UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

Mr. Paul V. Rosasco
Project Coordinator
Engineering Management Support, Inc.
25923 Gateway Drive
Golden, Colorado 80401

Re: West Lake Landfill Superfund Site, Operable Unit 2, Slope Stability Evaluation and Western Waste Limit Investigation Plan

Dear Mr. Rosasco:

The U.S. Environmental Protection Agency has reviewed the revised West Lake Landfill, Operable Unit 2 (OU-2), Slope Stability Evaluation and Western Waste Limit Investigation Plan, submitted on September 25, 2020 by Geosyntec Consultants, Inc., on behalf of the Respondent, Bridgeton Landfill, LLC. This document was developed to support the Remedial Design of the Inactive Sanitary Landfill portion of OU-2.

The EPA has coordinated its review of this document with the Missouri Department of Natural Resources. Based upon the comments generated during the review, the EPA is disapproving the document as submitted.

In accordance with the Third Amendment to the Administrative Settlement Agreement and Order on Consent, VII 94-F-0025, the Respondent shall prepare and submit a revised Slope Stability Evaluation and Western Waste Limit Investigation Plan that addresses the enclosed comments within 30 days of your receipt of this letter. If you have any questions or concerns, please contact me either by phone at (913) 551-7910 or by e-mail at schwartz.jamie@epa.gov.

Sincerely,

JAMIE SCHWARTZ
Digitally signed by JAMIE SCHWARTZ
Date: 2020.12.17 10:09:12 -06'00'

Jamie Schwartz
Remedial Project Manager
Site Remediation Branch
Superfund and Emergency Management Division

Enclosure

cc: Mr. Ryan Seabaugh, MDNR

30488639

EPA Comments on the West Lake Landfill Superfund Site, Operable Unit 2, Slope Stability Evaluation and Western Waste Limit Investigation Plan, dated September 25, 2020

1. **General.** Slope stability conditions appear to rely significantly on the potentiometric surface (drained conditions, liquefaction, determination of wet/soft areas etc.). Modeling should include a robust sensitivity analysis for changes in potentiometric surfaces due to the uncertainties around active pumping at the adjacent Bridgeton Sanitary Landfill, changes in surface water elevations in the adjacent stormwater pond controlled by the levee district, or localized flooding that occurs regularly in the area. Revise this plan to include a discussion of robust sensitivity analyses during modeling for all potentially sensitive parameters including changes in the potentiometric surface.

2. **Section 1.2.1 Slope Stability Plan ARARs, Page 1-2.**
    a. The references to 10 CSR 80-3.010(17)(B)(3) and 10 CSR 80-3.010(17)(C)(3) are written incorrectly. Replace these references with 10 CSR 80-3.010(17)(B)3. and 10 CSR 80-3.010(17)(C)3.

    b. This section is missing an ARAR reference. Revise this section to include reference to 10 CSR 80-3.010(17)(C)5. which states, *"The installation of the final cover system shall include provisions for slope stability."*

3. **Section 1.2.2 Slope Stability Evaluation, Page 1-3.**
    a. The first sentence of this section states, *"The slopes along the western portion of the ISL were re-graded in 1992 with a goal of achieving a slope of 33.3 percent (%) (i.e., three horizontal to one vertical [3H:1V]) or less (Herst, 2006)."* The second paragraph states, *"…portions of the western slope exceed 25% grade and limited areas are greater than 33%..."* Based on this information, it appears the goal of the regrading activities was not met. Revise this section to include a detailed discussion of the areas exceeding the 25% and 33.3% grades. Also, include a figure that clearly illustrates the slopes of the ISL which exceed the 25% and 33.3% grades.

    b. The first sentence of the second paragraph also states, *"…site observations over many years, there is reason to believe the existing western slope is stable…"* This sentence appears to be missing some text. Review this sentence and revise for clarity.

    c. The last sentence of this paragraph states, *"To address the ARAR for maximum slope configuration and associated stability requirements…"* Revise to state *"ARARs"* as there are more than one to be addressed.

    d. The fifth paragraph references 10 CSR 80-3.010(5)(B)(4)(B), which states, "*Stability analysis shall be performed on all liner and leachate system components."* The reference to a liner in this portion of the regulation is for a bottom liner. Revise this section to remove this reference.

    e. The references to 10 CSR 80-3.010(5)(B)(4)(D) and 10 CSR 80-3.010(5)(B)(4)(E) are written incorrectly. Replace these references with 10 CSR 80-3.010(5)(B)4.D. and 10 CSR 80-3.010(5)(B)4.E.

4. **Section 2.1 General Site Information, Page 2-1.** The third sentence states, *"The ISL has been previously covered with an interim soil cap with vegetation."* The MDNR regulations describe interim soil cover in 10 CSR 80-3.010(17)(C)2. and 10 CSR 80-3.010(17)(C)4.A. Revise this section to describe how the *"interim soil cap"* was constructed to meet ARARs.

5. **Section 2.3.3 Unconsolidated Material, Page 2-2.** The fourth sentence states, *"The fill consistency is soft to hard with uncorrected N-values between 4 and more than 32."* Revise this section to clarify what is meant by *"uncorrected N-values"*.

6. **Section 2.3.5.3 Unconsolidated Deposits, Page 2-3.** The second sentence states, *"A groundwater divide appears to exist in the alluvium between the southern boundary of the ISL and the Bridgeton Landfill."* Revise to include the referenced groundwater divide on a potentiometric surface map.

7. **Section 3.8 Reliability Analysis for Existing Slope with FS<1.5, Page 3-6**. The last sentence of the first paragraph states, *"A slope with FS = 1.5 or higher will typically have a very low probability of failure; moreover, existing slopes with FS values less than 1.5 may also have a sufficiently low probability of failure (and thus not require corrective measures)."* This statement appears to indicate that Factor of Safety (FS) values less than 1.0 may be acceptable whereas an FS of less than 1.0 is considered to be susceptible to failure and thus unacceptable. Revise this statement to better define the quantitative measures used to calculate an acceptable FS.

