REGION 7
LENEXA, KS 66219

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

Dear Mr. Rosasco:

On March 12th, 2024, Parsons submitted the Pre-Final (90%) Remedial Design for the West Lake Landfill Site on behalf of the West Lake Landfill Operable Unit 1 (OU-1) Respondents in accordance with Section 3.10 of the Remedial Design Modified Statement of Work (SOW). In addition to the design report, drawings, and specifications, this submittal also included various supplemental documents described in Section 5.7 of the Modified SOW.

The U.S. Environmental Protection Agency has completed our review of the supplemental documents which include the Loading, Transportation, and Off-Site Disposal Plan; the Construction Quality Assurance/Control Plan; the Site Wide Monitoring Plan, the Operation and Maintenance Plan/Manual; an updated version of the Site Management Plan; the Institutional Controls Implementation and Assurance Plan; and the Storm Water Pollution Prevention Plan and is disapproving these deliverables in accordance with paragraph 5.6 (a)(1) of the Modified SOW.

Paragraph 5.6(b) of the SOW states, "*Upon receipt of a notice of disapproval under ¶ 5.6(a) (Initial Submissions), or if required by a notice of approval upon specified conditions under ¶ 5.6(a), Respondents shall, within 30 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the deliverable for approval.*" Therefore, the due date for revised drafts of the supporting deliverables is April 14th, 2025, in accordance with Paragraph 5.6(b) of the Modified SOW. However, the EPA is willing to consider a proposal for staggered due dates for the submissions of these supporting deliverables.

The EPA provided comments on the 90% Design on October 10th, 2024, in order to give the design team additional time to review and address those comments in the Final (100%) Design while EPA completed its review of the remaining supplemental plans. As indicated in Paragraph 5.7 of the SOW, the supplemental plans listed above are stand-alone documents, not specifically part of the 90% or 100% RD, so that they can be modified individually in the future as appropriate. Nonetheless, the due date for the 100% Design is based on the EPA's transmittal of the comments attached to this letter, and therefore that due date is May 28th, 2025, in accordance with Paragraph 6.2 of the Modified SOW.

unless an alternative date is negotiated with the EPA. The EPA is willing to discuss a proposal for an alternative due date for the 100% Design together with a proposal for staggered due dates for the supplemental plans.

Please address the EPA's comments on the supplemental plans in accordance with Paragraph 5.6(b) of the SOW. Feel free to contact me with any questions or concerns by phone at (913) 551-7416 or by email at mahler.tom@epa.gov.

Sincerely,

THOMAS MAHLER

Digitally signed by THOMAS MAHLER
Date: 2025.03.14 14:52:36 -05'00'

Tom Mahler
Remedial Project Manager
Remediation Branch
Superfund and Emergency Management Division

cc: Ryan Seabaugh, Missouri Department of Natural Resources

Comments on the revised Loading, Transportation, and Off-Site Disposal Plan (LTODP), March 2024

1. **Certification Statement:** Update this statement to reflect the professional engineer responsible for certifying and stamping the revised LTODP.

2. **Section 2.1.2, page 2-2, general comment.** Update this section and table 2-2 as necessary for consistency with the CDL Excavation Plan, based on data results from FSP Addendum 12, the record of decision document amendment (RODA) and the explanation of significant differences (ESD).

3. **Section 3.0, page 3-1, second paragraph.** This paragraph states that volume estimates for each waste type, including RIM greater than 7.9 pCi/g and less than 52.9 pCi/g that will be used as backfill beneath the final cover will be derived to support the project. Add to the paragraph a description of how and when these volume estimates will be completed.

4. **Section 3.0, page 3-1, fourth paragraph.** Either add a figure(s) to the 100% Design and reference them here or add a figure(s) to this plan that depicts at least an example of a location where the on-site handling and packaging of waste described in this paragraph could occur.

5. **Section 4.1, page 4-1, first paragraph.** The last two sentences of this paragraph are similar but not consistent with language on page 40 in Section 8.1 of the 2018 Record of Decision Amendment. Revise the language for consistency with the RODA as follows, "*The EPA has performed a site-specific evaluation of risk to determine that a concentration of 52.9 pCi/g for all the radioactive COCs corresponds to a risk of about 1 x 10^{-3} for the future maximally exposed individual described in the updated BRA. The Amended Remedy requires excavation of some RIM greater than 52.9 pCi/g. Excavation of some RIM in combination with the installation of the engineered cover will meet these RAOs.*"

6. **Section 4.5, pages 4-3 and 4-4, general comment.** EPA notes that while the language is similar to Section 5.11 in the 90% RD, it does include some differences. EPA has provided comments on the 90% Design related to tires, white goods, other oversized materials, and construction and demolition debris. Revise this section in the LTODP for consistency with Section 5.11 of the 100% Design after addressing the EPA comments. Ensure the LTODP includes all the relevant information regarding the loading, transportation, and if necessary off-site disposal of atypical or oversize materials.

7. **Section 4.6, page 4-4, general comment.** Clarify what is meant by "*selected waste containers*" in the last sentence.

8. **Section 5.1, page 5-1, fourth paragraph.** EPA previously provided a comment on the first draft of the LTODP that the second sentence of this paragraph was unclear (EPA Comment #18, May 13, 2020, letter). This comment was not addressed. As stated in the previous comment, "*Revise to clarify the intent of the sentence (i.e., which analyses) and ensure the text is consistent with the QAPP.*" Clarify whether the waste disposal facilities being considered for disposal will accept unvalidated data for purposes of waste characterization. EPA expects samples that undergo laboratory analysis will be validated in accordance with requirements in the associated QAPP.

9. **Section 5.2, pages 5-1 and 5-2, general comment.** This section was not revised in response to comment #20 from EPA's previous comment letter dated May 13, 2020. The EPA acknowledges that the waste profiles will be developed during the implementation of the RA as stated in this section. However, the excavation, stockpiling, and example loading procedures described in sections 7.2 through 7.5 assume that loading will be conducted adjacent to the excavation and generally within the same day, e.g., direct RIM loading without additional handling to comply with waste acceptance criteria. As stated previously in comment #20, the revised LTODP must include an expanded discussion of waste profiling activities potential impact on excavation procedures, waste management procedures, or the amount of time excavated RIM is on-site before being transported off-site. To resolve this comment, an acknowledgement must be added that an analysis of currently available waste acceptance criteria information indicates that some RIM at the West Lake Landfill Site exceed radiological concentration limits. Also, add a short summary of the efforts made during the design investigation to estimate the quantity of RIM that could potentially exceed the evaluated waste acceptance criteria. It is acceptable to reference Appendix I of the DIER. However, this section must include an acknowledgement of the relationship between loading procedures and waste acceptance criteria. In addition, summarize the concept of concentration averaging discussed in the DIER and how the evaluations in Appendix I of the DIER support the viability of direct loading.

10. **Section 6.0, page 6-1, first paragraph.** Ensure this paragraph includes a broader list of remedial action processes that have the potential to generate dust and additional traffic. For example, excavation and regrading of both RIM and Non-RIM waste whether being shipped off-site or relocated on-site has the potential to generate dust and odors. The transportation of the materials to the site necessary to construct the engineered cover will result in additional traffic.

11. **Section 6.2, page 6-2, general comment.** Comment 6 on Section 2.2 of the 90% RD from EPA's October 9, 2024, letter discusses additional information needs regarding the estimated timeframe under which the traffic study is being performed. A schedule submitted to EPA on November 18, 2021, included a line item for a traffic study with a scheduled start date of January 13th, 2022, and a scheduled completion date of July 11th, 2022. The line item for Traffic Design in that schedule has a scheduled finish date of January 7th, 2023. Typically, and as indicated in the proposed November 18, 2021, schedule, traffic studies should be performed during the remedial design so that the data is incorporated into the final LTODP and RD. Include additional information as to when this work was or is being conducted and when it will be incorporated into the LTODP. If this work has not been completed, state when it will be conducted and document any potential impacts to the remedial action schedule. If it does have the potential to impact the schedule, discuss the efforts being made now to mitigate any impacts. Ensure this section of the LTODP is updated as necessary for consistency with the 100% RD in response to this comment and EPA comment 6 in EPA's October 9, 2024, letter. Details and specs directly related to LTODP topics should be incorporated into the revised LTODP plan in the text or appendices.

