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, Existing Soil Cap Evaluation Report

Dear Mr. Rosasco:

The U.S. Environmental Protection Agency has reviewed the revised West Lake Landfill, Operable Unit 2 (OU-2), Existing Soil Cap Evaluation Report, submitted on August 31, 2020 by Civil and Environmental 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.

EPA has coordinated its review of this document with the Missouri Department of Natural Resources and the U.S. Army Corps of Engineers, Kansas City District. Based upon the comments generated during the review, 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 Existing Soil Cap Evaluation Report that addresses the enclosed comments and incorporates the requested changes 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: 2020.12.02 16:20:52 -06'00'

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

Enclosure

cc: Mr. Ryan Seabaugh, MDNR

EPA Comments on the West Lake Landfill Superfund Site, Operable Unit 2, Existing Soil Cap Evaluation Report, dated August 31, 2020

1. **Section 3.1 2009 Field Investigation Results, Page 5.**
    a. This section summarizes a May 2009 investigation but does not provide any references to this investigation. Revise this section to provide reference to the source document for the 2009 investigation.

    b. The second sentence states, *"During the May 2009 investigation, twelve (12) shelby tube soil samples were collected, with sampling intervals ranging from 0 to 4 inches belowground surface."* Soil samples collected from 0-4 inches below ground surface would not have penetrated past the vegetative layer of the cover and permeability results would be irrelevant to make conclusions regarding the permeability of the clay layer below. Review this section to verify the Shelby tube sample collection depth. Remove the permeability discussion of these samples if they were collected from 0-4 inches below ground surface in the vegetative layer.

    c. The last item in the bulleted list states the Shelby tube samples were collected and tested for *"Permeability (ASTM D5084)"*. Revise this section to include the ASTM method used to collect the Shelby tube samples, the hydraulic system testing method used according to ASTM D5084 (i.e. Method A: Constant Head; Method B: Falling Head, constant tailwater elevation; Method C: Falling Head, rising tailwater elevation; Method D: Constant Rate of Flow; Method E: Constant Volume-Constant Head; or Method F: Constant Volume-Falling Head, rising tailwater elevation), and specify if undisturbed or remolded specimens were used to measure hydraulic conductivity.

2. **Section 3.2 2020 Field Investigation, Pages 6 & 7.**
    a. This section title incorrectly references the *"Road Work Plan"*. Revise this title to replace *"Road"* with *"Remedial Design"* or *"RD"*.

    b. The last paragraph on page 7 states *"37 of the 88 sampling locations were found to have 36 inches or more of soil cover, while 51 of the 88 sampling locations had less than 36 inches of soil cover."* This report should be revised to include a table that details these results. The table should identify the measured vegetative cover thickness, the low permeability soil/clay thickness, exceedances or deficiencies in the thickness of each layer, the depth at which waste was encountered, and identify any materials such as rocks or other non-soil components located within the cover.

3. **Section 3.2 2020 Field Investigation (Based Upon Approved Road Work Plan), Page 8.**
    a. This section states additional geotechnical testing was conducted to assess the suitability of the excess soil for use as low permeability cover, but very few details are provided. Revise this section to include the type of geotechnical testing conducted, sample depths, and a correlation between *"CS"* boring locations and the *"BS"* laboratory identifiers.

    b. Table 2 lists the … The geotechnical testing results in Appendix C for sample BS-1 lists the USCS Symbol as *"CL"* which matches Table 2 but lists the USCS Classification as *"Lean Clay With Gravel"*. Sample BS-3 geotechnical laboratory results list "CL", which matches Table 2, but the USCS Classification states "Lean Clay With Sand." Revise

Table 2 to include the USCS Classification as listed in the laboratory results along with the USCS symbol.

