 20, 2024 to June 1919, 2025. This chart shows the number of times that a given compound has been measured above its acute REL offsite. As shown on this chart, most of these compounds have never been measured at a level above their acute REL during this time period. Only benzene and acrolein have exceeded their applicable acute RELs during this time period. For benzene, there have only been two such exceedances out of 38,870 data points, which equates to 0.005% of the total number of data points. For acrolein, there have been only seventeen such exceedances out of 3,599 data points, which equates to approximately 0.47% of the total number of data points. The numbers show that these acute RELs are rarely, if ever, exceeded.

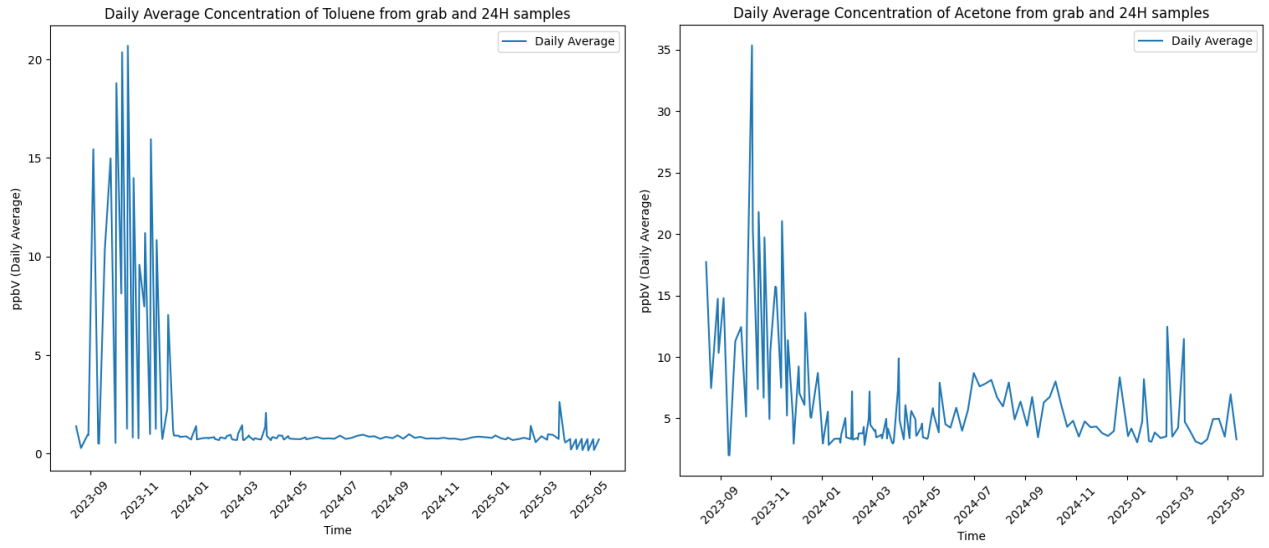
Figure 18. *Chart of exceedances of the acute RELs.*

Compound	Max Recorded	OEHHA REL	Number of Data Points	Number Above Threshold	Percent Above Threshold
	(parts per billion – PPB)				
Benzene	**14.24**	**8**	**38870**	**2**	**0.005**
2_Butanone	23.48	4,500	38867	0	0
Hydrogen Sulfide	18	30	60269	0	0
Isopropyl Alcohol	68.09	1,300	37964	0	0
Methanol	89.81	21,000	38841	0	0
Toluene	10.84	1,300	38870	0	0
m,p-Xylene	57.45	5,000	37048	0	0
Acrolein	2.43	1.1	3599	17	0.472

