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** **DECLARATION OF RICHARD PLEUS, PH.D., M.S.** Health and Safety Code § 41700, and District Rules 402, 431.1, 3002, 203, 1150 Hearing Date: June 4, 17, 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, Richard Pleus Ph.D., M.S., declare as follows:

1. I am of sufficient age and am competent to testify in this proceeding. I provide this declaration based on my knowledge and expertise in human toxicology and psychopharmacology. I am competent to testify to the facts and opinions set forth herein.

2. This declaration 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.

Background and Experience

3. I am the Founder, Managing Director, and Chief Toxicologist at Intertox, Inc. ("Intertox") in Seattle, Washington. Intertox is a toxicology and environmental consulting firm with expertise in risk assessment, scientific research and communication, global regulatory compliance, and scientific experimental design and data evaluation. I have 40 years of experience in toxicology and psychopharmacology, specializing in interactions between chemicals and the brain and associated behavior. I hold a Bachelor of Science in Physiology, a Master of Science in Environmental Health, and a Ph.D. in Environmental Toxicology. My Ph.D. research was conducted in the Department of Pharmacology in a laboratory studying psychopharmacology. My postdoctoral training was in

neuropharmacology.

4. I was retained by Chiquita Canyon, LLC ("Chiquita") in March 2024, to conduct air and odor sampling of the communities around Chiquita Canyon Landfill (the "Landfill") in an effort to evaluate potential physiological impacts from exposure to odorants.

5. As explained further below, the odor nuisance investigation process implemented by the South Coast AQMD results in data that is less than reliable.

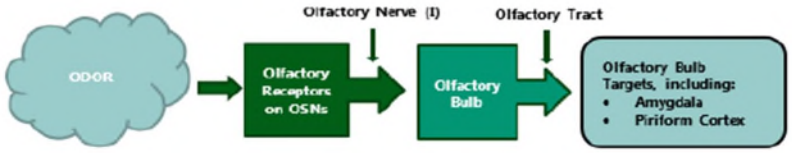
Odor Perception, Behavioral Responses, and Misattribution

6. A variety of factors, specific to each person, will determine whether that person can perceive a particular odor and the intensity with which it is perceived. These factors include smoking status (smokers are less sensitive to odors), age, sex, other chemical exposures, and various illnesses (nasal congestion can decrease the ability to detect an odor).

7. Odor perception and the resulting behavioral response are highly subjective among individuals: a particular odor may be perceived as disagreeable by one person, neutral by another, and agreeable by another. Cultural background, psychological health, and lived experience impact response and thus, odor perception. The expectation that an odor may be more healthy or less healthy to breathe can alter how much we attend to the odor and how we react to it when we smell it.

8. A response to an odor can be one or a collection of physical or behavioral responses. An example of physical responses is moving toward something (positive association, such as smelling a rose) or away from a source (negative association, such as smelling feces). An example of a behavioral response is the association of an odor with anger or fear (negative association, such as fear of being poisoned) and happiness and joy (positive association, like the smell of fresh-baked bread).

9. The interpretation of odor and the resulting physical or behavioral actions a person takes is the result of the brain processing the information. The brain's information processing integrates each person's history and culture. Briefly, odors can trigger neurons in the olfactory tract that send nerve impulses to the brain's limbic system (e.g., amygdala) and the piriform cortex. These components work together and involve emotion, memory, motivation, and olfaction. Below is a visual representation of the olfactory pathway from odorant in the nose to the brain (modified from Purves et al., 2001):



10. Studies have shown that annoyance responses are not primarily impacted by odor intensity but are impacted by various factors specific to the individual (those discussed previously such as age, gender and perceived health status)—as well as beliefs about odors and their risks. For example, soldiers with battlefield PTSD can experience anxiety, fear, flight, and panic responses when exposed to odors associated with that setting (Daniels and Vermetten, 2016). These emotional factors tend to be the drivers of increased odor annoyance, rather than the strength and frequency of the odors experienced.

