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**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**

**EXHIBIT F TO 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 and 17, 2025

Hearing Time: 9:30 A.M.

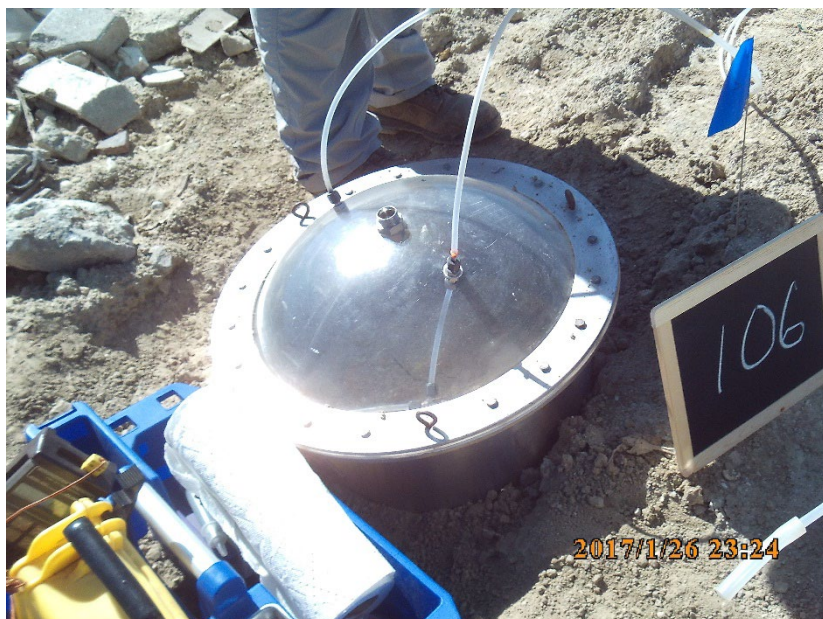
Place: Hearing Board  
South Coast Air Quality  
Management District,  
21865 Copley Drive  
Diamond Bar, CA 91765

Chiquita Canyon Landfill  
Castaic, California

## ***ADDENDUM 12/30/2024***

### **Intra-Remediation Assessment of Air Emissions From Landfill Surfaces**

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### **Sampling Protocol Addendum**

Revision 0

December 2024

Prepared by

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# ADDENDUM

## 1. Introduction

This Addendum reflects changes in the air emissions assessment program ongoing at the Chiquita Canyon Landfill (CCL), a municipal solid waste (MSW) landfill located in northern Los Angeles County. These changes only relate to selected analytical methods and screening/sampling protocols for future flux testing events, starting with the next event scheduled for March 2025. This document serves as an Addendum to the flux testing protocol, dated December 28, 2023, which was approved by the South Coast Air Quality Management District (SCAQMD).

In accordance with Condition 12.i of the Stipulated Order for Abatement (SOFA) (Case No. 6177-4) between the SCAQMD and Chiquita Canyon, LLC, CCL is required to conduct additional flux chamber studies as a follow-up to a flux chamber study previously completed under the direction of the Los Angeles County Department of Public Health, which was submitted to the SCAQMD by October 31, 2023. Procedures for this study, as detailed in the revised SOFA, dated November 13, 2024, are provided below.

*Respondent has conducted an initial flux chamber study pursuant to the direction of the Los Angeles County Department of Public Health. Respondent shall conduct landfill gas flux studies 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. The studies shall be conducted through the use of dynamic flux chambers oriented at various locations throughout the landfill site, according to a South Coast AQMD approved protocol. Respondent shall prepare a proposed protocol(s) for the studies and shall submit the protocol(s) to South Coast AQMD [Baitong Chen, Air Quality Engineer, (bchen@aqmd.gov); Nathaniel Dickel, Senior Air Quality Engineer, (ndickel@aqmd.gov), and Christina Ojeda, Air Quality Inspector, (cojeda@aqmd.gov)] for review and approval at least 75 days prior to the start of the month in which the test is planned, unless otherwise approved in writing by South Coast AQMD. A previous flux study protocol, reviewed and approved by South Coast AQMD, may be used if the proposed testing will follow all aspects of the prior South Coast AQMD approved protocol, with the exception of the testing/sampling locations on site. 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 shall be submitted by no later than 45 days after the end of the month during which a test was conducted, or no later than 90 days after South Coast AQMD approves the protocol, whichever is later, to South Coast AQMD [Baitong Chen, Air Quality Engineer, (bchen@aqmd.gov); Nathaniel Dickel, Senior Air Quality Engineer, (ndickel@aqmd.gov), and Christina Ojeda, Air Quality Inspector, (cojeda@aqmd.gov)], unless otherwise approved in writing by South Coast AQMD. The initial flux study report, covering the flux study for the fourth quarter of year 2024, shall be submitted*

*earlier than the schedule indicated above, by January 15, 2025 to South Coast AQMD [Baitong Chen, Air Quality Engineer, (bchen@aqmd.gov); Nathaniel Dickel, Senior Air Quality Engineer, (ndickel@aqmd.gov), and Christina Ojeda, Air Quality Inspector, (cojeda@aqmd.gov), unless otherwise approved in writing by South Coast AQMD. Respondent shall provide notice of the test date for each test to South Coast AQMD [Baitong Chen, Air Quality Engineer, (bchen@aqmd.gov); Nathaniel Dickel, Senior Air Quality Engineer, (ndickel@aqmd.gov), and Christina Ojeda, Air Quality Inspector, (cojeda@aqmd.gov) at least 14 days prior to the scheduled test.*

This Addendum to the test protocol is intended to define and address the requirements in the SOFA as well as provide an emissions assessment to determine the landfill emissions of TACs and other substances in the *as is* condition, ***intra remediation***, for both the “non reaction area” and “reaction area” of the landfill. This testing is termed “intra remediation” because significant site improvements have occurred to various landfill areas since the original test was completed (and will continue to occur prior to each testing event), which are expected to help reduce surface emissions of LFG.

