California Environmental Protection Agency

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March 12, 2024

Via Email:kgork@ph.lacounty.gov

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

Subject: Chiquita Canyon Landfill (19-AA-0052) Review - Mitigation Measure #3, Slope Stability Analysis

Dear Mrs. Gork:

CalRecycle staff are providing this letter in response to your February 23, 2024, request for technical assistance in reviewing Chiquita Canyon Landfill's (CCL) slope stability analysis by Geo-Logic Associates dated February 2024.

The following comments are provided to the Los Angeles Local Enforcement Agency (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.

CalRecycle staff recommends the LEA require CCL's consultant perform additional analyses based on the current actual observed conditions of the waste and gas extraction wells. The leachate/condensate pumps in the reaction area have been off since early February 2024, and leachate levels have significantly risen in the reaction area. In addition, gas pressures have significantly increased with elevated temperatures exceeding 212 degrees Fahrenheit.

CalRecycle staff recommends that the consultant should not have used the peak shear stress from Eid et al. and Kavazanjian et al. in the additional analyses. Based on the evidence from waste borings from the new gas wells in the reaction area, solid waste has been impacted by temperature, pyrolysis, combustion, and/or an unknown chemical reaction. What remains in the reaction area is not typical in color, composition, and moisture. CalRecycle staff recommends the consultant use the reduced shear strength as discussed in:

Stark, T.D., K. Akhtar, and M. Hussain, "Stability Analyses for Landfills Experiencing Elevated Temperatures," Proceedings of Specialty Conference GeoFlorida 2010: Advances in Analysis, Modeling and Design, ASCE, Orlando, FL, March 2010, 8 pp.

CalRecycle staff recommends performing the analyses using an effective stress cohesion and friction angle of zero and 20 degrees, respectively. Table 5 under the Pseudostatic Factor of Safety should be revised and the actual values for all cases listed.

The following questions should be answered as part of the study. The record reviewed indicates that during the Northridge earthquake, a portion of the geomembrane liner at the CCL tore. Will the landfill respond differently to earthquake forces with significantly higher accumulated leachate levels and gas pressures? The peak horizontal ground acceleration used in the analysis should be provided. In addition, the reaction area is dynamic and may increase in area. What impact will the expected lateral forces have on the geomembrane liner at the current reaction area of 30-40 acres and if the reaction increases to 60 acres or 90 acres? Is there an impact on the geomembrane on the slide slope where the reported damage has occurred? Photographic evidence that the damaged liner was from equipment while constructing the leachate French drain should be shared. CalRecycle staff again recommends to the LEA that they require the CCL to monitor and record the temperature of the geomembrane to verify and document that there are no anticipated impacts to its long-term performance.

CalRecycle staff recommends that the LEA require the CCL consultant to review the weekly CCL fissure and tension report. In particular, the CCL consultant should evaluate and document the series of fissures and tension cracks reported on February 6, 2024, most notably the 200-foot tension crack in map grids 178 and 185 and the newest tension crack reported on March 12, 2024, that is 100-foot long in map grid 178 and 185.

The reported tension cracks on May 24, 2023, are parallel across the slope crest and are not circular, which is more typical of differential settlement over a smoldering/reacting area. Additionally, since the entire reaction area is being covered by geomembrane, the typical evidence of instability and leachate outbreaks will not be observable using the current inspection method. CalRecycle staff recommends that the report be revised to include other new methods that will be used to track instability in the reaction area that is obscured by the geomembrane.

Should you have comments or questions, please contact me by telephone at (916) 341-6356 or by email at Todd.Thalhamer@Calrecycle.ca.gov.

Sincerely,



Todd Thalhamer, P.E.
Senior Waste Management Engineer
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Cc Via Email:

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