11. Additionally, source identification of odors is difficult for humans and is subject to biasing and expectations. (Herz and von Clef 2001; Djordjevic, et al. 2008). Therefore, how the odor is labeled, including the information provided about the source of an odor, can induce a person to perceive an odor when none is present, to alter the positive or negative perception of the odor, to perceive the odor as stronger or more persistent than it objectively is, and to misattribute the source of the odor. For example, if individuals are told they are being exposed to an odor from a specific source, those individuals are more likely to attribute subsequent odor experiences to that source or even attribute odors when none exist to that source. (Distel and Hudson 2001; Herz and von Clef 2001).

12. Assigning a negative label to an odor can lead individuals to perceive it as more intense and less pleasant compared to when the same odor is presented with a neutral or positive label. For example, labeling an odor can significantly bias an individual's perception of its intensity and pleasantness. Studies have shown that individuals' perception of the same odor varied, depending on whether or not it was given a positive label, such as "Christmas tree," or a negative label, such as "spray disinfectant." (Herz and von Clef 2001).

13. Odor perception and response is not always driven by the "bottom-up" features of the odorant (e.g., quality, intensity, and identifiability), but rather "top-down" features, such as expectations and beliefs about the odor. In other words, simply labeling an odor negatively (noxious; putrid) or as

harmful (toxic), can impact how a person experiences that odor.

14. Odors and their sources surround us. Thus, self-reported complaints of objectionable odors can result in inaccurate or insufficient conclusions. Attributing odors to a specific source without proper validation lacks methodological consistency, as it depends heavily on the accuracy of subjective reports, including location, wind direction and speed, and odor descriptions provided by individuals who may not be trained in such assessments. For instance, odor complaints submitted without reliable meteorological data cannot be confidently linked to a single source when alternative sources and confounding factors cannot be effectively ruled out. Furthermore, untrained individuals often use inconsistent terminology; two people might describe the same wind direction differently—one calling it a "west wind" and the other an "east wind." As such, the quality of data derived from self-reported complaints is insufficient for accurately attributing odors to a specific source or characterizing the intensity or nature of the odor, including whether it could be characterized as a nuisance-level odor.

Scientific Methods for Obtaining Objectivity in Odor Analysis

15. Using a scientific approach to assess the extent, character, and intensity of odors is essential. As discussed above, the experience of odor is subjective and influenced by physical factors such as age and sex, and behavioral responses which are themselves influenced by perception, cultural, and psychological factors. Intertox thus utilizes objective tools to evaluate odors and their potential impacts, thereby eliminating, as much as possible, the subjective components of olfaction. These objective tools include:

- **Nasal Ranger Field Olfactometer:** an ambient air portable olfactometer for the human nose to detect odors, is a preferred and scientifically accepted methodology for measuring odor strength.
- **Training:** Intertox team members are officially trained in odor assessment and measurement for ambient odors by an internationally recognized training program through St. Croix Sensory odor school training program (https://www.fivesenses.com/odor-school-training-programs/).
- **Sampling:** Intertox also collects air samples simultaneously during odor episodes with silicone-coated canisters (i.e., SilcoCan) or Tedlar sampling bags. These sampling