Regarding the testing technologies to be used for the intra-remediation testing event(s), as with the prior study, the U.S. Environmental Protection Agency (USEPA) surface emission isolation flux chamber (flux chamber) technology will be used. This preferred USEPA technology as modified and described by the SCAQMD Rule 1133.3, Attachment A is a dynamic chamber method for direct measurement on advective area sources. This approach is further described in Section 5 of the original protocol.

This Addendum documents changes to the ***analytical methods*** and ***screening/sampling procedures*** that have been used for the prior site assessments. As required by the SOFA, this Addendum is being submitted more than 75 days prior to the next testing event, which is scheduled for the week of March 17, 2025, which will occur within four months of the previous test during the week of November 18, 2024.

## Objectives

### ***Current Program***

Under the current testing program approved by SCAQMD, the objective of each Emission Assessment is to quantify by field measurement the air emissions of fixed gases (including methane, carbon dioxide, and carbon monoxide), reduced sulfur compounds, and speciated volatile organic compounds (VOC's) from the active and non-active landfill areas intra remedial activities conducted at the landfill. The air emissions are directly measured using the USEPA Surface Emission Isolation Flux Chamber (flux chamber) following the USEPA User's Guidance document. Whole air samples are collected from the flux chamber by Summa® canister and Tedlar® bag with analysis by:

- *American Society for Testing and Materials (ASTM) E-679 for olfactory odor,*
- ASTM D-1945/USEPA Method 3C for fixed gases (including methane, carbon dioxide, and carbon monoxide),
- SCAQMD Method 307-91 for hydrogen sulfide (H<sub>2</sub>S)/organic reduced sulfur (ORS),
- USEPA Method TO-15 for speciated VOCs, and
- USEPA Method TO-12 for total non-methane VOC with functional group/molecular weight (MW) distribution.

## Proposed Changes to the Testing Program

The proposed changes to the existing Sampling Protocol (December 2023) have to do with the sampling and analysis of olfactory odor by ASTM Method E-679 for olfactory odor, and the manner in which membrane-covered grids are handled in the testing program.

### **ASTM Method E-679 for Olfactory Odor**

Odor sampling and analysis has been conducted for the first three rounds of flux testing. The recent assessment conducted in November 2024 showed lower odor emission levels across the designated study areas than earlier testing events. Odor was not originally stated in the SOFA, but these samples were taken in the event that odor emissions data might be needed to support assessments of the offsite potential for odors. Given that odor impacts are being evaluated using other means and ambient monitoring is conducted for compounds of concern, including specific odorous substances, this change is recommended. Further, odor sampling consumes a significant amount of field sampling time (e.g., Tedlar bag purging and sample collection via decompression lung) and effort, and the shipping of the odor samples taken in 10-liter Tedlar bags for express delivery overnight is challenging because of the number of samples, timing, and the capability of the odor lab. Overnight shipping for morning delivery on the East Coast, where the odor lab is located, is no longer a sure bet (the hold times for the samples is 36 hours by the ASTM method). For these reasons, it is recommended that ASTM Method E-679 for olfactory odor sample collection and analysis be deleted from the analytical menu.

### **Screening and Testing Membrane-Covered Grids**

Preliminary analysis of the data from the November 2024 air emission testing of the designated grid cells indicates that the flux of study compounds through the synthetic membrane is very low. Given this, it is likely that our technical approach using methane screening data from surface emissions monitoring (SEM) for selecting grids for testing within defined categories of grid cells (e.g., reaction area versus non-reaction area), and screening selected grid cells for actual flux chamber testing using the same methane screening with SEM approach, is no longer representative. As such, a variation on our documented technical approach should be used, which treats the membrane-covered area as a separate source area. This would avoid the current practice of combining flux testing results from covered and uncovered areas together to estimate emissions from the reaction area. Since there is significant difference in flux rates from the covered and uncovered portions of the reaction area, we believe it will be more accurate and representative to screen and test them as separate source areas, rather than averaging them together as one.

This revised approach would include selecting grids for testing in the membrane-covered area using historical data (e.g., grids previously tested during past flux events based on emission potential ranking prior to installation of the synthetic membrane cover), and then testing locations within a grid by applying a micro-grid pattern to the selected grid and randomly testing locations for the four flux chamber test locations for grid cells with the synthetic membrane. This modification to the screening program is common for assessments such as this where screening data has limited value is selecting testing locations (because the emissions through the cover are so low). This modification to the protocol is only related to the testing grids with synthetic membrane cover and is not proposed for other areas of the landfill included in the testing program.

The installation of the geosynthetic cover will also change our approach to data analysis. As part of the processing of data from the November 2024 event, we plan to process data separately for the covered and non-covered areas of the reaction area rather than combining all test data from the reaction area into one category, which we have done in past events. Processing data in this way provides more useful and representative emission estimates of the current and future test areas of the landfill. We will continue to process data separately in subsequent flux events. If all the reaction area is covered with the synthetic membrane in the future, sub-categorization for data evaluation will not be needed. Note that even though the covered and uncovered reactions areas will be considered as separate source areas, their respective emissions will be added together to estimate total reaction area and site-wide emission rates.