CHIQUITA CANYON
A Waste Connections Company

August 1, 2023

Via E-Mail
Dr. Muntu Davis, M.D., M.P.H.
Health Officer
Los Angeles Department of Public Health
313 North Figueroa Street, Suite 806
Los Angeles, CA 90012
MuDavis@ph.lacounty.gov

Re: Chiquita Canyon Landfill – Response to Public Health Notice Issued to Waste Connections, Inc. on July 26, 2023

Dear Dr. Davis:

On July 26, 2023, Chiquita Canyon, LLC ("Chiquita") received a public health notice issued to Waste Connections, Inc. from the Los Angeles County Department of Public Health ("Public Health") regarding odors allegedly coming from the Chiquita Canyon Landfill ("Landfill") that are allegedly impacting the health of nearby residents. Public Health requested that Chiquita take certain actions to mitigate the alleged health impacts and remedy the cause of the purported nuisance. Chiquita provides this response in accordance with Public Health's request for a written response by August 1, 2023.

Public Health first requested that Chiquita provide the South Coast Air Quality Management District, Chiquita's Technical Advisory Committee, Public Health, and the Los Angeles County Departments of Public Works and Regional Planning with a summary of recommendations from the consultant evaluating the potential source and cause of odors and impact to the surrounding community.

Chiquita believes that the most likely source of any odors that may be coming from the Chiquita Canyon Landfill is an increase in the production of landfill gas ("LFG") at the Landfill. Chiquita believes this increase in LFG production is due to an abnormal biotic or abiotic process (also known as a landfill reaction) taking place within a portion of the Landfill waste mass. This reaction is producing higher than normal levels of dimethyl sulfide ("DMS") as well as leachate.

Chiquita has been working with SCS Engineers ("SCS") to address this underlying reaction and mitigate any potential impacts of the reaction. Chiquita attaches to this letter a summary of SCS's current recommendations regarding the potential source and cause of odors

and mitigation of potential impacts to the surrounding community. Please note that SCS may adjust these recommendations after consultation with the consultant identified in response to the third request below.

Public Health next requested that Chiquita provide its July 27, 2023 report to Public Health. Chiquita submitted the July 27, 2023 report to Mark Como (mcomo@ph.lacounty.gov) and Eric Morofuji (emorofuji@ph.lacounty.gov) at Public Health on July 27, 2023.

Finally, Public Health requested that Chiquita hire a consultant to work with Chiquita's Technical Advisory Committee to evaluate the long- and short-term health and environmental impacts of the alleged current odor problem. Chiquita is currently evaluating potential consultants. Chiquita aims to retain such a consultant by Friday, August 18, 2023 and will update Public Health and the Technical Advisory Committee once the consultant is retained.

Chiquita takes this issue seriously and is working promptly to address it. We appreciate the assistance from the County agencies involved and will continue to provide regular updates on our progress. Please contact me should you have any questions.

Sincerely,

Steve Cassulo
District Manager
Chiquita Canyon, LLC

Enclosure: Summary of Recommendations from SCS Engineers

cc: Victor Yip, South Coast Air Quality Management District
Edgar De La Torre, Department of Regional Planning
David Nguyen, Department of Public Works
Shikari Nakagawa-Ota, Department of Public Health
Douglas Cross, California Water Resources Control Board
Liza Frias, Department of Public Health
Nichole Quick, Department of Public Health
Joshua Bobrowsky, Department of Public Health
Jacob Kraemer, Department of Public Health
Robert Ragland, Department of Public Health
Blaine McPhillips, County Counsel
Mark Como, Department of Public Health

SCS Engineers Recommendations

I. Recommendations Regarding the Potential Source and Cause of Odors

- **Develop a Root Cause Analysis**. To understand the potential source and cause of the odors, it is recommended that Chiquita conduct a root cause analysis. Under a variance granted by the South Coast Air Quality Management District (South Coast AQMD), the conditions of which facilitate Chiquita's ability to address the underlying reaction in an effort to shorten the reaction time, Chiquita developed a root cause analysis. The root cause analysis identified the subsurface reaction, which has been producing additional landfill gas (LFG), liquids, heat, and dimethyl sulfide (DMS). Chiquita submitted this root cause analysis to the South Coast AQMD on February 22, 2023. In accordance with the variance, Chiquita will continually update this root cause analysis, as needed, and submit those updates, if any, to the South Coast AQMD in its monthly reports.

