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 CRAIG H. BENSON, PhD, PE, BCGE, BCEE, NAE** Health and Safety Code § 41700, and District Rules 402, 431.1, 3002, 203, 1150 Hearing Date: October 28 and 29, 2026 Hearing Time: 9:30 A.M. Place: Hearing Board South Coast Air Quality Management District, 21865 Copley Drive Diamond Bar, CA 91765

I, Craig H. Benson, 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 professional experience, and am competent to testify to the facts set forth herein.

Background and Experience

2. I have been engaged by Chiquita Canyon, LLC ("Chiquita") to provide expertise regarding the Chiquita Canyon Landfill (the "Landfill"). This declaration sets forth my professional opinions regarding the ongoing Elevated Temperature Landfill ("ETLF") event at the Landfill. My opinions in this declaration are based on industry standards and are stated to a reasonable degree of scientific and engineering certainty.

3. I hold the titles of Wisconsin Distinguished Professor Emeritus at the University of Wisconsin-Madison and Dean of Engineering Emeritus at the University of Virginia. I have a PhD in engineering with a focus on landfills and waste containment, and nearly 40 years of experience in engineering research and practice related to municipal solid waste ("MSW") landfills and solid waste

containment systems as a Wisconsin Distinguished Professor Emeritus at the University of Wisconsin-Madison and as Dean of Engineering Emeritus at the University of Virginia. I am a board-certified environmental engineer by the American Academy of Environmental Engineering and Scientists ("AAEES") and board-certified geotechnical engineer by the Geo-Institute of the American Society of Civil Engineers. I am an elected member of the United States National Academy of Engineering ("NAE") and am past-Chair of NAE Section 4 on Civil and Environmental Engineering.

4. I have extensive experience working on landfills and waste containment systems for a diversity of waste streams at locations throughout the United States, Canada, South America, Europe, Africa, Japan, Australia, and New Zealand. This experience has provided me with a broad and detailed knowledge of operational and design issues for landfills and other waste containment systems.

5. I served as a co-Principal Investigator on an expert team of engineers charged by the Environmental Research and Education Foundation ("EREF") to develop an understanding of MSW landfills with elevated temperatures that persist over large areas, which are referred to as elevated temperature landfills, or ETLFs. This expert team, referred to as the EREF ETLF team, was charged with understanding causative mechanisms for the persistent high temperatures at ETLFs, identifying strategies to prevent ETLFs, and recommending best management practices ("BMPs") for ETLFs.

6. I have been engaged in evaluating many of the major ETLFs over the past two decades, including those at Countywide Landfill, Congress Landfill, Waimanalo Gulch Landfill, Bridgeton Landfill, Middle Point Landfill, Bristol Landfill, and Shoosmith Landfill. I am currently engaged as the expert engineer for the Bristol Landfill in Bristol, Virginia and the Shoosmith Landfill near Richmond, Virginia, providing oversight, review, and recommendations associated with managing the ETLF conditions at both landfills. I am also engaged as an engineering expert evaluating conditions and practices at the Middle Point Landfill ETLF in Murfreesboro, Tennessee. I have published refereed research papers and made research presentations regarding mechanisms contributing to heat accumulation in ETLFs, thermal properties of MSW affecting heat transfer in ETLFs, pyrolytic reactions in ETLFs, temperature-dependent compression and settlement of MSW, and the effectiveness of BMPs to manage ETLFs. Causative mechanisms and BMPs to address impacts of ETLFs was one of the lecture themes for my 2024 Kappe Lecture series tour for the American Association of

Environmental Engineers and Scientists.

7. My education, training, professional background, and expertise are summarized in my curriculum vitae, attached as **Exhibit A**.

8. I have been engaged as an expert by a broad range of private sector and public sector entities. My public sector engagements include the US Environmental Protection Agency, US Department of Energy, US Nuclear Regulatory Commission, US Department of Defense, Wisconsin Department of Natural Resources, Iowa Department of Natural Resources, Missouri Department of Natural Resources, Tennessee Department of Environmental Conversation, Michigan Department of Environmental Quality, Idaho Department of Environmental Quality, Utah Department of Environmental Quality, Texas Commission on Environmental Quality, Montana Department of Environmental Quality, Wyoming Department of Environmental Quality, and the Virginia Department of Environmental Quality. My private sector engagements include Republic Services Inc., Waste Management Inc., GFL Inc., Cleveland-Cliffs Inc., Bayer Corporation, Ruveon Corporation, Integra Resources Corporation, SCA Services Inc., Simplot Corporation, Morrow Energy, Evergy Inc., Energy Fuels Resources Inc., Alcoa, and the Electric Power Research Institute.

9. This declaration is made for the status and modification hearing being held on 28-29 October 2026 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 3 June 2026 ("Modified Stipulated Order").

10. To support this declaration, I have visited the Landfill and reviewed data on the ETLF event. I have visited the Landfill on several occasions since 2025, including most recently on 18 September 2026 and will be visiting on 27 October 2026.