12. **Section 6.3.1, page 6-4, first paragraph after the first bullet.** Include a discussion of the handling and management of the thick plastic sheeting/rigid HDPE plate liner materials used to construct temporary stockpile areas for RIM greater than 52.9 pCi/g. EPA notes that there is some discussion of the management of waste staging areas in Appendix C, specification 01 50 00. For example, item 1.02. G. 3. requires removal of liners when the staging area is no longer needed followed by off-site disposal. All Specifications and details related to LTODP work should be included in the LTODP and text must be added to specifically address management of these materials if they are used to stockpile RIM.

13. **Section 7, pages 7-1 through 7-4, general comment.**
    a. This entire section must be updated in accordance with the January 2025 ESD, especially with regards to the language related to the RIM Staging and Loading Building.

    b. Add a discussion or example steps in the revised LTODP to address the potential for liquid entrained in the excavated material to leach and form free liquids in the off-site shipping package. This discussion should acknowledge any requirements in the evaluated disposal facilities' waste acceptance criteria related to free liquids. EPA also notes that the response to comment 48 from EPA's May 13, 2020, comment letter states, "*If saturated RIM is encountered, it will be staged on the edge of the excavation to allow the material to drain. This material will be placed into containers by the end of each workday. If necessary, wet RIM will be conditioned with amendments, such as lime or polymer, to absorb any free liquids prior to placing the material into containers.*" Similar language specifically addressing how and where potentially wet waste will be drained or dried must be incorporated into the LTODP. The text must also include a description of how amendments like lime would be added and incorporated into waste. EPA notes that Section V.A. of the ESD states that if additives to reduce water content are needed, a RIM staging and loading building suitable to conduct these activities for whatever volume of waste is encountered will be required.

14. **Section 7.3, page 7-1, general comment.** This section must be significantly updated in accordance with EPA's October 10, 2025, comments on the 90% RD (e.g., comments 52, 53, and 64) in order to describe how the three excavated material categories will be identified in the field and how and where they will be stockpiled.

15. **Section 7.6, page 7-4, first paragraph.** The text states that each package will be subject to radiation dose rate surveys and swipe sampling to ensure the package exterior is free of radiological contamination. EPA notes that dose rate surveys will respond to gamma radiation and that RIM at concentrations greater than 52.9 pCi/g emits gamma radiation, especially if radium is elevated. EPA is concerned that dose rates surveys may not provide meaningful information about whether the outside of each RIM/waste package is contaminated since elevated readings would be expected due to gamma radiation that is coming from the RIM inside the package. Discuss how the gamma radiation being emitted from inside the waste packages will be accounted for in the outside package contamination screening process and discuss any procedures that will be implemented in the event that elevated dose readings are encountered.

16. **Section 8.2, page 8-3, last paragraph.** To ensure the purpose and goals of the "*Stennett Analysis*" are clear, additional information should be added to this section in the final LTODP beyond what is described in reference to Section 3.1.4.4 of the 2018 Final Feasibility Study. This information was included in comment 24 of EPA's July 12, 2021, comment letter. Specifically, this includes the following:
    a. Design – Facility should be design and operated to accept the waste while protecting human health (e.g., 10^{-4} to 10^{-6}) and the environment
    b. Safeguards - Safeguards to ensure protection human health and the environment include:
        i. Permit or ROD conditionals that address radiological risk
        ii. Groundwater Monitoring to ensure radiological releases do not compromise the groundwater as a resource (e.g., exceed MCLs)

iii. Waste management practices to limit public exposure to acceptable 10^{-4} to 10^{-6} risk range
iv. Corrective action requirements to ensure remediation if the disposal unit fails
v. Practices to ensure work protection (e.g., health and safety plans, waste analysis, and waste acceptance criteria (WAC))

c. Community Involvement – Ensure that the community is:
   i. aware of the potential for local radioactive waste disposal,
   ii. has been adequately informed, and
   iii. been provided the opportunity to comment

17. **Section 8.2.1, page 8-4, first paragraph.** EPA acknowledges that the inclusion of the letters, radioactive material license, and hazardous waste permits for Waste Control Specialist (WCS) as an appendix to this document is useful to better understand the facilities' regulatory requirements; however, this section includes very little discussion of the different disposal cells and related information that would support the conclusions in the first and last paragraphs. EPA will not require a "*Stennett Analysis*" for disposal of RIM from the West Lake Landfill Site in the WCS Compact Waste Disposal Facility (CWF) as it has been issued a radioactive material license from the state of Texas which is an "*Agreement State*" as allowed under Section 274 of the Atomic Energy Act for the disposal of Low-Level Radioactive Waste (LLRW) as defined in 10 CFR 61 and equivalent state of Texas regulations. However, for disposal of RIM in the WCS RCRA/TSCA (Subtitle C) landfill, some additional information is needed before EPA can determine whether a "*Stennett Analysis*" will be required. EPA acknowledges that the radioactive material license issued to WCS applies to both disposal cells but that the Subtitle C disposal cell is only permitted to receive exempt LLRW waste of roughly 10% of the Class A LLRW limits along with other criteria. Ultimately, EPA must be provided more specific information regarding the regulatory requirements of the WCS Subtitle C facility clarifying whether this disposal cell has been required to meet the state of Texas regulation equivalent to the federal requirements for disposal of LLRW in 10 CFR 61 prior to disposal of RIM from the West Lake Landfill Site so EPA can determine whether a "*Stennett Analysis*" will be required. If that information can't be obtained prior to submittal of the 100% RD, revise the text in this section of the LTODP to indicate that the Respondents believe or expect that a "*Stennett Analysis*" would not be required prior to disposal of RIM from the West Lake Landfill Site at the WCS Subtitle C facility and provide a timeframe for when the necessary information will be provided to EPA.

18. **Section 9.0, page 9-1, general comment.** Remove the citation to Appendix E of the 90% RD for the CQAP/CQCP because it should be a stand-alone document.

19. **Section 11.2, page 11-1, general comment.** Document how and when disposal certificates will be submitted to EPA.

20. **Figure 3, general comment.** Revise this figure to reflect updated site boundaries (i.e. include North surface water body), updated Area 1 and Area 2 boundaries, and updated OU-1 boundaries in accordance with the ESD and as they will be presented in the 100% RD. Update the legend to include the colored lines. EPA also notes that the CDL, ISL, and Bridgeton Landfill boundaries depicted on Figure 3 do not appear to be consistent with other figures provided with the 90% RD or historical permit boundaries. Revise for accuracy and add either a date or source citation for these boundaries as well.

Comments on the Construction Quality Assurance/Quality Control Plan (CQA/CQCP), March 2024

1. **Section 2.1.4, page 5, first paragraph in the section.** Consistent with the roles and responsibilities associated with each subsection in this section, add the Radiation Safety Officer to the list of support personnel in this paragraph.

2. **Section 3.2.4, page 11, general comment.** Add text stating the Remedial Action Report will be prepared in accordance with EPA Guidance and reference OLEM Directive 9320.2-23 dated 2022. (https://semspub.epa.gov/work/HQ/100003033.pdf)

3. **Section 4.0, page 13, general comment.** In order for EPA to have a complete set of documents related to the completion of the remedial action, add a requirement for the contractor to copy EPA on the final version of each submittal.

4. **Section 5.1, page 14, first paragraph.** EPA acknowledges that the final excavation plans will be subject to change based on the results of the confirmation sampling program. For clarity, add text that explains the construction drawings (also referred to as "*Contract Drawings*" in specification 02 61 13) will be updated to incorporate changes, if necessary, based on the results of the confirmation sampling. A revised confirmation sampling plan was submitted on March 6, 2025 and will be reviewed and ultimately approved as a standalone document rather than as an attachment to this plan.

5. **Attachment D:** Delete attachment D based on comment 4 above.

Comments on the Site Wide Monitoring Plan, March 2024

1. **Section 1.1, page 1, last paragraph.** Given that some of the commercial properties surrounding the site have parking lots immediately adjacent to portions of OU-1 and occupied building within a couple of hundred feet from OU-1, expand the paragraph to include some additional summary description of the proximity of the commercial and industrial properties to the site similar to the description of the residential areas. In addition, add an acknowledgement of the other on-site operation and workers that are currently present unrelated to any remedial design or future remedial action activities.