- **Investigate Potential Landfill Gas Treatment Options.** To reduce the higher-than-normal levels of sulfur (due to the increased DMS) in the LFG, it is recommended that Chiquita investigate potential options to treat its LFG to reduce DMS. Under its South Coast AQMD variance, Chiquita is investigating potential LFG treatment options specifically targeted towards removing DMS from the LFG. In order to continue its investigations into potential treatment options, Chiquita has submitted two sets of permit applications to the South Coast AQMD: one for a modification to the existing permit for Chiquita's LFG treatment system, and a second for a new permit which would allow Chiquita to conduct slip stream pilot tests to evaluate alternative sulfur removal options and DMS treatment systems. Chiquita is working with the South Coast AQMD to provide all information required for permit issuance and is waiting for South Coast AQMD to issue these permits so that it can continue its investigation into potential LFG treatment options. Chiquita has already tested one option that was allowed under Chiquita's existing permit; however, that treatment media was not successful in removing DMS.

- **Expand the Landfill Gas Well System**. To help reduce the reaction, it is recommended that Chiquita expand its current LFG well system to improve the system's ability to extract LFG and leachate. Chiquita has begun expanding the LFG well system by installing five deep trench collectors to improve LFG collection, installing four additional leachate extraction pumps along the west slope, and installing eighteen vertical dual extraction wells designed to collect both LFG and leachate. Additional wellfield expansions are planned but the site is currently limited by available LFG control capacity (see below).

- **Increase Landfill Gas Control Capacity.** Because of the rapid increase in LFG production due to the reaction, the existing control system is not of sufficient capacity to manage all of the LFG collected (nor the additional LFG that needs to be collected). This has been exacerbated by the unreliability of the third-party LFG to energy plant, which has had excessive downtime, further limiting the LFG control capacity. Recommendations include adding a new LFG flare as well as implementing short-term, temporary actions to supplement the control capacity. A new flare has been purchased and is awaiting permits for installation at the site. Chiquita submitted a permit application to South Coast AQMD for the new flare in September 2020, and has not yet

received the necessary approvals. There are also building permit approvals that must be obtained from Los Angeles County. Installation and startup of the flare is expected in the next two months. In the short-term, the site has deployed a portable thermal oxidizer (TOX) for additional gas control capacity. The TOX is currently operational and measures are being taken to maximize its capacity.

- **Monitor Cover More Frequently and Repair as Needed**. In order to help reduce the potential effects of the reaction and the source of potential odors, it is recommended that Chiquita increase the frequency with which it monitors its cover and repair any cover issues as needed. Chiquita has started checking cover for cracks on a daily basis (increasing the frequency from the previous weekly checks), particularly around the reaction area, and is fixing any issues as soon as possible. Chiquita has also rented a small dozer with a third-party operator to help add cover and fix any cracks as needed.

- **Increase Liquids Extraction and Removal Capabilities.** The reaction results in the production of excess liquids. Removal of these liquids is important. It both removes heat from the reaction to help slow it down, and limits the impact of liquids on LFG collection. It is recommended that the liquids extraction, pumping, storage, and disposal apparatus at the landfill be enhanced to improve liquids management. This should include outfitting LFG wells with liquids pumps and installing dedicated liquids removal wells in areas affected by liquids, increasing pumping and piping capabilities for liquids transport, increasing on-site storage capacity for liquids, and securing other options for liquids disposal in case current options become limiting. All of the recommended actions have been started but some remain a work in progress. Since Chiquita was not designed for this volume of liquids (it is in an arid climate), implementation of these recommendations requires a major upgrade to the site liquids management apparatus.