11. I have also reviewed data generated at the Landfill, including Reaction Committee reports, weekly geomembrane cover installation updates, gas ratio graphs, historic and recent landfill gas wellhead data, leachate data, and temperature monitoring probe data.

History of the Cover Requirement

12. I am aware through my visits and review of data and documents that Chiquita has installed interim geomembrane cover at the Landfill. As explained further below, an interim geomembrane cover is a BMP used primarily to contain odiferous emissions from an ETLF event. Installation of interim cover outside of an area impacted by an ETLF will serve no purpose in the context of ameliorating impacts associated with an existing ETLF, or preventing expansion of the current ETLF.

13. As directed by several agencies, Chiquita first installed approximately 46 acres of 30-mil high-density polyethylene ("HDPE") geomembrane cover over the northwest corner of the Landfill, which is the area affected by the ETLF event. Installation took more than a year, from Fall 2023 through January 2025.

14. I understand and have observed that Chiquita is currently deploying additional and more protective ethylene-vinyl alcohol ("EVOH") geomembrane cover that is twice as thick (60-mil) as the geomembrane that was originally installed. EVOH geomembranes have lower gaseous diffusion coefficients compared to conventional geomembranes, and therefore are more effective in controlling gaseous emissions. Chiquita has committed to install EVOH geomembrane over 100 acres in addition to the 46 acres of existing geomembrane cover. This additional 100 acres includes portions of the Main Canyon well beyond the area affected by the ETLF event, thus creating a large "buffer zone" covered with geomembrane that is outside the area associated with the ETLF. Chiquita has also re-covered much of the original 46 acres with the thicker EVOH geomembrane, and committed to making any additional repairs to the original 30-mil geomembrane cover with new 60-mil EVOH geomembrane. I understand that installation of this interim geomembrane cover is ongoing.

15. I understand that at least three agencies have issued directives to Chiquita relating to the additional 60-mil EVOH geomembrane cover: the US Environmental Protection Agency (EPA), the California Department of Toxic Substances Control ("DTSC"), and the Local Enforcement Agency ("LEA")/the Department of Resources Recycling and Recovery ("CalRecycle").

16. The DTSC issued a directive in an Imminent and Substantial Endangerment Determination and Order dated 1 April 2025 ("ISE Order") requiring Chiquita to install geomembrane

cover over areas "not currently covered by a geomembrane and to which the reaction area has expanded or has the potential to expand." The ISE Order is attached as **Exhibit B**. On 1 May 2025, the LEA issued a Compliance Order ("LEA Order") that included the same directive as the ISE Order. The LEA Order is attached as **Exhibit C**. Neither order required covering the entire Main Canyon, explained how large the covered area needed to be, explained how quickly installation had to be conducted, or specified what evidence would trigger further expansion of the cover.

17. Later that summer, EPA issued its own order addressing the cover. In a 24 July 2025 "Additional Work" letter issued under a 21 February 2024 Unilateral Administrative Order ("UAO"), EPA directed Chiquita to install additional geomembrane cover over at least 100 acres outside the existing area with geomembrane cover. This letter is attached as **Exhibit D**.

18. I understand that, following further coordination with the LEA, EPA, and DTSC, Chiquita formally committed on 15 August 2025 to install 100 additional acres of geomembrane cover under a phased, site-appropriate compliance schedule.

19. In Fall 2025, DTSC requested faster and broader deployment of the EVOH geomembrane, and directed Chiquita to "expedite" geomembrane installation and submit a schedule addressing the entire Main Canyon. However, DTSC did not set a fixed deadline at this time.

20. The LEA on 20 November 2025 also directed Chiquita to cover the entire Main Canyon and imposed a deadline of 31 August 2026. This expansion requires geomembrane cover over an additional 66 acres beyond the 100 additional acres required by EPA and agreed to by Chiquita.

21. EPA sent a subsequent letter on 13 January 2026 letter that included a 1 December 2026 deadline to deploy the additional 100 acres of cover and a mechanism to request an extension of this deadline for delays caused by issues such as weather. This letter is attached as **Exhibit E**.

22. The result of these orders is a set of inconsistent requirements: EPA requiring 100 acres by 1 December 2026, but allowing for weather-dependent extensions; LEA unilaterally requiring an additional 66 acres (for 212 acres total) by 31 August 2026, with no allowances for weather and safety concerns; and DTSC simply deferring to the LEA.

23. Chiquita only disputes covering the final 66 acres of the Main Canyon—beyond the 100 additional acres currently being installed pursuant to the EPA requirement. The 100 additional acres

required by EPA are depicted by the dark and light green shaded areas shown on the map in **Exhibit F**. The 66 acres that Chiquita is contesting are shown in the purple shaded area on the map in **Exhibit F**. Chiquita previously appealed the 66-acre requirement to the LEA Solid Waste Facilities Hearing Board ("Hearing Board"). The Hearing Board affirmed the requirement on 1 May 2026. Chiquita appealed to CalRecycle, which affirmed the requirement on 28 August 2026. Chiquita then filed a writ for administrative mandamus to the Superior Court of the State of California, which is presently pending.