2. **Section 2.2, page 5, general comment.** Bill Weis has retired from MoDNR. Remove his name from this paragraph and replace with text indicating that Ryan Seabaugh is the primary contact from MoDNR for the West Lake Landfill Superfund Site.

3. **Section 2.4, page 5, general comment.** Since Ray D'Hollander has retired, please update this section as necessary.

4. **Section 3.0, page 6, first paragraph.**

    a. The sentence that begins with "*During RA*" is overly general such that the purpose of the air monitoring during the remedial action is unclear. The purposes of the air monitoring must be well defined in order to determine the extent to which the existing "*Air Monitoring, Sampling and QA/QC Plan*" is sufficient for that purpose. EPA recommends considering the following revision, "*During RA, the Air Monitoring, Sampling, and QA/QC plan requires monitoring capable of*

detecting impacts to air quality off-site as a result of the remedial action work sufficient to determine compliance with applicable or relevant and appropriate regulatory standards and to protect human health and the environment."

b. The next sentence states that on-site air quality for worker safety will be addressed through the development/modification of the RA Health and Safety Plan. EPA acknowledges that a separate air monitoring program to address worker health and safety as part of the RA Health and Safety plan is appropriate. However, it's unclear whether such a monitoring program and the related health and safety plan is intended to include monitoring to address potential impacts to air at locations where other on-site workers not involved with the remedial action may be working and at locations where remediation workers outside of an exclusion zone and/or radiation control area will be working. Revise the paragraph to clarify what document/monitoring program will include air monitoring to assess impacts to on-site air quality but outside of an exclusion zone or radiation control area.

c. This paragraph also states that the work zone monitoring will include VOCs, particulates and radioactive material. However, the Air Monitoring, Sampling, and QA/QC Plan included as Appendix A only specifies monitoring for radionuclides. Because the Contaminants of Concern for OU-1 of the West Lake Landfill include radionuclides, inorganic chemicals, pesticides/PCBs, and Volatile Organic Compounds (see tables 1 and 2 from the 2018 RODA), the Remedial Action air monitoring program needs to include monitoring to demonstrate protection of human health and the environment for the contaminants of concern that could impact the air quality and result in potential exposures, as well as, any constituents required in the list of applicable or relevant and appropriate requirements, e.g., 10 C.S.R 10-6.165, 10 C.S.R. 10-6.170. EPA acknowledges that the standard for dust control in 10 C.S.R. 10-6.170 does not specify dust concentration. However, the monitoring standard and related actions to perform this monitoring must also be described in the air monitoring plan.

d. The second to last sentence in this paragraph recommends the perimeter air monitoring program be discontinued upon completion of the RA. Because the phrase "*perimeter air monitoring program*" has not yet been defined in this paragraph, clarify whether this recommendation is specifically referring to all the monitoring specified in Air Monitoring, Sampling and QA/QC Plan. In any case, monitoring for radon must continue after the completion of RA to demonstrate compliance with the standards in 40 CFR 192.02(b)(2) given the cover system design includes the installation of passive vents that provide a migration pathway for radon that bypasses the engineered cover. This is also needed since the amount of radon will depend in part on the production and movement of landfill gas after the cover construction is complete. The number of monitoring locations and the monitoring frequency can potentially be reduced over time based on the results of the monitoring.

5. **Section 3.0, page 6, bullets, general comment.** These bullets should be updated as necessary to remain consistent with any changes to the Air Monitoring, Sampling, and QA/QC Plan made in response to EPA comments on Appendix A.

6. **Section 3.0, page 6, first bullet.**

   a. The second sentence is unclear. It appears that the intended meaning was to specify the pre-RA data will be used to evaluate whether data collected during the RA indicates any impact to air quality. Revise to clarify.

   b. The third sentence is also unclear. Define the evaluation mentioned at the beginning of the sentence. Clarify what "*data*" will be compared to the limits developed from the regulations mentioned in this sentence. Regardless, if the pre-RA data is going to be compared to these regulatory standards, clarify how this will inform the monitoring protocols once the RA starts or the evaluation of remedial action monitoring data.

   c. The fourth sentence states that the data collected prior to the RA will be considered baseline. EPA notes that the current/approved Air Monitoring, Sampling and QA/QC plan states, "*The current air monitoring program may not be appropriate to establish baseline conditions for the RA monitoring program.*" Whether the pre-RA data is reasonable to represent a baseline to support evaluation of the remedial action monitoring data will ultimately depend on the details of the RA monitoring program, e.g., comparability of the data, monitoring frequency, monitoring device, monitoring locations, etc. After addressing all of the EPA's other comments on this air monitoring program, reevaluate the comparability of the existing pre-RA data to the data that will be collected during RA. If there will be significant changes to the air monitoring program, implement those changes as soon as feasible so that a baseline can be established prior to the start of RA. Revise the fourth sentence of this bullet and other statement in this plan regarding the use of the existing Pre-RA data to establish baseline as necessary after addressing this comment.

   d. As stated in the EPA's approval letter dated July 24th, 2023, for the Year 8 Quarter 3 Air Monitoring Report, notice was provided that operation of an off-site background monitoring station(s) would be a requirement of the air monitoring program established in the Site Wide Monitoring Plan. Concurrent monitoring at background station(s) will support the evaluation of the perimeter data to determine whether there are impacts to the air leaving site during the RA. EPA recommends identifying at least two locations for background stations so that there is a backup in the event that power is lost, or equipment fails at one station. In addition, having two background stations in different locations can help ensure that at least one background station is generally upwind of the Site which provides additional assurance that the background station is not being impacted from the Site. Therefore, include a statement in the bullet that representative baseline data collected prior to the start of the RA, as well as, concurrent background data collected at an off-site location will be used to evaluate whether the monitoring results collected during RA identify indicate an impact to air quality. EPA also recommends identifying the background station locations soon so that some baseline data can be obtained from the background station prior to the start of RA.

7. **Section 6.0, page 9, first bullet.** The bullet states that the data collected during the RA will be compared with the baseline data to identify whether statistically significant increases have occurred. While EPA agrees with this proposal, EPA also notes that monitoring during the RA may also identify any significant changes to baseline that may have occurred as a result of RA activities. This data can be used to evaluate

whether impacts to groundwater are occuring after RA is completed. However, EPA does not believe quarterly monitoring during RA is necessary to achieve this objective. EPA recommends semi-annual monitoring during the portion of the RA that the excavation of RIM greater than 52.9 pCi/g is occurring for this purpose.

8. **Section 6.0, page 9, second bullet.** EPA agrees that sampling of the internal wells for OU-1 purposes during and after the RA can be discontinued as proposed. However, the wells that are internal to the site that will not be abandoned because of the OU-1 RA construction are still needed for OU-3 purposes (i.e. water levels, evaluation of the radium source(s)).

9. **Section 6.0, page 9, second bullet.** The second bullet states: "*The detailed sampling procedures, including equipment and analytical methods, are provided in the West Lake OU-3 RI/FS Work Plan (ERM 2020a) and in the OU-3 RI/FS Field Sampling Plan (FSP) (ERM 2020b). Post-RA, the monitoring will be performed in compliance with the substantive MDNR landfill requirements for post-closure care and corrective action in 10 CSR § 80-2.030 and USEPA CERCLA policy and guidance.*"

    a. While it is recognized that a subset of OU-3 groundwater sample data is being applied for OU-1 purposes, the OU-1 groundwater sampling, analytical, and data management expectations needs to be associated with a current QAPP. While aspects of quality assurance and data management are noted in the fourth and fifth bullet, no specific plans are ascribed to OU-1. Revise to clearly associate OU-1 data collection and management expectations with a current QAPP.

    b. Revise to clarify the extent to which the OU-3 Remedial Investigation plans will continue to apply after completion of the RA.