4. **Section 3.3 Soils Laboratory Testing, Page 8.**
    a. There is a typographical error in the section title, revise accordingly.

    b. The second sentence is missing a word. Revise the second sentence to state *"…to assess if the existing soils would meet the MDNR requirements…"*

5. **Section 3.3 Soils Laboratory Testing, Page 9.**
    a. The last bullet at the top of page 9 refers to CS-76 as the revised location of the Shelby tube sample ST-10. Based upon Figure 2 and the boring logs, it appears this bullet should refer to CS-78. Review this section and revise accordingly.

    b. The last item in the second bulleted list states the Shelby tube samples were analyzed for *"Permeability (ASTM D5084)"*. Revise this section to provide the ASTM method used to collect the Shelby tube samples and the hydraulic system testing method used according to ASTM D5084 (i.e. Method A: Constant Head; Method B: Falling Head, constant tailwater elevation; Method C: Falling Head, rising tailwater elevation; Method D: Constant Rate of Flow; Method E: Constant Volume-Constant Head; or Method F: Constant Volume-Falling Head, rising tailwater elevation), and specify that undisturbed specimens were used to measure hydraulic conductivity as indicated on the laboratory data reports in Appendix C.

6. **Section 3.3 Soils Laboratory Testing, Pages 10 and 11.** There is a typographical error in the result column for samples ST-04 and ST-04C1 & 2. Revise to state "Does Not Meet Requirements".

7. **Section 3.3 Soils Laboratory Testing, Page 11.** The first sentence on this page states, *"The vast majority of the collected shelby tube samples (i.e., ST-04) possessed a permeabilities less than the maximum allowable permeability of 1x10-5 cm/s with the exception of the area around ST-04."* The use of ST-04 as an example of locations exceeding permeability requirements is incorrect as this location was an exception to the statement. Remove *"(i.e., ST-04)"* from this sentence, or provide a relevant example.

8. **Section 4.0 Conclusions, Page 12.**
    a. The first two conclusions give statistics for cover thicknesses greater than or less than 36 inches; however, the conclusions are too general to make a determination regarding whether cover components do or do not meet the Applicable, Relevant and Appropriate Requirements (ARARs). For example, the drilling logs for locations CS-76 and CS-82 identified waste deeper than 36 inches but a low permeability layer was not observed. As stated in comment 2.b above, a table should be included with this report that details these results. The table should identify the measured vegetative cover thickness, the low permeability soil/clay thickness, exceedances or deficiencies in the thickness of each layer, the depth at which waste was encountered, and identify any materials such as rocks or other non-soil components located within the cover. The conclusions regarding the exceedances or deficiencies in cover thickness should be reevaluated to review the

specifics of the one foot of vegetative soil and the two feet of low permeability soil requirements separately.

b. Conclusion number three states, *"Additional measures may include either additional clay cover placement, rework/additional compaction effort in the vicinity of ST-04, or additional in place testing."* Revise to provide clarification of what *"additional in place testing"* may be conducted.

c. Conclusion 5 states "…excess material could be used as a source of additional landfill final cover soil for areas with inadequate cap thickness." While some areas across the surface of the Inactive Sanitary Landfill may exhibit greater than 36" of soil cover, removal or regrading of portions of the existing cover may create design issues that will need to be addressed, including impacts to stormwater management, and compliance with solid waste ARARs and CQA requirements. Any proposal in the Remedial Design to relocate existing cover material should be adequately developed to address these considerations to ensure compliance with ARARs.

9. **Appendix D, Figures.** The figures provide an important visual representation of the work completed. Consider moving the figures closer to the end of the report text, rather than as the last appendix.

10. **Appendix D, Figure 3 2020 Cap Sampling Event Depths.**
    a. As stated in Section 3.2 of the Report, the intent of this figure is to illustrate total soil cover thickness. Boring locations CS-76 and CS-82 are illustrated as having more than 36 inches of soil cover, but as stated above, these locations did not exhibit a low permeability layer. Review and revise this figure to illustrate locations that meet the MDNR landfill cover requirements identified in 10 CSR 80-3.010(17)(C)4.

    b. This figure extrapolates the estimated cap thickness from sample points at the top of the landfill down to the toe with no data to support this interpretation. Revise this figure to terminate the illustration of the estimated cap thickness at the top of the landfill.

11. **Appendix D, Figure 4 Existing OU-2 Areas With Excess Soil.** As stated in Section 3.2 of the Report, the intent of this figure is to illustrate areas where excess soil cover material was measured; however, there are locations included which do not have excess soil. Boring location CS-82 is included as having excess soil cover material with a depth to waste of 48 inches, but as stated above, no low permeability soil layer was observed. Review the boring logs to confirm the thickness of each layer and revise this figure to accurately illustrate excess soil cover material.