No Scientific Basis for Covering the Additional 66 Acres

24. I understand that South Coast AQMD has proposed incorporating a requirement already imposed by LEA and the Department of Toxic Substances Control ("DTSC") to cover the entire Main Canyon of the landfill. South Coast AQMD's proposed condition, like the requirements imposed by LEA and DTSC, would require an additional 66 acres of geomembrane cover in addition to the 100 acres required by EPA. South Coast AQMD has proposed requiring that the geomembrane be installed no later than 12 March 2027.

25. Installation of geomembrane cover over areas with elevated temperatures is logical, as waste with elevated temperatures produces odiferous compounds such as dimethyl sulfide ("DMS") that can migrate through an earthen cover and impact the surrounding area. The geomembrane cover controls release of these odiferous gases to the atmosphere. These same gases generally are not produced in appreciable quantities in areas with typical MSW temperatures. Thus, in areas experiencing typical MSW temperatures, geomembrane cover is not needed to block the escape of odiferous gases.

26. My review of documents for the site indicates that the contested 66 acres exhibits the characteristics of a typical municipal solid waste landfill without ETLF conditions. Consequently, the waste in this area is not producing odiferous ETLF gases, and covering this portion of the Landfill will have no impact on emission of odiferous gases from the ETLF.

27. Interim geomembrane cover has minimal impact on thermal conditions within underlying waste, and on its own will not prevent increases in temperature in any area of the landfill. The cover controls ingress of precipitation and the egress of gases, but has insignificant impact on waste temperature.

28. However, installation of the geomembrane cover may lead to elevated temperatures in an area that is otherwise exhibiting typical waste temperatures, or exacerbate the temperatures in the area impacted by the reaction. Installation of a geomembrane requires shutting down systems used to extract gases and leachate in the area of installation. This shutdown is necessary so that the existing infrastructure (e.g., piping, power lines, etc.) can be temporarily relocated, subgrade soils can be graded and compacted, and the geomembrane installed. While these systems are shut down, they are not removing gases or liquids, which potentially can exacerbate odors and could alter the hydraulic and thermal conditions in the waste. Additionally, when these systems are shut down, heat is not being removed from the waste, and can build up in the underlying waste mass. In the worst case, this buildup of heat could induce elevated temperatures in areas that are not yet elevated. That is, installing interim geomembrane potentially could induce new ELTF conditions, and expand the ETLF-affected area at the landfill.

29. Installation of interim geomembrane cover also makes future operations and maintenance activities more complicated. For example, if settlement occurs and subgrade regrading is required in an area with interim geomembrane cover, the geomembrane must be removed, the subgrade regraded, and new interim geomembrane installed. Systems used to extract gases and liquids in the area of this type of repair must be shut down during the remedial action, potentially leading to emission of odiferous gases and buildup of heat. Presence of a geomembrane on the surface of the landfill also complicates vehicle transport, as vehicles cannot traverse across the geomembrane. This impedes maintenance and monitoring activities, limiting the areas where maintenance can be conducted efficiently. As a consequence, landfill infrastructure is not maintained as efficiently or as completely as is possible without interim geomembrane cover.

30. For these reasons, decisions regarding installation of interim geomembrane cover must be made carefully and must be based on scientific merits with a clear objective to be accomplished. Installation of interim geomembrane cover should not be considered a preemptive measure to prevent initiation of an ETLF or expansion of an ETLF, as installing the geomembrane has the potential to have unintended consequences, such as exacerbating elevated temperature conditions rather than precluding or suppressing elevated temperatures. That is, installation of interim geomembrane cover over an area

known to have elevated temperatures is logical and will reduce impacts, whereas installation in other areas is not logical and may have unintended negative consequences and impacts.

31. Chiquita is applying BMPs to address the ETLF conditions in a manner consistent with accepted industry methods, which are based on extensive experience at other ETLFs. These practices have been highly successful at other ETLFs and have been successful at Chiquita to date. My review of data from the landfill indicates that the actions undertaken by Chiquita have stabilized waste temperatures, and in some locations waste temperatures are decreasing (cooling). The actions have also reduced odiferous emissions dramatically, and impacts on the community have diminished as evinced by a significant reduction in the frequency of odor complaints. Continuing these practices will minimize the impacts associated with elevated temperatures, and ultimately return the waste to typical landfill conditions as observed elsewhere, while minimizing impacts on the surrounding community.

32. There is no reason at this time to undertake new actions, especially actions that are not based on scientific merit and have the potential to have unintended and potentially negative consequences. All actions should be based on sound scientific principles, grounded in data from the landfill, and consistent with established principles that are known to be effective.

33. For this reason, I strongly recommend that the interim geomembrane cover only be installed over areas where there is a clear purpose with scientific merit grounded in data. That area most likely will be a subset of the entire Main Canyon area of the Landfill. The area where interim geomembrane cover is currently being implemented by Chiquita is more than adequate, and will provide a substantial buffer between the area associated with ETLF conditions and the remainder of the Landfill.

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 21st day of October 2026 in the Town of Middleton, Wisconsin.

Craig H. Benson, PhD, PE, BCGE, BCEE, NAE