10. **Figure 3, general comment.** Revise this figure to reflect updated site boundaries (i.e. include North surface water body), updated Area 1 and Area 2 boundaries, and updated OU-1 boundaries in accordance with the ESD and as they will be presented in the 100% RD. Update the legend to include the colored lines. EPA also notes that the CDL, ISL, and Bridgeton Landfill boundaries depicted on Figure 3 do not appear to be consistent with other figures provided with the 90% RD or historical permit boundaries. Revise for accuracy and add either a date or source citation for these boundaries as well. It is also not clear what the purpose of the "*Landfill Boundary*" is in this figure and what it was based on. Revise for clarity or remove if it is not needed.

11. **Appendix A, Section 1.0, page 1, third paragraph.** EPA acknowledges that this paragraph explains work zone monitoring, including around excavation areas, will be specified in the RA Health and Safety Plan. However, it's not clear which monitoring program will address the potential for impacts to air outside of remediation work-zones that are still on-site. EPA provided a similar comment on this topic for Section 3.0 of the Site Wide Monitoring Plan. EPA expects the RA Health and Safety Plan and Radiation Safety Plan to require occupational monitoring, as well as, use of personal protective equipment appropriate for the specific hazards associated with a particular job. However, radiation worker permissible exposure limits are higher than for members of the public. Because both remediation workers and other on-site personnel not involved in the remediation work are expected to be present outside of excavation area work zones but on-site, monitoring is also necessary to address potential exposures to those individuals. EPA acknowledges that figure 4-2B does propose some monitoring stations to be located within the overall site boundary, e.g., A7, A10, A11, A-14. Revise this paragraph to further define

what is meant by "*perimeter air monitoring*" in this paragraph and how that is different from work zone monitoring. EPA expects the location(s) of work zones to change throughout the RA but it would be helpful to provide a figure that shows an example of the physical location of both. Also, expand the introduction or include additional information in another relevant section that explains how the potential for air impacts in locations outside of active work zones on-site will be monitored to prevent exposures to other on-site personnel.

12. **Appendix A, Section 1.1, page 1, general comment.** Given the proximity of some of the neighboring commercial properties to the Site including, but not limited to, the Crossroads Industrial Park, some additional description is needed of the land use immediately surrounding the Site since the remedial action monitoring program is also in place to monitor the air at the boundaries of the Site closest to those individuals and businesses. Revise the paragraph by including a summary description of the Site surroundings.

13. **Appendix A, Section 1.3, page 2, general comment.** This section does not discuss all the contaminants of concern (COC) listed in the 2018 Record of Decision Amendment for OU-1. Revise the section by including this list and ensure the monitoring program addresses all COCs that could migrate through the air during the remedial action. An explanation must be provided for each COC that will not be monitored as part of this program that specifies why such monitoring is not necessary to protect human health and the environment or comply with applicable or relevant and appropriate requirements (ARARs).

14. **Appendix A, Section 1.3, page 2, second paragraph.** This paragraph states that the pre-RA air quality data will be compared to the RA data in accordance with ARARs. Expand the discussion in this paragraph by specifying which ARARs this sentence is in reference to and how the comparison of the two data sets will inform compliance with those ARARs.

15. **Appendix A, Section 1.3, page 2, third paragraph.** The intent of this paragraph is not clear. EPA expects a remediation worker health and safety plan to require air monitoring for remediation workers. However, the air monitoring program specified in this plan must address all the COCs at the site and provide data to determine whether there are impacts to air quality and to ensure the protection of human health and the environment outside of exclusion zones, radiation control areas, and off-site. If this air monitoring program and the associated protocols will be informed by or rely upon data from the worker health and safety monitoring program, this must be defined in this plan and the relevant monitoring procedures and protocols for the worker health and safety program must also be included. Revise this paragraph and section as necessary to address this plan.

    a. As discussed in the comments on Section 3 of the Site Wide Monitoring Plan and in Section 1 of this appendix, additional information is necessary to clarify the intent of the two air monitoring programs and to ensure adequate air monitoring is being conducted to evaluate potential impacts to air quality at nearby receptors both on-site and off-site. Because the permissible exposures and relevant air concentrations for remediation workers which also may be required to wear personal protective equipment are significantly different from the general public, additional explanation is needed to describe whether and how the monitoring program for remediation worker health and safety will inform the perimeter monitoring program. For example, explain what monitoring protocols will change or what actions will be taken in the

event that an on-site worker health and safety air monitoring result is above baseline but below worker safety levels.

b. The second to last sentence of this paragraph states corrective actions can be implemented in a time appropriate fashion based on the results of the worker safety monitoring to be specified in the Contractor's RA Health and Safety Plan. It's unclear what the basis for triggering these corrective actions would be and what the corrective actions would be intended to address, e.g., to eliminate or reduce a hazard to remediation workers or to prevent unacceptable impacts to the air outside of work zones. Clarify the purpose or purposes of the air monitoring program to be specified in the RA Health and Safety Plan.

c. The last sentence of the paragraph states, "*Active particulate and VOCs will also be monitored for in the vicinity of the excavation.*" This statement is unclear. Specify the objective(s) of this monitoring, clarify what is meant by "*active*", and clarify what distances will be considered to be "*in the vicinity*" of any excavation.

16. **Appendix A, Section 2.0, page 3, first sentence.** Delete the word "*begin*" in the first sentence of this paragraph or revise for clarity.

17. **Appendix A, Section 2.1, page 3, general comment.** This section must be revised to better describe the intended use of both the Pre-RA and RA data. The first sentence states that data collected during the RD will be the basis for informed decisions regarding the health and safety of the workers and the public. Either in this section or in other appropriate sections, the plan must specify how this data will be used to make decisions about the health and safety of the workers and the public.

    a. The first bullet describes establishing the baseline levels of COCs at the fence line of OU-1. EPA assumes the intent of this bullet is to specify that the pre-RA data will be used to establish baseline levels for this air monitoring program. Revise the bullet to clarify and add a description of how baseline levels will be established using this data. Also, see part c to the EPA's comment on Section 3 of the Site Wide Monitoring Plan above and revise as necessary.

    b. EPA acknowledges that bullets two and three describe that a comparison of the pre-RA air data to the results during the RA will be used to assess if releases of COCs from the Site may have occurred. However, information must be added regarding how this assessment will be conducted and describing the differences identified in the comparison between the two data sets that would be considered a potential release of COCs.

    c. Expand the fourth bullet by listing the air-related applicable or relevant and appropriate requirements and the associated limit that will be confirmed through this air monitoring program. Also, expand the fifth bullet by specifying the "*air-related*" remedial action objectives that will be confirmed to have been achieved. Also clarify, how the monitoring proposed in this plan will be used to confirm these remedial action objectives.

18. **Appendix A, Section 2.2, page 3, general comment.** Expand the section to include how information gathered by air monitoring will be used to assess and determine if there are impacts to air quality or if

releases of site contaminants of concern have occurred and provide some examples of possible necessary response actions.

19. **Appendix A, Section 2.3, page 3, general comment.** Unlike the previous sub-sections in this section that use terms like "*air quality*" and "*levels of COCs*" regarding the use of the monitoring data from this air monitoring program, this section uses the term "*radioactivity*" in three of the five bullets. Define the term "*radioactivity*" in the context of this plan and ensure the section addresses all the appropriate COCs that could impact air quality during the RA.

20. **Appendix A, Section 3.0, page 4, general comment.** This section only proposes to obtain alpha, beta, gamma dose, radon, and periodic radium, thorium, and uranium data. The air monitoring program must address the other potential airborne COCs identified at the West Lake Landfill. Revise the section by proposing monitoring for other COCs and include justifications, if necessary, for any COCs that are not being proposed for monitoring in this plan that explain why such monitoring is unnecessary to protect human health and the environment.

21. **Appendix A, Section 3.0, page 4, second paragraph.**
    a. This paragraph states that continuous radioactive particulate samples will be analyzed in four week, or 28-day intervals and that the analysis of these samples will include Isotopic uranium, thorium, and Ra-226 once per quarter (roughly one out of three samples per quarter). Given that sample analysis and data validation typically take about 45 to 60 days, this means that radium, thorium, and uranium air monitoring data would likely not be available until nearly three months after excavation activities begin during the remedial action assuming that the first air monitoring samples are selected for isotopic analysis. This proposal does not provide a reasonable time frame to assess air quality and the adequacy of any engineering control after excavation activities begin. Propose an alternative in this plan that will provide data in a more reasonable timeframe so that modifications to controls, if necessary, can be made in a timely fashion.

    b. The last sentence of this paragraph references Section 4.4 for information about the USEPA approved methods for analysis of all samples. Section 4.4 is title Project Organization and Responsibilities and does not contain such information. Correct the reference.