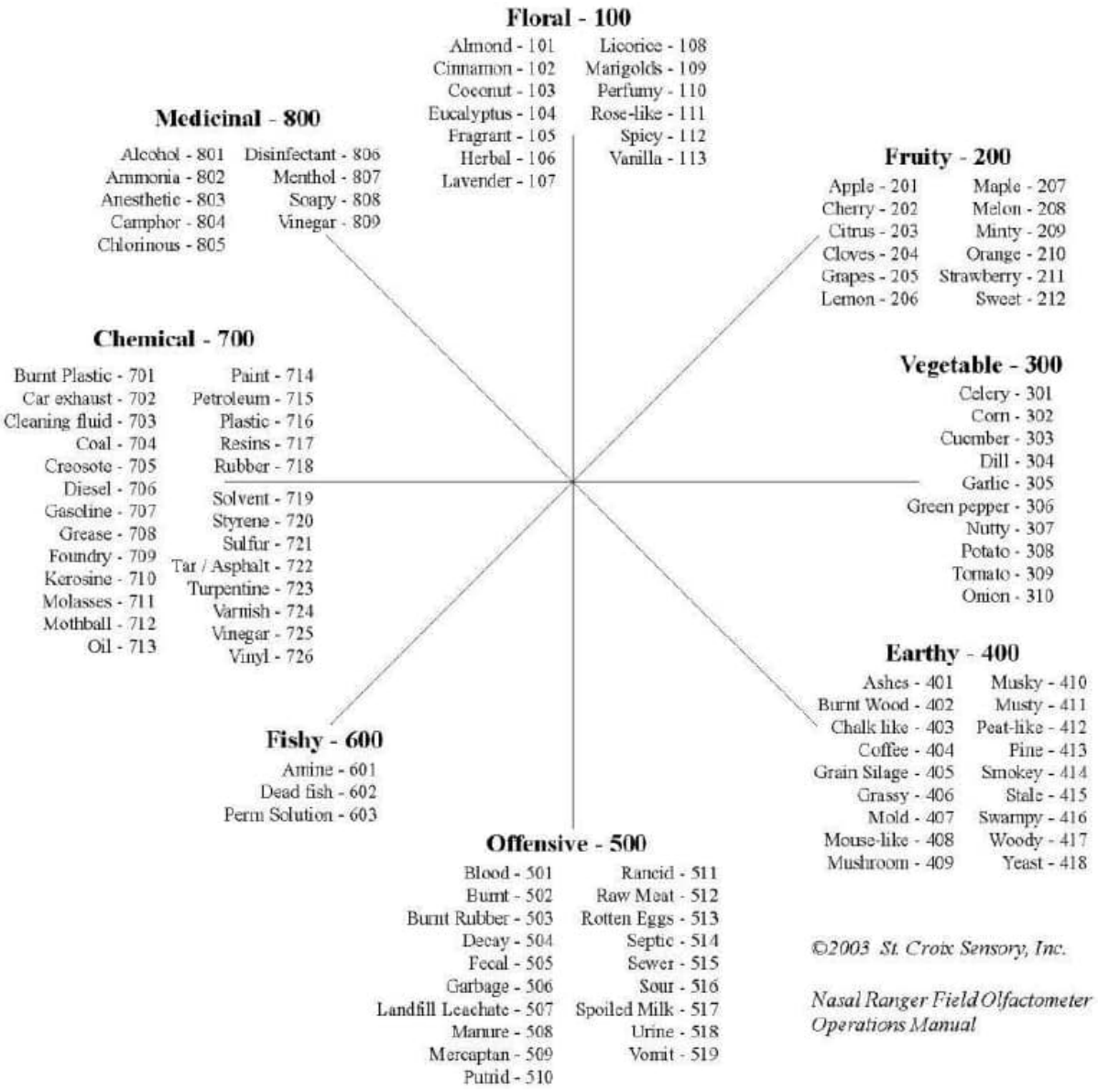
devices ensure stability of the sample obtained and minimal degradation of common landfill odorants (such as sulfur-based compounds).

16. Many states approach odor source control and violations systematically by using scentometry and setting ambient odor limits through the use of devices such as the Nasal Ranger® and other approved methods. Scentometry, using dilutions to threshold as an objective approach to quantifying the strength of odors, is a scientifically accepted methodology for measuring odor strength based on the ability to smell an odor after diluting a sample of ambient air with a known concentration of carbon-filtered (odorless) air. The amount of dilution of carbon-filtered air required before an odor is no longer detectable by a trained odor scientist is termed the "dilution to threshold" or D/T. The D/T is a unitless ratio calculated as:

$$D/T = \frac{\text{Volume of carbon filtered air}}{\text{Volume of odorous air}}$$

17. The greater the number of dilutions needed before the odor threshold is reached, the stronger or greater intensity the odor. Air quality standards for nuisance odors have been established by multiple regulatory agencies based on a D/T of 7:1 or greater, and most standards include a detection frequency that must be met in a defined period of time in order to be classified as an "exceedance." South Coast AQMD does not use this methodology to assess potential odor impacts around the Chiquita Canyon Landfill.

