



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7**

11201 Renner Boulevard
Lenexa, Kansas 66219

NOV 22 2019

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

Re: Revised Design Criteria Report, dated October 15, 2019

Dear Mr. Rosasco:

The U.S. Environmental Protection Agency has reviewed the revised Design Criteria Report, or DCR, West Lake Landfill Superfund Site Operable Unit 1, or OU-1. The EPA disapproved the first draft of this document and provided comments in a letter dated September 13, 2019. The document was revised and resubmitted by the Respondents on October 15, 2019. The EPA has completed its review of the revised document and is approving this DCR with modifications, in accordance with section 5.6(b) of the Remedial Design Statement of Work, or RD SOW, dated May 6, 2019. Please submit a revised document with the modifications indicated in the enclosure within 20 days of receipt of this letter.

Please feel free to contact me with any questions or concerns by phone at (913) 551-7141 or by email at jump.chris@epa.gov.

Sincerely,

A handwritten signature in cursive script that reads "Tom Mahler".

for

Christine R. Jump
Remedial Project Manager
Site Remediation Branch
Superfund and Emergency Management Division

Enclosure

cc: Mr. Ryan Seabaugh, MDNR



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Modifications to Design Criteria Report dated October 15, 2019

1. Section 2.1, page 2-1 – Revise the last sentence in the section by deleting, *“prepared in conjunction with the various RA submittals prior to construction.”* and replace it with, *“submitted with the 90 % RD document.”* Also, add the following sentences at the end of the paragraph, *“Final adjustments, which will require approval by the EPA, may be made to this plan during the RA.”*
2. Section 4.1, page 4-1. Add a sentence at the end of the paragraph that reads, *“If calculations discussed in Section 4.2 indicate the need, more stringent design criteria may be considered.”*
3. Section 4.2, page 4-1. Second paragraph – Add the following sentence after the first sentence in this paragraph, *“This evaluation and initial storm water calculations will be included as part of the preliminary assessments developed during the 30% RD discussed below.”*
4. Section 4.4, page 4-2. –In the first sentence, replace “... as well as diversion of to direct stormwater...” with “... as well as diversion in order to direct stormwater...”.
5. Section 5.1, page 5-1.
 - a. Revise the first paragraph of the section by moving the phrase in the last sentence, *“except as stated in the RODA and approved by USEPA”* to the end of the first sentence.
 - b. Replace the second paragraph of this section with the following modified paragraph:

“The RODA defines a requirement for the total radioactivity to be removed in the selected remedy to be equivalent to the total radioactivity represented by the combined radium and thorium greater than 52.9 pCi/g down to 16 feet below the 2005 topographic surface. The RODA requires that each total radioactivity calculation be computed using the same RD geostatistical model. This will require developing a common RD geostatistical model with common survey unit geometries using the same data set for each activity calculation. The methodology for calculating the activity will be presented in the technical memo attached to the Preliminary Excavation Plan. The RODA selected remedy generally requires removal of RIM greater than 52.9 pCi/g to a depth of 12 feet below the 2005 topographic surface but will include removal of some RIM between 12 and 20 feet below the 2005 surface and allow for isolated pockets of RIM greater than 52.9 pCi/g between 8 feet and 12 feet below the 2005 surface to remain in place. The approach to selecting the locations that will deviate from the general depth of 12 feet below the 2005 surface are discussed in the next paragraph.”
 - c. Replace the fourth and fifth paragraphs of the section with the following:

“In order to use both types of existing data (e.g., “soft” downhole gamma logs and “hard” analytical laboratory results), it is expected that indicator kriging will be used for the preliminary geostatistical model. The preliminary model will be presented in a

technical memo submitted with the Preliminary Excavation Plan as described in section 3.1.1.2 of the RDWP. The technical memo will include sufficient detail to develop sampling objectives in the DIWP as discussed in the paragraph below. The Preliminary Excavation Plan will include identification of the preliminary extent of RIM to be excavated, including isolated pockets of RIM between 8 and 12 feet below the 2005 surface and deeper areas of higher concentrations of RIM between 12 and 20 feet based on the preliminary model.