22. **Appendix A, Section 4.1 and Figure 4-2b, pages 5 and 6, general comment.**
    a. EPA has reviewed Figure 4-2b and agrees that monitoring locations should be added and adjusted from the existing monitoring locations to address the expected conditions and potential for impacts to air quality during the remedial action. Each location (existing and new) should be assessed to evaluate whether they are placed at an appropriate height and location with respect to buildings, excavation areas, and air flow. EPA is concerned the current proposal does not result in sufficient monitoring to adequately address the potential for impacts to off-site air quality. For example, the 90% Remedial Design proposes a significant volume of landfill waste to be regraded along most of the western and northern slopes of the Inactive Sanitary Landfill and Area 2 very near the landfill fence line to construct the engineered cover. EPA is concerned that the spacing of these monitors and their proximity to elevated excavation work will not provide the data necessary to evaluate whether COCs are impacting air quality while this excavation work is occurring. EPA believes this may require some expansion of the air monitoring network and/or relocation of monitors. Revise the section to explain how the proposed monitoring locations and

program will address the potential for impacts to air quality where elevated landfill wastes will be disturbed and consider the appropriateness and feasibility of adding monitoring locations beyond the fence line on adjacent property.

b. The third paragraph on page 5 states, "*several years of on-site meteorological data have been collected and will be used to evaluate whether any changes in monitoring locations are needed in the future.*" This evaluation should also include the presence of any obstructions, such as buildings. The evaluation must be completed and presented in the final plan. Any necessary changes based on the evaluation, need to be documented and incorporated into the revised version of this plan.

c. The first paragraph on page 6 states that the "*inventory of equipment or COCs may change if new information becomes available during implementation of the RA.*" Please clarify by providing an example of the information that may become available during the remedial action that could result in a change to the COCs for the site or the air monitoring equipment. Also, as stated in previous comments, ensure the revised plan and this section, where appropriate, include monitoring to address all the COCs that have the potential to cause impacts to air quality during the remedial action.

d. The third paragraph on page 6 states, "*The sample obtained during the middle four-week period of each quarter is also analyzed for isotopic thorium, uranium, and radium.*" No explanation is provided for why the primary radiological COCs at the Site are only being sampled for four months out of the year even though excavation activities involving RIM will likely be going on throughout the year. Revise the plan by specifying that each air sample will be analyzed for the radiological COC's unless there is a compelling justification for why this data is not necessary to evaluate whether there are impacts to air quality during the RA. It's also unclear what monitoring objectives the gross alpha and gross beta analyses proposed for the first and third four-week periods in each quarter will support and how those results can be used to determine whether COCs are being released from the Site during the remedial action. In general, additional information must be added to the appropriate section(s) of the plan specifying how the gross alpha and beta results will be used. EPA acknowledges that Section 6.6 generally describes that all radionuclide data from each monitoring station will be statistically evaluated against each other to determine if one or more monitors indicate elevated readings. EPA assumes that the gross alpha and gross beta results will be used for this purpose. Revise the plan by listing all the specific uses of the gross alpha and gross beta results. This information is necessary to determine whether the specified data quality is appropriate for such uses.

e. The fourth paragraph of this section describes air monitoring equipment that personnel involved with sample collection and monitoring station maintenance will wear. If monitoring for these constituents is needed to address the potential for the remedial action work to result in impacts to air quality offsite as described in section 3.0 of the Sitewide Monitoring Plan, then the plan must be revised to fully incorporate these constituents into the plan. Otherwise, this sentence should be removed to ensure this plan clearly describes remedial action air monitoring program.

23. **Appendix A, Section 4.2.3, page 7, first paragraph.** Clarify who is responsible for generating the verification and validation reports. In addition, add a statement specifying that these reports will be provided to EPA.

24. **Appendix A, Section 4.2.3, page 7, third paragraph.** This paragraph states that air monitoring report frequency will be quarterly and that reports will be submitted to EPA 60 days after validation of all the data for the quarter. The timeliness of this proposal for providing air monitoring results to EPA is unacceptable. EPA acknowledges that some sample analyses and related data evaluations may require more effort and therefore take more time to complete than others. However, the proposal appears to indicate that air monitoring reporting would not be provided to EPA until six to seven months after the start of remedial action. The discussion of the timing of data delivery in this section must be expanded to include considerations of data and reporting products that can be provided much faster and can also include other data analysis and reporting that will require additional time to complete. Simplified reports that can be made available to the public on a much more frequent basis will be necessary during the RA. These reports can be modified as the remedial action progresses to summarize some of the longer-term data evaluations. The air monitoring program should be designed to support developing these types of summary reports. Define and include requirements for this type of reporting where appropriate in the revised air monitoring plan.

25. **Appendix A, Section 5.1, page 8, second paragraph.** Clarify any procedures or measures that will be taken to prevent cross-contamination during sample handing as mentioned in the first sentence of this paragraph.

26. **Appendix A, Section 5.2, page 9, general comment.** The title of this section is Air Sampling, Monitoring, and Analytical Equipment but it includes only a general reference to "*air sampling equipment*". Expand the section by including a description of the actual air sampling and monitoring equipment that will be used.

27. **Appendix A, Section 5.2.1, page 9, fourth bullet.** For clarity and accuracy, the portion of the bullet specifying that two halves cut from a single air filter will serve as co-located samples should be changed to indicate the two halves will provide a measure of variability within the filter media.

28. **Appendix A, Section 5.2.1, page 9, fifth bullet.** Revise the criteria to specify when each of the two options will be used or clarify what data quality conclusion would be applied to data that exceeds only one of the two options.

29. **Appendix A, Section 5.2.3, page 10, general comment.** This section must be expanded to further explain how the sampling plan has been designed and procedures have been developed to assure results are representative of on-site conditions. This expansion should also include a description of the conditions expected during the remedial action that the program is being designed for.

30. **Appendix A, Section 5.2.4, page 10, general comment.** Revise the section by including descriptions and/or criteria for rejecting data.

31. **Appendix A, Section 5.2.5, page 11, general comment.** Given that the primary use of the pre-RA monitoring data will be to establish a baseline to compare to monitoring data collected during the RA,

expand the discussion of the methods and procedures that improve comparability or if altered could impact comparability.

32. **Appendix A, Section 5.2.6, page 11, general comment.** This section must be expanded to include necessary detection limits for each monitoring type and constituent. The section should explain why the specified detection limits are expected to result in sufficient data quality to make the decisions with the data specified elsewhere in the plan.

33. **Appendix A, Section 6.3, page 14, paragraph at the top of the page.** This paragraph states that data validation will occur within 60 days of receipt of data from the laboratory. This time frame is not reasonable for evaluating impacts to air during the remedial action. Validated data to evaluate site conditions would not be available until three months or more after sample collection begins. The remedial action air monitoring program must be modified so that impacts to air quality can be determined sooner than three months after sample collection begins.

34. **Appendix A, Section 6.6, page 16, general comment.** EPA agrees that a statistical analysis of air monitoring data is an important tool for evaluating data and making decisions about whether there are impacts to air quality as a result of remedial action activities, the effectiveness of engineering controls, and potentially compliance with ARARs. However, test statistics and other details of how the statistical analyses will be used to evaluate the data must be specified in order to determine whether the proposed monitoring approach and sampling methodologies are sufficient. Revise the section to include the additional information.

35. **Appendix B, Section 1.0, page 1, first paragraph.** This paragraph states that because the OU-1 cover on the Construction and Demolition Landfill (CDL) will not extend near the waste boundary, no gas monitoring is proposed for this part of the site in this plan. No map or figure or other information has been included with this plan identifying the location of the "*waste boundary*" or its proximity to the OU-1 cover. In addition, the figures included with this monitoring plan include only the estimated extent of RIM as presented in the October 20th, 2023, Design Investigation Evaluation report rather than the OU-1 cover extent. EPA notes that design drawings indicate that cover structures and materials will extend beyond the RIM. Therefore, EPA cannot evaluate the accuracy of this claim.

