California Environmental Protection Agency

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California Governor

Department of
Resources Recycling and Recovery

Yana Garcia
Secretary for Environmental Protection
Zoe Heller
CalRecycle Director

September 4, 2024 *Via Email:kgork@ph.lacounty.gov*

Karen Gork
Chief Environmental Health Specialist
Los Angeles County Department of Public Health
5050 Commerce Drive
Baldwin Park, California 91706

Subject: Review of West And North Slope Stability Analysis Update
Chiquita Canyon Landfill (19-AA-0052)

Dear Ms. Gork:

CalRecycle staff is providing this letter in response to your June 2024 request for technical assistance in reviewing Chiquita Canyon Landfill's (CCL) updated slope stability analysis entitled "*West And North Slope Stability Analysis Update*" by Geo-Logic Associates dated May 2024 (Update).

CalRecycle staff have reviewed CCL's updated slope stability analysis, which was submitted in accordance with the Local Enforcement Agency's (LEA's) Directive No. 3. The following comments are provided to the LEA as assistance to support the program in carrying out its responsibilities on permitted disposal sites. The final determination as to the comments to be provided to the responsible party is within the sole purview of the LEA, acting within the parameters of its discretion, in accordance with its vested authority under its certification as defined in Title 14, California Code of Regulations (14 CCR), Division 7, 27 CCR, Division 2, Subdivision 1 (Section 20005 et seq.), and Division 30 of the Public Resources Code.

To assist with the review of the slope stability analysis, CalRecycle staff requested that the United States Environmental Protection Agency (USEPA) provide Dr. Timothy Stark as a subject matter expert on slope stability in landfills with Subsurface Elevated Temperature (SET) Events. As a result of the request, CalRecycle staff received the attached report entitled "*Review Comments on May 7, 2024, GLA Report on West and North Slope Stability Analysis Update for Chiquita Canyon Landfill*," dated July 2024 (Stark Report), on August 21, 2024.

Based on a review of the CCL's slope stability analysis and the Stark Report, CalRecycle staff concur with the Stark Report's conclusion that the western slope toe has moved two times within a year. The current SET Event and associated movement have jeopardized the integrity of the landfill's leachate and surface drainage systems two times and possibly the bottom liner system (see Figure 7 in the Stark Report).

CalRecycle staff concurs with the Stark Report conclusion that uncertainties in the current slope stability analysis should be resolved if additional slope stability analyses are performed. Based on the review of the slope stability analysis update and the Stark Report, CalRecycle staff suggest that the LEA consider requiring the following recommendations for future slope stability reports or additional analyses that involve the area affected by the SET Event:

- The CCL should install at least four temperature monitoring probes (TMPs) at fifteen feet above the bottom liner system, two in Cell 1/2A and two in Module 2B/3. Depending on the results, additional deep TMPs may be necessary. Since each TMP can only hold eight probes, the CCL should install the remaining seven at fifteen-foot intervals above the deepest probe.
- The CCL should define the bottom elevation of degraded waste in each waste cell impacted by the SET Event to reduce the uncertainty in calculating the Factor of Safety (FoS) noted in the Stark Report.
- The CCL should only use the Morgenstern and Price (1965) (M&P) slope stability method to calculate the lowest FoS. All M&P interslice force functions should be used to account for the uncertainties in calculating the FoS.
- The CCL should use residual interface strength where the critical failure surface involves part of the bottom/side liner system.
- The CCL should use a range of waste strength parameters to account for the uncertainties in estimating municipal solid waste landfill (MSW) strength and obtain appropriate FoS. The shear strength of waste will vary depending on the stage of the SET Event. What was referred to in the Stark Report as black and/or charred waste has different/lower strength parameters than biologically decomposing MSW.
- The CCL should account for increased gas and liquid pressures in the SET area in the slope stability analysis.
- The data from the TMPs should be used to determine the direction and rate of movement of the SET Event so the timing of the barrier installation can be determined.
- To begin addressing the uncertainties in the slope stability and better understand the liquid pressures, the CCL should install four Geokon high-temperature (up to 480°F) piezometers along cross-section WS-D and other cross-section(s) should the SET Event continue to expand.
- To increase the stability of the slopes, the CCL should also continue to remove leachate from the reaction area as much as possible.

The Los Angeles Regional Water Quality Control Board (LARWQCB) is evaluating global slope stability. CalRecycle staff suggest the LEA work with the

LARWQCB staff before sharing its comments and recommendations.

Please do not hesitate to contact me by telephone at (916) 341-6356 or by email at Todd.Thalhamer@Calrecycle.ca.gov if you have comments or questions.

Sincerely,



Todd Thalhamer, P.E.
Senior Waste Management Engineer
Engineering Support Branch

Attachment:

Stark Report "*Review Comments on May 7, 2024, GLA Report on West and North Slope Stability Analysis Update for Chiquita Canyon Landfill*," dated July 2024

Cc Via Email:

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