36. It is my expert opinion, however, that these acrolein exceedances are not from the Landfill. As an initial matter, there are many other common sources of acrolein that are not related to landfilling or the ETLF event, including vehicle exhaust, other combustion sources, wildfires, cigarette smoke, and high temperature cooking. The proximity of the area to Interstate 5 provides a logical source for the presence of acrolein in the monitoring stations. Further, we have not found acrolein in any of the onsite or community grab samples, including those collected on-site in the reaction or landfill active face areas, and acrolein has not been detected in the landfill gas or reaction gas at the Landfill. This is not unexpected as acrolein is not a typical constituent of landfill gas; in fact, it has not even been identified by the U.S. EPA as a constituent present in landfill gas in their AP-42, *Compilation of Air Pollutant Emissions Factors from Stationary Sources*, section on landfills. The acrolein REL is also just slightly above the detection limit for the air monitoring stations, so any detection of acrolein by the stations can be an exceedance of the applicable REL. Further, South Coast AQMD has found similar levels of acrolein in its own community monitoring across the South Coast Air Basin as part of its MATES program. For these reasons, it is my opinion that these acrolein concentrations are not from the Landfill, and instead, are indicative of background levels caused by other sources as identified above.

37. Our laboratory sampling data has also exhibited improving air quality trends. Below in **Figure 19** and on page 19 of **Exhibit TTTT** are graphs of toluene and acetone concentration data. Concentrations of both toluene and acetone have also decreased since 2023. This data is from the grab and 24-hour samples taken on a weekly basis at multiple air monitoring stations. I am choosing to highlight these two constituents because they are some of the only constituents that were detected frequently enough to create a long-term data trend, and the concentrations of both increased in 2023. These graphs show the daily average concentrations of toluene and acetone from August 15, 2023 through May 12, 2025. There have been strong downward trends for both of these constituents since 2023.

Figure 19. *Graphs of daily average concentrations of toluene and acetone.*



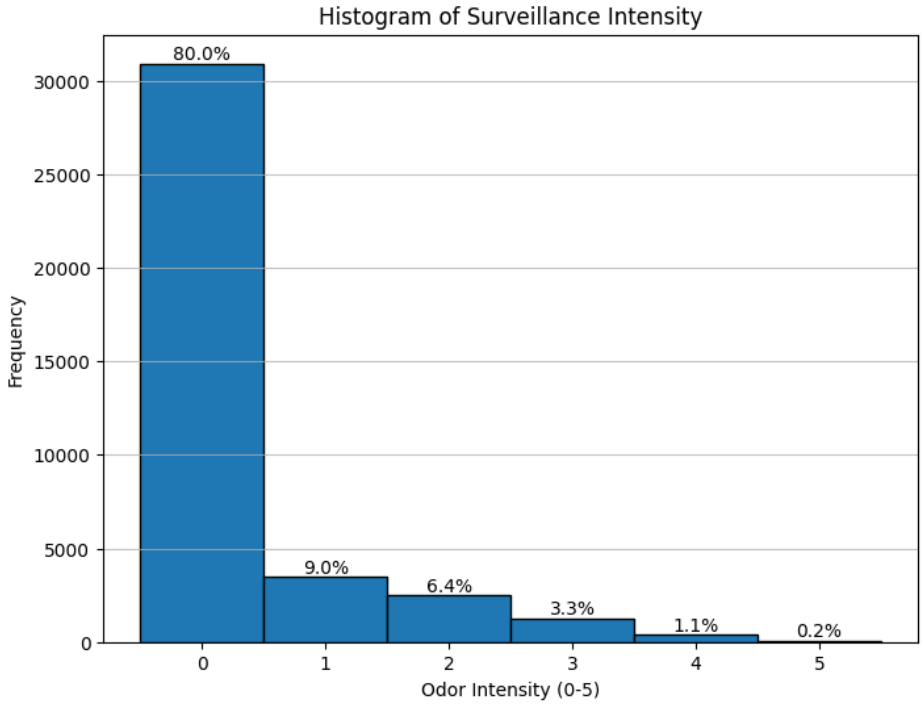
Odor surveillance data also show conditions are improving in the community.