    In addition, it's unclear to EPA how the distance between the edge of the OU-1 cover and the waste boundary would eliminate the potential for landfill gas produced from the waste underneath the OU-1 cover to migrate off-site. EPA also notes that the eastern edge of the extent of RIM in this portion of the Site is less than 75 feet from the existing fence line and only roughly 100 feet from the CDL permit boundary. The CDL permit boundary depicted on the figure included with this plan is also not accurate. Therefore, an additional landfill gas monitoring well must be added between GMP-OU1-7 and GMP-OU1-8.

36. **Appendix B, Section 1.1, page 2, the rest of the text in this section.** To prevent confusion and maintain accuracy, the descriptions of Area 2 should be revised for consistency with comment 1 of the 90% RD comment letter dated October 10, 2024, and with the January 16, 2025 Explanation of Significant Differences. In addition, the last paragraph should also include a sentence describing the inert fill piles and associated slope changes located within Area 1 and Area 2.

37. **Appendix B, Section 1.2, page 3, second full paragraph.** This paragraph states, "*For each proposed gas monitoring well location, the lowest groundwater elevation observed in the nearest alluvial groundwater monitoring well(s) was used to determine the approximate lowest groundwater elevation at the proposed gas monitoring well location. In general, groundwater elevations in the alluvial zone do not vary substantially, spatially or temporally, and horizontal hydraulic gradients typically range between approximately 0.0001 and 0.001.*" Revise this paragraph using the groundwater flow directions, potentiometric surface maps, and hydraulic gradients from the most recent OU-3 reports, such as the OU-3 Annual Hydrogeologic and Site Characterization Report for 2023 and 2024. Hydrogeologic information in these two Annual Reports represent the current understanding of groundwater flow directions.

38. **Appendix B, Section 1.2, page 3, last paragraph.** This paragraph states, "*…the approximate elevation of the top of saturated alluvium near each proposed gas monitoring well location was evaluated as described above.*" However, no text presented in this section describes this evaluation. EPA acknowledges that Figure 2 presents the lowest groundwater elevation observed between October of 2021 and September of 2022. Additional text must be added to explain how the elevation of the top of saturated alluvium near each proposed gas monitoring well location was estimated.

39. **Appendix B, Section 1.2, page 4, first paragraph.**
    - **a.** This paragraph states the groundwater surface in the alluvium generally appears to vary between elevation 427 and 432 feet above mean sea level (ft AMSL) based on groundwater elevation data collected between October 2022 and September of 2023. However, the legend on Figure 2 which is also referenced in this paragraph states that the lowest groundwater elevation data is presented between October of 2021 and September of 2022. Clarify which data was evaluated in the text and make any necessary corrections. In addition, the depth range included in this paragraph appears to correspond to the lowest groundwater elevations depicted on Figure 2, e.g., groundwater elevations of 426.9 ft AMSL at MW-401-P1 and 431.72 ft AMSL at MW-104. Clarify whether seasonal variation in groundwater depths was observed and whether such variation was accounted for in the depth range included in the sentence.

    - **b.** The sentence goes on to state that the bottom of waste in Area 1 and Area 2 is mostly above 427 and 432 ft AMSL and that in general the base of refuse is located above the saturated zone. It's not clear that is the case based on Figures 3, 4, and 5 which depict the estimated elevation of the base of refuse in Area 1, Area 2, and the northern portion of the Inactive Sanitary Landfill (ISL). To clarify, add polygons or boundaries to these figures that depict the portions of the landfill areas that have estimated base of refuse below the groundwater surface in the alluvium.

    - **c.** The paragraph goes on to state that there are isolated areas within Area 1, Area 2, and the ISL where refuse may be saturated, at least on a seasonal basis. However, Figure 2 depicts that the lowest elevation for any groundwater monitoring well around the site at 426.9 while the deepest bottom of waste elevation in Area 1 to be 419.560' and in Area 2 to be 420.048'. The figure does not depict the lowest elevation in the northern portion of the ISL but states in the text on page 3 that it is estimated to be 416 ft AMSL. Given that these elevations are 6-10 feet below the lowest groundwater elevation measurement, the conclusion that the wastes in these locations may be saturated only on a seasonal basis does not appear to be correct. Revise for accuracy.

40. **Appendix B, Section 2.0, page 4 and 5, paragraph that spans the page.** This paragraph appears to present a summary of the methane monitoring that has been performed in or around OU-1 in the past. This summary does not include any description of the results from the methane readings in Table 4-7 of the original RI report which is mentioned on page 4. In addition, EPA provided comments on Section 3.1 of the DIER related to methane occurances during the Design Investigation which resulted in revisions to that section. Update this paragraph to include a summary description of the methane occurances encountered during the original Remedial Investigation and the additional methane occurrences encountered during the Design Investigation that were added to Section 3.1 of the revised DIER.

41. **Appendix B, Section 3.0, page 5, first paragraph.** This paragraph states that the proposed monitoring program will be installed as part of the OU-1 Remedial Action. However, this does not seem to be consistent with section 4.0 of the Site Wide Monitoring Plan which states, "*Installation of new gas monitoring wells around OU-1 will occur following EPA approval, pending contractor availability. Methane monitoring will continue through RA to evaluate if installation of the landfill cover system changes the distribution of methane gas at the landfill perimeter.*" EPA also notes that Section 3.2 states that the data collected through this program will be provided with monthly reports required under the "*2019 Third Amendment to Administrative Settlement Agreement and Order on Consent and Statement of Work, Docket No.: VII-93-F-0005 (ASAOC)*" which does not include remedial action. Revise this paragraph to clarify the timing of the installation of the landfill gas wells and implementation of the monitoring program. Installation of landfill gas wells should proceed as soon as possible after the plan is approved.

42. **Appendix B, Section 3.1, page 5, first paragraph in the section.** The paragraph states that gas monitoring wells will be installed to whichever of these two depths is shallower, three feet below the lowest elevation of local alluvial groundwater observed in the vicinity of the proposed well over a twelve-month period or saturated conditions encountered during drilling activities. Figure 2 and the text in section 1.2 state the bottom elevation of waste in OU-1 to be between 416 and 420 ft AMSL. Section 1.2 also states the groundwater surface in the alluvium varies between 427 and 432 ft AMSL. The proposed protocol to determine the depth of the landfill gas could result in landfill gas wells being installed 10 to 15 feet above the depth of waste depending on the groundwater level at the time of drilling. State regulations require that "*Gas monitoring wells shall be designed to monitor the unsaturated soil and rock down to an elevation equal to the bottom elevation of the landfill.*" (10 CSR 80-3.010(14)(B)1.C) The proposed design for the depth of the landfill gas wells does not appear to be consistent with this requirement. The new landfill gas wells should be installed to the same elevation as the depth of waste, even if that waste is saturated at the time of installation.

43. **Appendix B, Section 3.2, page 6, last paragraph.** As noted above in comment 43, the ASAOC does not include remedial action. Revise this paragraph to clarify the timing of submittals during the RA.

44. **Appendix C, Section A.3, page 1 and Table 1.** Replace Bill Weis with Ryan Seabaugh for the MoDNR contact on the distribution list and in Table 1.

45. **Appendix C, Section A.5, bottom of page 2 and top half of page 3.** Most of the background information presented in this section is no longer relevant for the Site Wide Monitoring Plan which relates to stormwater monitoring required to support the remedial action. This information should be replaced

with a description of the remedy components and remedial actions that necessitate stormwater monitoring in accordance with the applicable or relevant and appropriate regulations.

46. **Appendix C, Section A.5, bottom half of page 3 through page 6.** The QAPP goals must be revised to address the specifics of the remedial action and need to demonstrate compliance with related ARARs. The 90% Design also discusses MSD stormwater quality requirements in Section 4.3 that must be met for stormwater discharges leaving the Site. The plan should be updated to incorporate these requirements. EPA acknowledges that the stormwater monitoring outfalls and plan details may need to be updated during the remedial action. However, the plan must include discussion of the other features described in the design such as the temporary and potentially permanent stormwater basins and any monitoring that is necessary for those designed features. It must also include sampling where necessary to evaluate OU-1 stormwater discharges prior to any mixing with other stormwater or discharge onto other permitted landfills at the Site. The revisions to this section should also include descriptions of any additional sampling points that may be necessary based on information provided in the 90% RD. See comments 28(b), 28(c), 28(d), 29, 31(c), 35, 84, 123 in EPA's October 10, 2024, comment letter on the 90% RD Report for additional discussion of topics that may be relevant for making appropriate updates to this plan.