18. Concerning odor character (what the odorant or mixture smells like) and hedonic tone (the odor's relative pleasantness or unpleasantness), these parameters are subjective and highly influenced by external factors. Therefore, the scientifically accepted methodology is to use resources such as the odor wheel (displayed below) in the field to help standardize odor descriptors.



South Coast AQMD's Odor Investigation Process

19. As discussed above, humans generally, absent the use of objective tools, are not good at determining the source, character, or hedonic tone of an odor. These inadequacies of the human nose and the odor interpretation process form the basis of South Coast AQMD's odor investigation and enforcement efforts at the Chiquita Canyon Landfill. I have not received any documentation on the training methods used by South Coast AQMD. So, while I use the word "trained" below because of the testimony I have heard by members of South Coast AQMD, confirmation of the adequacy of training is an open question.

20. As discussed step-by-step below, South Coast AQMD's odor complaint verification and source investigation process lacks scientifically-backed methodology, transparency, or reproducibility, which contravenes the pillars of the scientific method.

21. **Step 1 – Receipt of Complaint:** The first step in South Coast AQMD's investigative process is the receipt of a complaint from the community. South Coast AQMD provides many ways for individuals to make complaints, including a 24-hour hotline, a website portal, and an app that can be downloaded on an individual's phone. According to previous testimony from AQMD inspector Laurance Israel, odor complaints South Coast AQMD receives generally allege a source from which the complained-of odor originates. The first step of the process thus relies on the subjective determinations of an individual as to the character of an odor (what it smells like), its hedonic tone (whether it is pleasant or unpleasant), and the alleged source of the odor. Untrained individuals using nothing but their nose are unable to provide reliable and reproduceable information on any of these metrics (and are susceptible to biases as described above).

22. **Step 2 – Dispatch to Complainant:** After South Coast AQMD receives a complaint, an air quality inspector responds by meeting with the complainant to attempt to verify the odor. Notably, Mr. Israel previously testified that it can take an AQMD inspector a while to get to the complainant's location after a complaint is received.

23. **Step 3 – Odor "Verification":** Upon arrival at the complainant's location, the South Coast AQMD inspector asks the complainant questions, and determine whether the odor is present. If so, this qualifies as a *verified* odor complaint for South Coast AQMD. South Coast AQMD does not use any objective tools in this part of the process. Instead, after speaking with the complainant, inspectors rely on their individual noses and historical experience instead of using an objective tool such as a Nasal Ranger. This process includes a number of points at which subjectivity and bias may influence results:

a. Subjectivity of Verification: An inspector's use of "historical experience" to verify an odor presents significant reliability issues. As discussed more below, many South Coast AQMD inspectors have not been on-site at the Landfill in over a year. An inspector's potentially year-old recollection of the potential Landfill odors is not

reliable, particularly when there is no evidence that South Coast AQMD inspectors are trained in odor characterization or intensity. The characteristics of the Landfill's odors also change over time, they are not static. Further, each person's perception can vary greatly – both in terms of pleasantness/unpleasantness and intensity. Measuring devices, on the other hand, provide objective, standardized data on a clear scale.

b. Confirmation Bias of Inspector: Because many odor complaints allege or state a specific source of the complained-of odor, South Coast AQMD inspectors are susceptible to confirmation bias when a complainant alleges a specific source or source category. When an odor complaint is made alleging odors from the Landfill, for example, South Coast AQMD inspectors may be seeking to confirm the complainant's source hypothesis, rather than objectively evaluating the odor's characteristics and other environmental parameters (e.g., wind direction) to make a determination. The inspector's perception then is colored by the pre-existing source label from the claimant.

c. Time Delay: Odors detected in the communities surrounding the Landfill do not persist; as Mr. Israel previously testified, odors are typically transient and variable. When inspectors are not on-site with a complainant in short order, it is uncertain whether the inspector is verifying the odor that the complainant actually reported.