Additional radioactivity data will be collected during the design investigation according to sampling objectives specified in the DIWP aimed at improving the accuracy of the model and to fill in data gaps necessary to complete the remedial design. This will require an evaluation of preliminary model assumptions and limitations based on the existing data set and selected methodology. This evaluation will include a limited model parameter sensitivity analysis. Data gaps will be identified and addressed in the geostatistical technical memorandum, the Preliminary Excavation Plan, and the DIWP. The additional data will include both field screening (e.g., downhole gamma logging, core scans) and laboratory analysis of core samples. Field screening procedures, and the development of the resulting "soft" data during the design investigation, will be based on Data Quality Objectives and Measurement Quality Objectives defined in the DIWP, QAPP, and/or FSP. The geostatistical model will be updated based on the results of the DI and the updated model will be used to develop the Final Excavation Plan."

6. Section 5.2, page 5-2. Replace Section 5.2 with the following: *"The RODA states that additional background characterization will be performed as a post-ROD activity to determine statistically valid background concentrations for the Buffer Zone and Lot 2A2. Background sampling will be conducted in areas that appear to have the same general characteristics of the Buffer Zone and Lot 2A2 and are not impacted by RIM. The characteristics used to define and select background sampling locations will be presented in the DIWP. Representative estimates based on the results of samples obtained from individual survey units of 2,000 square meters or less will be compared to the background data set to determine whether there are statistically significant differences. The decision criteria, areas for background sampling, size and location of each survey unit, specific sampling locations, and analytes will be proposed in the DIWP and associated plans."*
7. Section 5.3, first paragraph, page 5-2. Delete both bullets and revise the third sentence as follows, *"Confirmation sampling will be performed to confirm the proposed excavation boundaries of the RIM above 52.9 pCi/g within 12 feet of the 2005 surface are sufficient to meet the requirements in the RODA. This generally means that samples will be collected within specific survey units from the wastes located just above, adjacent to, and underneath the RIM excavation boundaries."*
8. Section 5.3, pages 5-2 and 5-3. Replace the second and third paragraphs with the following: *"Representative concentrations of RIM based on the results of confirmation samples obtained from individual survey units (of 2,000 square meters or less) will be estimated for each survey unit. The representative estimate of each survey unit will be compared to the 52.9 pCi/g decision criteria. The confirmation sampling strategy will be evaluated to identify an approach that*

minimizes open excavations and delays while demonstrating that excavation requirements of the remedy have been achieved.

If pre-excavation confirmation sampling is approved, the survey units will be located adjacent to the excavation boundary produced from the final RD geostatistical model to confirm the model is sufficiently accurate to be used for the RA excavation without incorporating these samples into the model. The methodology to determine the representative RIM concentrations in each survey unit, decision criteria, size and location of survey units, and specific sampling locations will be provided in the proposal for collection of confirmation samples described in section 2.2.1 of the RDWP."