38. Condition 1 of the Stipulated Order requires Chiquita to conduct twice daily odor surveillance monitoring at forty-five locations in the community surrounding the Landfill and report the results in an odor surveillance log. The odor surveillance log must include the time and date, the wind speed and direction, a narrative description of the odor detected (including the type of odor, such as trash, landfill gas, chemical, and odor neutralizer), and an assessment of the strength of any odor detected using a prescribed scale from zero to five. According to South Coast AQMD's scale, an odor strength of zero means that no odor was detected, and an odor strength of five means that a very strong

odor was detected. The odor surveyors that Chiquita has contracted to conduct this monitoring are highly trained, both at detecting the different types of odors required to be noted in the log and at assessing the strength of any odor detected in accordance with South Coast AQMD's odor strength scale.

39. My team and I have reviewed and analyzed approximately 40,000 odor surveillance data points. Our analysis of the data found that the odor surveyors did not find any odors in the community 80% of the time. Further, less than 5% of the odor detections showed an odor intensity of three or greater, which is the threshold at which I understand that South Coast AQMD determines an odor rises to the level of a nuisance. A histogram of the intensity of the odors logged since the Stipulated Order first went into effect in September 2023 through May 27, 2025 is below in **Figure 20** and on page 20 of **Exhibit TTTT**.

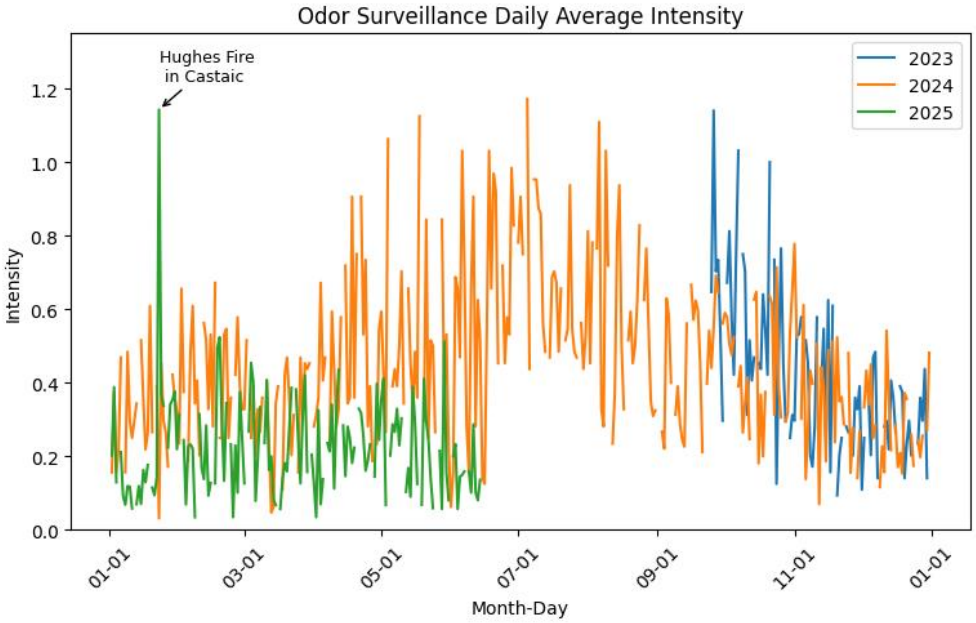
Figure 20. *Histogram of odor surveillance intensity data.*



40. We have also graphed the daily average odor intensities recorded during the odor surveys over time and found that the average intensities recorded have decreased since the middle of 2024. A graph of the daily average odor intensities recorded since the Stipulated Order first went into effect in September 2023 through May 27, 2025 is below in **Figure 21** and on page 21 of **Exhibit TTTT**. The

blue line depicts the data from 2023, the orange line depicts the 2024 data, and the green line depicts the 2025 data through May 27, 2025.