24. **Step 4 – Odor Source Tracing:** The final step of South Coast AQMD's process is to narrow down potential odor sources and ultimately trace the odor to the alleged source. Based on Mr. Israel's June 17 testimony, this is typically done by referencing wind data and conducting an upwind/downwind survey until a single source is identified. Mr. Israel also testified that inspectors do not typically go to the surface of the Landfill to confirm the Landfill as a source of odor because the inspectors have been there before and have detected Landfill odors in the past. Instead, Mr. Israel said inspectors now usually only go to the front entrance of the Landfill to confirm a particular odor's source. This process, similar to the verification process, introduces subjectivity and practical barriers to obtaining reliable data:

a. Lack of Source Tracing to Landfill Surface: South Coast AQMD inspectors have rarely traced odors back to the surface of the Landfill. The Landfill's visitor logs from January 1, 2025 through May 31, 2025, a summary of which is attached hereto as **Exhibit 1**, show that South Coast AQMD inspectors may have been to the Landfill surface to trace complained-of odors back the Landfill for only 10% of odor nuisance NOVs issued by South Coast AQMD during that time period. While Mr. Israel testified that some inspectors will trace odors to the Landfill's entrance (thereby not needing to sign-in), the entrance is on the opposite side of where Landfill odors would need to travel in order to impact the surrounding communities. Mr. Israel also confirmed that South Coast AQMD odor inspectors are not re-trained at the Landfill surface to detect odors beyond their first and only odor investigation training. Mr. Israel testified that inspectors outside of the toxics unit, which make up half of the inspectors verifying odors in the communities surrounding Chiquita, have not been to the surface of the Landfill since last year. This all makes the source confirmation portion of the process unreliable.

b. Lack of Analysis of Down-Wind Surveys/Meteorological Data: Although Mr. Israel's declaration states that inspectors will typically conduct an upwind and downwind verification of odor complaints, this is not supported by the South Coast AQMD's odor NOV investigation reports that I have been provided (for NOVs issued from April to August 2024). Approximately 25% of those NOVs were composed of complaint reports that include neither upwind nor downwind surveillance, and more than 90% of the odor complaint reports that did contain upwind/downwind surveillance reused a single survey for *all complaints* received on that date, instead of conducting an upwind/downwind survey each time an odor was verified. Mr. Israel testified on June 17 that this "batching" has been a regular practice. The timing of the wind surveying ranged from within minutes of meeting a complainant to more than three hours before or after the meeting. This lack of upwind/downwind surveys, and the batching of complaints regardless of location,

makes the source identification process less reliable, as it assumes that all complaints have a common source.

c. Reliance on Odor Memory and Community Input: South Coast AQMD's lack of tracing odors back to the surface of the Landfill (or a sufficiently nearby location within the path of travel) and lack of a recorded, verifiable process for confirming the Landfill as the source of odors makes this data less reliable. If South Coast AQMD inspectors are not confirming that an odor originated from the Landfill based on an evaluation of the Landfill itself, it appears, that South Coast AQMD inspectors are relying on what they recall the Landfill might smell like. But a recollection of what an odor may smell like is faulty, and fails to take into account the potential for sources of similar odors, that odor from a given source may change over time, or that a single source may produce separate and distinct odors. This is particularly true when inspectors are not regularly at the Landfill, many of whom, based on available data, appear to have visited the Landfill a single time as part of their training to be educated on odors, and subsequently have not been on site since last year. Finally, South Coast AQMD's lack of objective tools in this process also leads to problems of misattribution of a source of odors - particularly when the inspectors are told by the complainant what the source may be.