47. **Appendix C, Drawing #002.** EPA acknowledges that this map depicts the current stormwater flow paths, catchment areas, discharge points, and inspection points. However, no planned design features or specific information relevant for the remedial action are depicted. Similar to the previous comments, this figure must be replaced, or an additional figure(s) be added to depict stormwater flows, catchment areas, discharge points, and inspection points consistent with the proposed design both during and after the remedial action. EPA acknowledges that this plan may change in the future during and after the remedial action.

48. **Appendix D, Section 1.0, page 1, first paragraph.** Revise the first sentence to clarify that this is the OU-1 groundwater monitoring plan, not a summary of the plan and as such it must include the appropriate level of detail to specify the necessary groundwater monitoring for OU-1.

49. **Appendix D, Section 1.1, page 1, last paragraph.** This paragraph states that groundwater sampling events separate from OU-3 Remedial Investigation efforts are not anticipated to support the OU-1 groundwater monitoring program. EPA notes Section 1.0 of this plan references Section 12.2.6 of the OU-1 Record of Decision Amendment (RODA) which specifies the requirement for the development of a long-term groundwater monitoring program during the remedial design. This section of the RODA also describes the specific purposes of the OU-1 groundwater monitoring plan separate from OU-3 efforts. EPA also notes that section 13.2.3 of the RODA specifies that the requirement for a groundwater monitoring program specified in 10 C.S.R 80-3.010(11) is relevant and appropriate. Therefore, the OU-1 Respondents must ensure that the OU-1 groundwater monitoring program meets the requirements in the 2018 RODA. After addressing all of EPA's comments on this groundwater monitoring plan and the associated groundwater monitoring report, evaluate and confirm that the OU-1 groundwater monitoring objectives, sampling protocols, and data quality requirements are being met through the OU-3 remedial investigation and associated workplans and planning documents. Add a statement to this section that the OU-1 Respondents are responsible for determining whether the OU-3 sampling program provides the necessary data to fulfill the OU-1 groundwater monitoring requirements.

50. Appendix D, Section 1.1, general comment. The following comments pertain to the ability of GWMP activities to meet the stated GWMP objectives and regulatory requirements.

a. No background groundwater sampling is proposed. Revise the GWMP to include the collection of background groundwater quality data, consistent with relevant and applicable requirements and specific to the purposes below.

i. To determine background water quality in groundwater near the landfill per 10 C.S.R. 80-3.010(11)(B)3.A for sanitary landfills [10 C.S.R. 80-4.010(11)(B)4.A for demolition landfills] (7/31/98)

> *3.[4.] Groundwater monitoring wells shall be capable of yielding groundwater samples for analysis and shall consist of –*
>
> > *A. Monitoring wells (at least one (1) installed hydraulically up gradient; that is, in the direction of increasing static head from the sanitary [demolition] landfill. The numbers, locations, and depths shall be sufficient to yield groundwater samples that are --*
> >
> > > *(I) Representative of background water quality in the groundwater near the sanitary [demolition] landfill; and*
> > >
> > > *(II) Not affected by the sanitary [demolition] landfill …*

ii. To establish a background baseline per 10 C.S.R. 80-3.010(11)(C)3 for sanitary landfills [10 C.S.R. 80-4.010(11)(C)3 for demolition landfills] (7/31/98)

iii. To calculate statistics in support of detection monitoring decisions per 10 C.S.R. 80-3.010(11)(C)6 for sanitary landfills [10 C.S.R. 80-4.010(11)(C)6 for demolition landfills] (7/31/98)

iv. To support selection of concentration limits per 40 C.F.R. 192.02(C)(3) (1/11/95)

b. The final paragraph on page 1 states: "*Groundwater monitoring well installation and groundwater monitoring is being performed under the OU-3 RI/FS Work Plan (ERM 2020a) and Field Sampling Plan (ERM 2020c). … It is not anticipated that separate groundwater sampling will be performed to support the OU-1 program, but rather that OU-1 will use the groundwater monitoring data collected during OU-3 events.*"

i. Revise to clearly associate OU-1 data collection and management expectations with a current QAPP.

ii. Revise the GWMP to clarify whether the OU-3 RI/FS Work Plan details the procedures and techniques required by 10 C.S.R. 80-3.010(11)(C)2.A(I-XVII) for sanitary landfills [10 C.S.R. 80-4.010(11)(C)2.A(I-XVII) for demolition landfills] (7/31/98). If not, revise to include or cite the other procedures.

51. Appendix D, Section 2.0, general comment.

a. Neither Section 2.0 nor another introductory section describes the age, configuration, contents, or operational periods of the landfills within OU-1. Revise the GWMP to include this source information, which will inform the understanding of contaminant transport within the hydrogeologic setting. It is reasonable to reference OU-3 documents that have some this information but relevant information not in OU-3 documents must be added to the OU-1 plan.

b. Significant high resolution site characterization work for OU-3 has helped refine the site hydrogeological setting. Revise Section 2.0 to cite and, as appropriate for OU-1, incorporate the conceptual site model (CSM) updates from the OU-3 Annual Hydrogeologic and Site Characterization Reports. For example, because most of the groundwater monitoring proposed in this GWMP is in alluvial wells, the time stratigraphic units discussed in recent OU-3 Annual Hydrogeologic and Site Characterization Reports may warrant additional consideration.

c. Revise Section 2.0 to frame the site hydrogeology discussion consistent with the characterization expectations of 10 C.S.R. 80-3.010(11)(C)1.A for sanitary landfills [10 C.S.R. 80-4.010(11)(C)1.A for demolition landfills] (7/31/98) and confirm that the number, spacing, and depths of the monitoring wells selected for the GWMP network meet the requirements in these regulations.

d. Acknowledge that the CSM will continue to evolve as the OU-3 RI progresses, which may necessitate the need for future modification of the GWMP.

52. **Appendix D, Section 2.0, page 2, first bullet.** This bullet states, "Groundwater is present within unconsolidated alluvial deposits immediately below waste materials." However, this is not accurate based on the presentation in the landfill gas monitoring plan of the base of waste elevations and groundwater elevations. Revise the statement for accuracy and consistency after resolving EPA's comments on the landfill gas monitoring plan.

53. **Appendix D, Sections 2.1 and 2.2 and Appendix A, general comment.** Future revisions of the GWMP and GWM reports and addenda must utilize the most recent information from the OU-3 remedial investigation efforts.

54. **Appendix D, Section 2.1, pages 2 and 3, paragraph that spans both pages and the first full paragraph on page 3.** Revise these paragraphs and Section 2.1 using the groundwater flow directions and potentiometric surface maps from the OU-3 2024 Annual Report, which confirm that flow is generally northwest but with significant changes to flow direction across OU-1 when the Missouri River is at high stage and becomes a losing stream. The 2024 Annual Report documents that for the roughly four-month period from April to August 2024, high river stage caused a 90-degree change in flow direction from northwest to northeast across OU-1 in both the alluvium and bedrock aquifers. This temporary change in flow direction can result in the northeast boundary of OU-1 (parallel to St. Charles Rock Road) becoming the downgradient side.

55. **Appendix D, Section 2.1.1, page 4, general comment.** EPA would consider eliminating I-66, S-8, I-62, and D-83 if an evaluation of the depths and data from the newer nearby wells, e.g. MW-401 and MW-402 wells clusters, indicates there may be some redundancy. Submit this information with revised plan.