9. Section 5.5, second paragraph, page 5-3. Revise the first sentence as follows, *"It is anticipated that contact water and leachate..."* Add the following sentence, *"Identification of federal, state, and local permitting and testing requirements that must be met to allow discharge will be presented in the 30% RD, along with the disposal requirements for sludge and treatment media."*
10. Section 5.6, second paragraph, page 5-4. Revise the first sentence as follows, *"RD will include development of monitoring and tiered response actions to address management of odors and other air quality issues, if they arise, in accordance with 10 CSR § 10-6.165, 10 CSR § 10-6.170, and other ARARs related to air quality."* Revise the third sentence as follows, *"The 30% RD report will discuss the general approach to air quality and odor control."*
11. Section 5.9, page 5-5. Revise the second sentence of the paragraph as follows, *"The RD will address procedures for identification, characterization, handling and disposal of these atypical materials, if encountered."*
12. Section 5.9.2, page 5-5. The void space in tires does not appear to be compatible with an UMTRCA cover. Delete everything after the first sentence and add a sentence that reads, *"Potential disposal of used vehicle tires will be further evaluated in the 30% RD."*
13. Section 6.1, page 6-1.
 - a. To more accurately reflect the RODA, revise the first sentence of the first paragraph as follows, *"Section 12.2.2 of the RODA specifies that, to the extent practicable, backfilling will be performed by preferentially placing waste containing RIM concentrations less than 52.9 pCi/g at the base of the excavation with non-RIM impacted waste placed above it."*
 - b. Replace the third, fourth, and fifth paragraphs with the following, *"Non-RIM impacted overburden and waste will be segregated from RIM-containing waste to the extent practicable. It is anticipated that the segregation of these materials will occur during the excavation process by using either the geostatistical model and/or field screening. During the RD, the segregation methodology proposed to be used during the remedial action will be demonstrated to be effective at identifying RIM below 52.9 pCi/g."*

Non-RIM impacted materials may be stockpiled for use in backfilling excavations. If excavated material can be determined to contain no RIM or MSW, it may be evaluated for use as daily or intermediate cover. Segregated stockpiles will be protected from the elements to minimize dust and contact water generation to the extent practicable. Covering stockpiles of aged MSW will also potentially address attractiveness to birds or vectors. A general goal of the waste management during excavation will be to avoid extensive ex-situ double-handling and large stockpiling of excavated overburden. An evaluation to determine the procedures and decision-making criteria for waste segregation of excavated material that contain less than 52.9 pCi/g, and use of these materials during the remedial action, will be proposed in the 30% RD. The final procedures and decision-making criteria will be included in the 90% RD report."

14. Section 6.2, page 6-1. Revise the sentence that begins with "The segregation of these materials ..." as follows, *"It is anticipated that the segregation of these materials into one or more stockpiles will occur during the excavation process if needed to perform testing required by the disposal facility to demonstrate compliance with waste acceptance criteria."*
15. Section 6.3, first paragraph, page 6-1, first paragraph. Revise the sentence that begins with, "The containment areas will be designed with sumps..." as follows, *"The containment areas will be designed with sumps for pumping the contact water to the appropriate storage or treatment location, currently anticipated to be an on-site temporary water treatment plant."*
16. Section 6.3, second paragraph, page 6-2. Revise the third and fourth sentences as follows, *"Staging and temporary storage of RIM prior to loading for off-site disposal may not be necessary, especially in Area 1. The purpose of the RIM staging and loading building included in the FFS was to provide a location for managing and stockpiling of RIM to ensure compliance with waste acceptance criteria (WAC) and to protect stockpiled RIM from the elements, such as wind and rain."*
17. Section 6.3, second paragraph, page 6-2. In the fifth sentence delete *"and/or blending of RIM as needed to meet the WAC"*. Also, in this same sentence replace the word *"would"* with *"may"* in the sixth sentence.
18. Section 6.4, first paragraph, page 6-2. In the beginning of the first sentence add, *"It is anticipated that..."*.
19. Section 6.5, first paragraph, page 6-2. Replace the second sentence as follows, *"RD will include development of monitoring and tiered response actions to address management of odors and other air quality issues, if they arise, in accordance with 10 CSR § 10-6.165, 10 CSR § 10-6.170, and other ARARs related to air quality."* Revise the last sentence as follows, *"The monitoring and management techniques will be presented in the 30%, 90%, and Final RD reports."*
20. Section 6.7, second paragraph, page 6-3. Add the following sentence to the end of the paragraph, *"Truck inspection and decontamination procedures will be presented in the LTODP."*