II. Recommendations Regarding Mitigation of Potential Impacts to the Surrounding Community

The reaction has increased the production of total reduced sulfur compounds (TRS) in the LFG, especially DMS. Because of the increased DMS present in the LFG, there are concerns of emissions and off-site impacts. Although the data do not suggest that DMS has significant toxicity, it can have odor-related impacts. The site has an existing monitoring program for hydrogen sulfide (H2S); however, DMS is not currently being tested in that monitoring program. Our recommendations regarding mitigation of potential impacts to the surrounding community involve options for monitoring specific to DMS.

- **Develop a Method for Continuous Monitoring of DMS**. It is recommended that the current monitoring program for H2S be expanded to include DMS. The site is moving forward on expanding its monitoring program for DMS. No real-time monitoring devices exist for DMS; however, the site plans to test two TRS monitors as well as collect co-located grab samples for DMS and TRS, to try to create a correlation factor. If correlation can be found, the TRS monitoring devices can be used to collect continuous data from which DMS levels can be estimated.

- **Expand the Ambient Sampling Program for Chemicals in LFG.** As part of the current ambient air monitoring program, H2S is monitored in real-time at defined on-site and off-site monitoring

stations. In addition, monthly grab samples are collected and analyzed at these same stations for individual volatile organic compounds (VOCs) for five of the 12 monitoring stations, such that each station is tested at least quarterly. Further, the site conducts up- and down-wind testing for specific chemicals present in LFG to comply with South Coast AQMD Rule 1150.1. To date, available data does not suggest a significant increase in H2S or VOC concentrations attributable to the reaction.

It is recommended that the current monitoring program be enhanced and expanded. This would include increasing the frequency of sampling from quarterly to monthly at each station (with a provision to increase the testing to weekly, in consultation with the consultant retained to work with the Technical Advisory Committee (TAC Consultant), if concentration levels exceed risk-based thresholds and/or if there is an increasing trend in concentration) and expanding the list of the chemicals to include additional TRS compounds besides H2S and DMS and odor concentrations (currently only VOCs are tested). After initial testing, the list of possible chemicals can be reduced to focus on specific target chemicals, based on consultation with the TAC Consultant. These data would be reviewed, in conjunction with the meteorological data and Rule 1150.1 data, and trended to assess whether there is evidence of off-site impacts from these chemicals due to the reaction and the level of those impacts. These data and the trend analysis would be useful for the TAC Consultant in assessing potential health impacts.

- **Conduct Additional Odor and VOC Testing.** Beyond the locations of the monitoring stations noted above, additional VOC and odor testing could be conducted at residential locations where recent verified odor complaints have been reported as well as known on-site locations where odors are highest, including source locations. This would include the collection and analysis of ambient samples for odor concentration and characteristics and VOC concentrations at times when odors are present. This assessment would be used to determine whether there is a correlation between on-site sources to the odors/VOCs present in the community as well as to assess the magnitude of the impacts, including a comparison to established thresholds. Background data would be collected at the same time. Data would be used in conjunction with meteorological data to assess the correlation between the two. These data would be useful for the TAC Consultant in assessing health impacts.

- **Conduct a Flux Chamber Study.** Flux chambers are a technology that can be used to measure the rate (or flux) of emissions occurring from a large area source. The technology has been used in regulatory source testing of landfills and compost facilities. Samples from the flux chambers would be tested for methane, total VOCs, individual VOCs, TRS compounds, and odor concentrations with the goal of determining emission rates for these constituents. As part of this study, flux chamber locations would be chosen to allow comparison of emissions from the reaction area as well as from other areas of the landfill. Surface emissions monitoring data would be used for pre-screening of the site for selecting flux chamber locations to ensure that the data are representative and that locations with higher emissions are considered. The emission rate data can help pin-point areas that need improved gas collection or cover to reduce emissions.