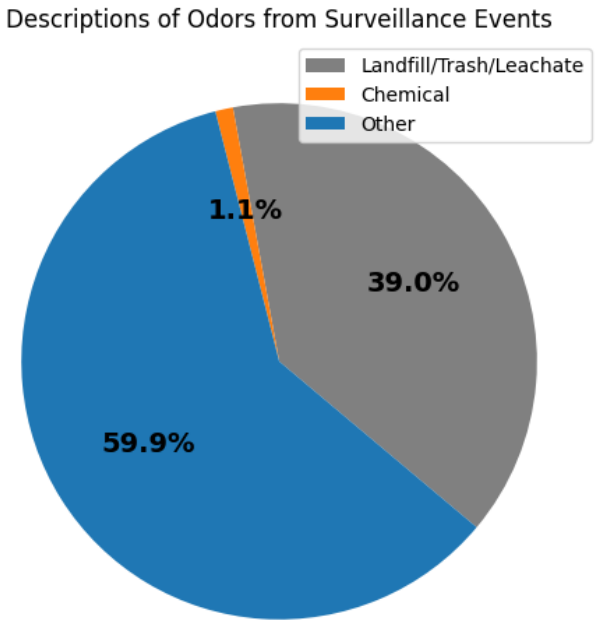
Figure 21. *Graph of average daily odor surveillance intensity data.*



41. We also analyzed the odor description information provided by the odor surveyors. The surveyors are specially trained to identify specific odors and their intensities. They have been directly exposed to the various Landfill-based odors at on-site source areas, so they know what these odors will smell like in the community. Specifically, they know the differences between fresh trash odors, traditional landfill gas odors, reaction gas odors, and leachate odors. Therefore, they are less likely to confuse these odors with others that might be similar but not from the Landfill (e.g., sewer odors, rotting food waste in trash cans, and chemicals from other industrial operations). They have also gone through training to determine the intensity of the odors, following the South Coast AQMD's guidance and odor scale used by their own inspectors as to how to score these odors. The surveyors note odors potentially related to the Landfill using descriptions like landfill, trash, and leachate. They also record other odor types using descriptions like chemical and other. We have analyzed these descriptors to assess how many of the detected odors were of a type potentially related to the Landfill. A graphical summary of our analysis using data from September 25, 2023 through May 27, 2025 is below in **Figure 22** and on page 22 of **Exhibit TTTT**. This pie graph depicts roughly 7,500 odor surveillance reports with an odor

intensity above zero, which means they detected some odor. The grey wedge represents the percentage of odors that were potentially attributed to the types of odors that one might associate with a landfill (e.g., landfill, trash, or leachate odors). The orange wedge represents the percentage of odors that were described as a chemical or similar odor. The blue wedge represents the percentage of odors that were described as something "other." In my expert opinion, this graph shows that the majority of odors detected by the odor surveyors were not of a landfill-related type—they were either "chemical" or "other." This means that most of the odors detected were unlikely to have been from the Landfill.

Figure 22. *Pie graph of odor surveillance odor description data.*



Chiquita's competing proposal for aerial surveillance monitoring is reasonable.

42. Finally, with respect to contested Condition 77, under Chiquita's proposed language, Chiquita would conduct drone-based instantaneous and integrated monitoring over the entirety of the landfill's surface, including the reaction area, on a monthly basis. Chiquita would then submit maps of this monitoring data to South Coast AQMD in its monthly reports to the District. It is my understanding that Chiquita would work with its drone contractor to adapt its monitoring as needed such that the drone can conduct both instantaneous and integrated monitoring. Sniffer has been able to do this at other