8. **Section 3.9.1, Page 3-7.** The bulleted list and the last paragraph of this section include the statement *"potential need for corrective measures".* As stated earlier in this plan, the Missouri Department of Natural Resources (MDNR) Code of State Regulations (CSR)10 CSR 80-3.010(17)(C)3. allows for final slopes of 25% grade or less, and up to 33.3% grade if a slope stability evaluation has been completed. This plan indicates there are portions of the ISL slopes which exceed the maximum allowable grade of 33.3%, which will require corrective measures. Remove the word "potential" from these statements.

9. **Section 5 Western Slope Waste Limit Investigation, Page 5-1.** The first sentence of the fourth paragraph states, *"The proposed western slope waste limit borings will be located within 50 ft of the Earth City Stormwater Basin top of slope or berm; therefore, if waste is encountered, step-out borings cannot be performed."* Revise this section to further explain what measures will be taken to identify waste limit boundaries if step-out borings cannot be performed.

10. **Section 3.5.4 Material Parameters, Page 3-4.** The second paragraph on this page states, *"Wet or soft waste layers such as dewatered sediments, industrial or wastewater treatment sludges, or paper sludges could affect the stability of the waste mass."* Historically there were a number of lagoons at the Site, as observed in historical aerial photography. Revise this section to include a discussion of the historical aerial photography review that occurred, whether any of these historic features were located in close proximity to the western slopes, and if they are targeted for sampling during this evaluation.

11. **Figure 2-1 and FSP Figure FSP-1.** Leachate riser (LR) locations are illustrated on these figures, but LR-102 is missing. Revise these figures to include LR-102.

12. **Figure 2-2 and FSP Figure FSP-2.** This figure includes two locations labeled CPT-04, and CPT-05 is missing. Review this figure and revise to include location CPT-05.

EPA Comments on the West Lake Landfill Superfund Site, Operable Unit 2, Slope Stability Evaluation and Western Waste Limit Investigation, Appendix A - Quality Assurance Project Plan Addendum, dated September 25, 2020

13. **QAPP Addendum, Section 1.4 Organization of QAPP Addendum, Page 1-4.** The QAPP addendum does not appear to have sections that discuss data review, including data verification and validation, for the data that will be generated under this addendum. Revise the QAPP addendum to include this information.

14. **QAPP Addendum, Section 9 Quality Control, Page 9-1.** The first paragraph on this page states this section describes procedures that will be used to ensure the quality of project activities; however, some subsections only refer to ASTM methods and do not describe any procedures. Revise to clarify if the quality control tasks already incorporated into ASTM procedures will be utilized, or if there are additional quality control procedures to be implemented.

15. **QAPP Addendum, Section 2 Data Quality Objectives, Page 2-1; Section 12 Non-Direct Measurements and Previous Data.** These sections refer to use of worksheets from the UFP-QAPP; however, it is not clear if this was referenced simply as background information or if the intent was to include a copy of these worksheets. Revise to include copies of the referenced worksheets as an attachment to the final addendum.

EPA Comments on the West Lake Landfill Superfund Site, Operable Unit 2, Slope Stability Evaluation and Western Waste Limit Investigation, Appendix B - Field Sampling Plan, dated September 25, 2020

16. **Appendix B, Field Sampling Plan, Section 2 Scope of Work – Overview, Page 2-1.**
    a. The fourth sentence of this section states that "*The final exact locations of the borings will be selected in the field based upon access and safety considerations*." While some minor changes to locations in the field may occur, it is EPA's expectation that the proposed locations provided in these planning documents are based upon visual observations in the field and considerations have been made for equipment access and visible or known utilities. EPA approves of the proposed locations included in this plan. Proposed changes to the approved locations shall be submitted as a request to EPA. Modify this paragraph to add the following sentence, *"Changes to any of the proposed boring locations will be submitted to EPA for review and approval prior to drilling."*

    b. This section states that borings within waste will be advanced to approximately five feet below waste, or refusal. There does not appear to be a discussion in the Field Sampling Plan regarding offset locations due to shallow refusal. Revise the Field Sampling Plan to include criteria for offset boring locations when shallow refusal of borings occurs.

17. **Appendix B, Field Sampling Plan, Section 6 Expected Subsurface Conditions, Page 6-1.** Modify the second sentence in the first paragraph on this page to state, *"A summary of the OU-2 area local and regional geologic descriptions is taken from the Trihydro Operable Unit 3 (OU-3) …"*

18. **Appendix B, Field Sampling Plan, Section 6.2.2 Unconsolidated Deposits, Page 6-2.** There appears to be a typographical error in the first sentence of the second paragraph*, "…of the ISL area is an upload loess…"* Review this sentence and provide revisions as necessary.

19. **Appendix B, Field Sampling Plan, Section 7.3.1 Sonic Drilling, Page 7-2.** The last paragraph of this section references Section 5; however, this reference appears to be incorrect as Section 5 of the Field Sampling Plan is Field Coordination and does not discuss sonic drilling activities. Review this section and provide any necessary revisions.

20. **Appendix B, Field Sampling Plan, Section 7.12 Borehole Abandonment, Page 7-11.** This section states that borings not used as landfill gas monitoring well locations will be properly abandoned. Revise to include a statement regarding the timeframe that borings will be left open before they are abandoned.

21. **Appendix B, Field Sampling Plan, Table FSP-3.** There is a typographical error in the second sentence of footnote 2. Modify this sentence to reference *"Shelby tube".*