25. Mr. Israel testified at the June 17 hearing his belief that odors in the community were at the same level as last year, despite a reduction in complaints. Mr. Israel's justification for this reduction, based on anecdotal commentary from unnamed, unquantified community members, was that individuals have simply grown tired of complaining. Mr. Israel's testimony further underscores the unreliability of odor complaints as a meaningful or consistent measure of actual odor conditions in the community, and fails to take account for the possibility that complaint numbers may similarly be inflated by the same subjective behavioral factors that influence whether a complaint is lodged in the first instance.

26. Even when a complaint is verified, South Coast AQMD inspectors document odors using a 1 – 5 rating on their self-created odor scale. This scale is inherently subjective because each

individual - including South Coast AQMD inspectors - has a unique olfactory system. Sensitivity to odors varies based on numerous factors such as age, sex, pregnancy status, smoking habits, illness, and cultural or learned associations with certain odors. As Mr. Israel previously testified, inspectors sometimes disagree on how to rate the same odor. This variability is typically reduced by the use of objective measuring tools, which South Coast AQMD does not employ in their odor investigation process.

27. As described above, the South Coast AQMD's current inspection and odor verification procedures rely on subjective methods that do not adhere to foundational pillars of the scientific method and established best practices for odor evaluation. For example, inspectors do not use objective tools such as the Nasal Ranger or conduct concurrent air sampling during odor investigations. As Mr. Israel testified, inspectors are not required to undergo any re-training following their initial training. Additionally, as reflected in the NOV investigation reports that have been provided to me, inspectors do not use a common set of descriptive language or consistently implement verification procedures during odor complaint assessments. This lack of methodological rigor undermines the reliability and reproducibility of the results of South Coast AQMD's odor nuisance investigation process, which undermines the use of complaint data as the determining factor of the scope of potential impacts from the Landfill.

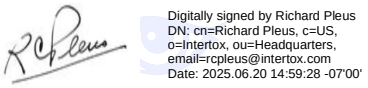
Conclusions

28. Community odor nuisance complaints are not an objective or reliable metric for assessing the frequency, intensity, or impact of odors from the Landfill.

29. South Coast AQMD's odor verification and source tracing process, and resulting data, are subjective, unscientific, and unreliable for purposes of evaluating the scope of potential odor impacts in the communities surrounding the Landfill.

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

Executed on this 20th day of June 2025, in Seattle, Washington.



By: _____

Richard Pleus, Ph.D., M.S.

Founder, Managing Director, and Chief Toxicologist

Intertox, Inc.

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Waste Connections – Chiquita Canyon Landfill			
2025 - South Coast AQMD Visitor Log			
Date	**Name**	**Regulator**	**Purpose of Visit**
2/27/2025	Christina Ojeda	SCAQMD	Inspection
2/27/2025	Gerardo Vergara	SCAQMD	Inspection
2/27/2025	Larry Israel	SCAQMD	Inspection
3/19/2025	Rodney Davis	SCAQMD	Source Test
3/19/2025	Morgan Nguyen	SCAQMD	Source Test
4/9/2025	Larry Israel	SCAQMD	Inspection
4/9/2025	Al Soloman	SCAQMD	Inspection
4/9/2025	Christina Ojeda	SCAQMD	Inspection
4/9/2025	Eva Lopez	SCAQMD	Inspection
4/9/2025	Oerando Vergara	SCAQMD	Inspection
4/30/2025	Larry Israel	SCAQMD	Tom/Insp.
4/30/2025	Amanda Sanders	SCAQMD	Tom/Insp.
5/15/2025	Alemayehu Solomon	SCAQMD	Issue NOV
5/28/2025	Christina Ojeda	SCAQMD	Title V Inspection
5/28/2025	Larry Israel	SCAQMD	Title V Inspection
5/28/2025	Gerardo Vergara	SCAQMD	Title V Inspection
5/28/2025	Justin Buncab	SCAQMD	Title V Inspection