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Assistant Director of Environmental Health

5050 Commerce Drive
Baldwin Park, California 91706
TEL (626) 430-5374 • FAX (626) 813-3000

www.publichealth.lacounty.gov/eh/

March 22, 2024

Via Email Correspondence

Mr. Steve Cassulo
Steven.cassulo@WasteConnections.com
District Manager
Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

SUBJECT: CHIQUITA CANYON LANDFILL (SWIS No. 19-AA-0052) – LEA Response to the updates and revised schedule proposed for Mitigation Measures #1B and #2A

Dear Mr. Cassulo,

On February 22, 2024, the Los Angeles County Department of Public Health, Solid Waste Management Program, acting as the Local Enforcement Agency (LEA), received West and North Slope Stability Analyses (Analyses) for Chiquita Canyon Landfill (CCL), prepared by Geo-Logic Associates, Inc. dated February 2024. This response letter has been prepared in collaboration with the California Department of Resources, Recycling and Recovery (CalRecycle) and includes guidance from the enclosed CalRecycle review letter dated March 12, 2024, to the LEA (CalRecycle Review).

A. After review of the Analyses, the LEA requires CCL to perform additional analyses based on the current actual observed conditions of the waste and gas extraction wells, which is to include the following:

1. Additional analyses performed should not use the peak shear stress from Eid et al. and Kavazanjian et al. Due to the site characteristics related to the reaction at CCL, the following reduced shear strength should be used:

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

2. Perform the analysis 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.

3. During the Northridge earthquake, prior to this reaction incident, a portion of the geomembrane liner at the CCL tore. Explain how the landfill and landfill geomembrane liner will respond differently to earthquake forces considering the significantly higher accumulated leachate levels and gas pressures.

4. Provide the peak horizontal ground acceleration used in the analysis. Explain what impact the expected lateral forces would 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.

5. Include photographic evidence that the damaged liner was caused by equipment during the construction of the French drain. Explain the impact on the geomembrane liner on the side slope where the reported damage occurred.

6. Include a plan to monitor and record the temperature of the geomembrane liner to verify and document that there are no anticipated impacts to its long-term performance.

B. In addition, CCL is to revise the plan regarding the Documentation and Tracking of Cover dated December 21, 2023, to include the following:

1. Add a log with summary and a map to track the documented fissures and tension cracks and to identify trends. Evaluate the documented series of fissures and tension cracks reported. In particular, the 200-foot-long tension crack in map grids

178 and 185 reported on February 6, 2024, the 100-foot-long tension crack in map grid 178 and 185 reported on March 12, 2024, and the several new significant fissures noted on the March 19, 2024 report.

2. Include methods that will be used to track the instability in the reaction area that is obscured by the geomembrane cover.

Please see the enclosed technical review letter from CalRecycle for more details.

If you have any questions regarding the foregoing, please contact Karen Gork, Chief Environmental Health Specialist at (626) 430-5540.

Sincerely,

Ken Habaradas, Environmental Health Services Manager
Los Angeles County Local Enforcement Agency (LEA)

Cc: (Via Electronic Correspondence Only)

- Robert Ragland, Los Angeles County Department of Public Health
- Liza Frias, Los Angeles County Department of Public Health
- Nichole Quick, M.D., Los Angeles County Department of Public Health
- Shikari Nakagawa-Ota, Los Angeles County Department of Public Health
- Karen Gork, Los Angeles County LEA
- Eric Morofuji, Los Angeles County LEA
- Renee Jensen, LEA Counsel (rjensen@fwhb.com)
- Blaine McPhillips, Senior Deputy County Counsel
- Emiko Thompson, Los Angeles County Department of Public Works
- Alex Garcia, Los Angeles County Department of Regional Planning
- Ai-Viet Huynh, Los Angeles County Department of Regional Planning
- Wes Mindermann, CalRecycle (wes.mindermann@calrecycle.ca.gov)
- Janelle Heinzler, CalRecycle (janelle.heinzler@calrecycle.ca.gov)
- Jeff Lindberg California Air Recourses Board (jeff.lindberg@arb.ca.gov)
- Vanessa Aguila, California Air Resources Board (vanessa.aguila@arb.ca.gov)
- Jack Cheng, South Coast Air Quality Management Board (jcheng@aqmd.gov)
- Larry Israel, South Coast Air Quality Management Board (lisrael@aqmd.gov)
- Douglas Cross, Los Angeles Regional Water Quality Control Board (dcross@waterboards.ca.gov)
- Thanne Berg, United States Environmental Protection Agency (Berg.Thanne@epa.gov)

California Environmental Protection Agency

Gavin Newsom
California Governor

CalRecycle
Department of
Resources Recycling and Recovery

Amelia Yana Garcia Gonzalez
Secretary for Environmental Protection

Krystal Acierto
CalRecycle Acting Director

March 12, 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: 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
Engineering Support Branch

Cc Via Email:

Shikari Nakagawa-Ota, Los Angeles County Department of Public Health (sota@ph.lacounty.gov)

Jeff Lindberg California Air Recourses Board (jeff.lindberg@arb.ca.gov)

Vanessa Aguila, California Air Resources Board (vanessa.aguila@arb.ca.gov)

Terrence Mann, South Coast Air Quality Management District (tmann@aqmd.gov)

Jack Cheng, South Coast Air Quality Management District (jcheng@aqmd.gov)

Larry Israel, South Coast Air Quality Management District (lisrael@aqmd.gov)

Douglas Cross, Los Angeles Regional Water Quality Control Board, (dcross@waterboards.ca.gov)

Katherine Butler, Department of Toxic Substances Control (Katherine.Butler@dtsc.ca.gov)

Thanne Berg, United States Environmental Protection Agency (berg.thanne@epa.gov)