21. Section 6.8, second paragraph, page 6-3. Delete the second sentence and move the remaining sentence of this paragraph to before the final sentence in the first paragraph.
22. Section 6.8. Add the following paragraph after the first paragraph of this section, *“As discussed in section 13.2.6 Missouri Regulations for Protection Against Ionizing Radiation of the RODA, the Missouri Radiation Regulations for Protection Against Ionizing Radiation (19 C.S.R. 20-10.070 and 19 C.S.R. 090) contain standards that address storage and releases of radioactive materials including ventilation standards for rooms storing radioactive materials and limits for releases of radionuclides to the air. The design of any temporary structure used to store or stockpile RIM will need to consider these ARARs. Other Missouri protection against ionizing radiation standards related to health and safety and protection of remediation workers are not ARARs but will be identified in the 90% and Final RD reports.”*
23. Section 8.1, first paragraph, page 8-1. Delete the last two sentences of the first paragraph.
24. Section 8.2, page 8-1. As specified in comment 71 of EPA’s September 13, 2019 comment letter, replace the first sentence as follows, *“An analysis will be required for any non-NRC-licensed facility before it can be selected for RIM disposal.”*
25. Section 9.3, page 9-1. Sludge and treatment media are generated process waste and an evaluation of whether this new waste can be disposed of in a closed landfill will need to be performed. Therefore, replace the section with the following, *“An evaluation of the locations for disposal of sludge and/or treatment media accumulated during the RA will be presented in the 30% design. The testing and disposal specifications for the selected location will be included in the 90% and Final RD Reports.”*
26. Section 9.4, page 9-1. Remove “temporary” from before “on-site” in the first sentence. Replace the third sentence with *“An on-site temporary water treatment plant will be designed, if necessary, to ensure treated water meets the required discharge limits.”*
27. Section 10.2, first paragraph, page 10-1. Replace the first sentence with the following, *“The method(s) for backfill placement and compaction will be presented in the 30% design.”*
28. Section 11.1, page 11-1. Replace the text in this section with the following, *“The final cover boundary will be determined during the RD to ensure remedial action objective are met. This will require determination of the furthest extent of wastes in OU-1. In the portions of Area 1 and 2 contiguous with other waste-containing areas, e.g. Bridgeton Landfill, Inactive Sanitary Landfill, etc... the final cover boundary must also consider the furthest extent of RIM in those portions of OU-1. The RODA states, “Additional samples will be collected, as necessary, during the RD phase to confirm the extent of RIM near the boundaries of Area 1 and 2 to ensure that the engineered cover is properly placed over all areas where RIM will remain on Site.” The extent of waste and RIM will be confirmed during the design investigation through additional borings. The sampling methods and boring locations will be presented in the DIWP.”*

29. Section 11.2, page 11-1.

- a. In the fifth sentence delete, “*and may not be optimal for the Amended Remedy.*”
- b. Replace the ninth sentence as follows, “*The minimum slope design for the final cover system will be evaluated during the RD after computing expected future total and differential settlements of the waste materials.*”
- c. Replace sentences ten, eleven, and twelve with the following, “*The maximum slope design for the final cover will be selected after further evaluation of the excavation volume and regrading, including consideration of a starter berm.*”

30. Section 11.3.3, page 11-2, first paragraph. Replace the first two sentences as follows, “*The final cover system will be installed over all of Areas 1 and 2 in order to accomplish the remedial action objectives in the RODA. The final cover system in Area 1 must give special consideration to the portion of Area 1 overlain by the North Quarry of Bridgeton Landfill. A different final cover system may be proposed for this portion of Area 1. This portion of the Area 1 cover system may consider the radon attenuation capabilities of the non-RIM refuse overlying the RIM.*”

31. Section 11.4, page 11-3. Delete the sentence that begins with “*If the pseudo-static slope stability...*” and the sentence that begins with “*If the factor of safety is less...*” from this section.

32. Section 11.7, page 11-4. Delete “*vegetated as a native prairie grassland*” from the first sentence and replace with “*a vegetated cover*”. Replace the last sentence with, “*The vegetated cover will not use a grass species that requires controlled burns to maintain.*”

33. Section 12.2, page 12-1. Delete the first sentence.

34. Section 12.3, page 12-1. Delete the second paragraph of this section.