landfills, and in the State of Washington the use of the Sniffer drone under the method OTM-51 is allowed for both types of monitoring, so this technology is known and is in use in other states. Chiquita would also work with its contractor to align the drone monitoring with the monitoring that a different contractor currently conducts under Rule 1150.1 such that the two types of instantaneous and integrated monitoring occur concurrently to the extent possible. After six months of concurrent data collection, the Reaction Committee would review the concurrently collected data and submit a report to South Coast AQMD for review and approval. The report would include the Reaction Committee's analysis and a recommendation on whether Chiquita should use the drone-based instantaneous and/or integrated monitoring to comply with the enhanced monitoring required by Conditions 9 and 10. Note that Sniffer has already conducted and submitted to U.S. EPA a formal equivalency analysis to allow its use of OTM-51 to be approved as an alternative method under ALT-150 for compliance with the surface monitoring requirements under the federal New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants rules. Like Washington has done, and like Colorado is proposing in its landfill methane rule, we expect that CARB will approve OTM-51 in its pending revision to the California landfill methane rule.

43. If the Reaction Committee recommends that Chiquita move forward under Conditions 9 and 10 using the aerial-based instantaneous and/or integrated monitoring, and South Coast AQMD approves this recommendation, Chiquita may continue implementing Conditions 9 and 10 using the aerial-based instantaneous and/or integrated monitoring. Note that Chiquita would still continue conducting the ground-based instantaneous and integrated monitoring required by Rule 1150.1 even if it made this change to Conditions 9 and 10. If the Reaction Committee recommends that Chiquita continue using the ground-based instantaneous and/or integrated monitoring to comply with Conditions 9 and 10, then Chiquita may stop conducting the aerial-based instantaneous and/or integrated monitoring, and continue conducting the Rule 1150.1 monitoring under Conditions 9 and 10 as it currently does.

44. In my opinion, Chiquita's proposal is reasonable. Chiquita is agreeing to incorporate the drone-based monitoring into the Stipulated Order, but is simply seeking to avoid unnecessarily duplicative or otherwise unhelpful monitoring. Chiquita's proposal allows South Coast AQMD to obtain

concurrently collected instantaneous and integrated monitoring data using both aerial and ground-based surveillance methods, and then allows Chiquita the option to stop one monitoring method upon the recommendation of the Reaction Committee and South Coast AQMD's approval of said recommendation.

45. Further, while I don't disagree that additional data is often a good thing, I do want to be cautious about ensuring Chiquita is collecting useful data at a reasonable frequency that will allow time for evaluation of the data and determination of any subsequent actions. The Reaction Committee's analysis and recommendation will help Chiquita assess the usefulness of the data collected by the drone-based surveillance and will help reduce the risk of having too much data. At some point, having too much data creates issues with being able to meaningfully assess and understand what the data is telling you and to determine the best course of action for any corrective measures. Further, if the data is not showing anything useful, then the value of that data diminishes.

Conclusion

46. In conclusion, in my expert opinion, the subjective odor complaint data received by South Cost AQMD is not reliable evidence for determining the existence or source of any alleged odors and should not be the primary determinant as to whether such impacts are occurring. Some of the complaints of odors alleged to be coming from the Landfill, even verified complaints, are highly unlikely to be coming from the Landfill based simply on wind direction data. Moreover, odor complaint counts in 2025 have significantly decreased from their 2024 levels.

47. The Hearing Board should also look to landfill gas recovery, surface emissions, and air quality data to assess the status of the reaction and Chiquita's mitigation efforts. The onsite landfill gas and surface emissions data from drone flyovers and flux chamber studies shows that the potential for offsite emissions from the Landfill is decreasing. The offsite air quality data shows that the community's air quality is improving, and that constituents detected in the ambient air rarely, if ever, exceed health protective thresholds. In my expert opinion, the improvements in the landfill gas recovery, surface emissions, and air quality data can be attributed to Chiquita's mitigation efforts.

48. When each of these data streams are taken as lines of evidence, individually and especially collectively, they illustrate that conditions at the landfill are improving, and the mitigation measures that Chiquita is implementing are working.

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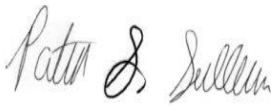
I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to my personal knowledge.

Executed on this 20th day of June 2025, in Carmichael, California.



Patrick Sullivan
Senior Vice President
SCS Engineers