56. **Appendix D, Section 3.1, general comment.** The following comments pertain to Section 3.1, Baseline Monitoring.
    a. The second paragraph of Section 3.1 begins: "*The results from the Baseline monitoring events will be used to establish statistical limits (e.g., prediction intervals), using one of the methods for the statistical evaluation of groundwater monitoring data from solid waste landfills, as specified in Title 10 of the Missouri Code of State Regulations (CSR) 80-3.010(11)(C)5 (7/31/98).*" Consistent with 10 C.S.R. 80-3.010(11)(C)2.A(I-XVII) and 10 C.S.R. 80-3.010(11)(C)5 for sanitary landfills [10

C.S.R. 80-4.010(11)(C)2.A(I-XVII) and 10 C.S.R. 80-4.010(11)(C)5 for demolition landfills] (7/31/98), the GWMP must include the statistical testing strategy for each parameter's concentrations. Revise the GWMP to specify the statistical method(s) to be used in evaluating groundwater monitoring data for each monitoring constituent. If a method is expected to vary, the approach to selecting the most appropriate method.

b. The second paragraph of Section 3.1 states: "*These limits will be used to evaluate changes in constituent concentrations or extents during and following the RA process (including as a metric of remedy performance).*" Revise the GWMP to clarify how a significant change in concentration or extent will be established, and what criteria will determine the effectiveness of remedy performance.

57. Appendix D, Section 3.2, general comment.

a. The second paragraph of Section 3.2 states: "*An exceedance of a statistical limit will be regarded as an initial, or unconfirmed, statistically significant increase (SSI). … If the limit exceedance is repeated during the following [RA monitoring] event, it will be regarded as a confirmed SSI.*" As proposed, the repeat sample would be an independent sample, collected under distinct seasonal conditions, and would not represent a confirmation of the initial SSI sample. If a repeat sample is necessary to confirm an SSI, revise to indicate that it will be collected as soon as possible following notification of the initial sampling result.

b. The third paragraph of Section 3.2 states: "*If needed, the statistical limits may be updated in these reports to incorporate more recent data (including RA monitoring results) in order to reflect changes in groundwater conditions over time and reduce the likelihood of false positives.*" Delete this statement. Incorporating RA monitoring results into statistical limits would prevent the comparison of RA monitoring data with baseline data that is independent of RA effects. Monitoring data from background wells unimpacted by the remedy may be used to assess changes in groundwater conditions over time and whether these might result in false positives. EPA may consider proposals in the future to change a baseline with supporting data results and evaluation justifying the change.

58. Appendix D, Section 3.3, general comment. The following comments pertain to statements in Section 3.3, Post-RA Monitoring.

a. The second paragraph of Section 3.3 states: "*Similar to RA monitoring, the results of each post-RA monitoring event will be compared to the statistical limits established from the Baseline monitoring results, updated as necessary based on RA monitoring results.*" Part b of EPA's comment on section 3.2 applies here as well and so delete everything after "*…monitoring results*".

b. The second paragraph of Section 3.3 also states: "*The same verification sampling procedures used to determine confirmed SSIs during RA monitoring will be used during post-RA monitoring.*" Part a of EPA's comment on Section 3.2 applies here. Revise this statement accordingly.

c. The third paragraph of Section 3.3 states: "*The reports will … evaluate the remedy's performance based on the monitoring results and recommend appropriate monitoring reductions.*" Revise this paragraph to clarify what criteria will determine the effectiveness of remedy performance,

providing next steps for both positive and negative outcomes. In addition, Replace the word "*reductions*" in the second sentence with "*frequency changes*".

d. The third paragraph of Section 3.3 also states: "…*the statistical limits may be updated in these reports to incorporate more recent data (including RA and Post-RA monitoring results) in order to reflect changes in groundwater conditions over time and reduce the likelihood of false positives.*" Part b of EPA's comment on section 3.2 applies here as well and so the statement must be deleted.

59. Appendix D, Section 4.0, general comment. For the future OU-1 deliverables discussed in section 3.0, little information is provided on schedule or content. Revise Section 4.0 to clearly identify the deliverables associated with each phase of work, their structure/content, and the schedule for delivery.

Comments on the Baseline Groundwater Monitoring Report, May 2024

1. General Comment.

a. The EPA is providing comments on the baseline groundwater monitoring report to help expedite revisions to OU-1 groundwater monitoring plan presented in Appendix D of the Site Wide Monitoring Plan. Paragraph 5.7 (f) (3) requires the Site Wide Monitoring Plan to include a description of how performance data will be analyzed, interpreted, and reported, and/or other Site-related requirements. Some of this required information pertaining to groundwater monitoring does appear to be included the Baseline Groundwater Monitoring Report.

b. As stated in the executive summary, the full eight quarters of baseline sampling have not been performed on all the wells in the OU-1 network at the time this document was written and as a result, the document does not propose a baseline for the required constituents for the full monitoring network. All but one well in the OU-1 network has been sampled for eight consecutive quarters as of the second quarter of 2024 with the final well having eight quarters of sampling as of first quarter 2025. Therefore, the final baseline monitoring report must include a proposed baseline for all wells in the OU-1 well network. However, EPA is not requiring the baseline to be established as part of the Remedial Design. (See comment on section 1.1 below)

2. Section 1, page 1, second paragraph. EPA notes that the general requirements for the groundwater monitoring plan that were used to prepare this report have not yet been approved by EPA. Therefore, the report must be revised to be consistent with any changes made to the 2024 Groundwater Monitoring Plan included as appendix D to the Site Wide Monitoring Plan in response to EPA comments.

3. Section 1.1, page 1, general comment. There are six additional requirements for the Site Wide Monitoring Plan specified in paragraph 5.7 (f) of the RD SOW which apply to all media and include a description of how performance data will be analyzed, interpreted, and reported. Revise the section to include all the requirements that the groundwater monitoring program must address. Section 5.0 of this report "*presents methods for statistical screening, adjustment, and limit determination for the OU-1 Baseline groundwater monitoring data.*" Some of the information in this section describes how groundwater data will be analyzed and interpreted to evaluate the performance of the OU-1 remedy and therefore must be included in or with the revised OU-3 groundwater monitoring plan. EPA acknowledges that the primary purpose of this report was to begin to establish baseline for

groundwater constituents, but EPA is not requiring the baseline be established in the remedial design. However, the revised groundwater monitoring plan must either include the relevant information in Section 5 of this report or the revised report must be submitted with the revised groundwater monitoring plan.

4. **Section 3.1, page 6, fourth bullet.** The EPA notes that at the time this report was written the OU-3 2023 annual report was still draft and subject to revision based on the EPA's comments. Revise the bullet to clarify.

5. **Section 4.1, page 9, general comment.** Section 4.1 discusses radiological results with uncertainty values, non-detect results, and estimated results detected between the laboratory reporting limit and the method detection limit. Revise Section 4.0 to discuss how these items are being addressed in the statistical evaluation or to cite relevant report sections (e.g., Section 5.7) or planning documents. Include a section in the associated planning document that details this approach.

6. **Section 4.1.3, pages 10 and 11, and Table 4-1, general comment.** The following comments pertain to the overview of results in Section 4.1.3 and Table 4-1.
    a. Because some contaminants of potential concern have screening levels lower than laboratory reporting limits, understanding both non-detect and detected results in the context of laboratory reporting limits and screening levels is critical.
        i. Revise Table 4-1 to include the full range of detected results for each analyte, including results detected between method detection limits and laboratory reporting limits. For non-detect results, present the laboratory reporting limit (or range of laboratory reporting limits).

        ii. Add the MCL and lowest screening level to Table 4-1 for comparison and consideration in evaluating the data.

    b. Revise Table 4-1 to address the following discrepancies with Appendix C. To the extent these discrepancies are the result of field duplicate management, revise the table notes and/or associated text to explain the approach to managing field duplicates. Based on the number of discrepancies identified during EPA's review of this report, please check all the tables for accuracy.
        i. Manganese, Total: Minimum result should be 14.7 µg/L (PZ-111-SS, 8/17/2022)
        ii. Thallium, Total: Remove or explain highlighting on reporting limit (D-85, 2/23/2022)
        iii. Chemical Oxygen Demand: Maximum result should be 419 mg/L (S-5, 11/20/2020)
        iv. Phosphorus: Maximum result should be 4.4 mg/L (S-5, 5/17/2022)

        v. *cis*-1,2-Dichloroethylene: Maximum result should be 13.4 µg/L (MW-304-P1, 5/24/2021)
        vi. *trans*-1,2-Dichloroethylene: Maximum result should be 0.43 J µg/L (MW-304-P1, 5/24/2021)

7. **Section 5.0, general comment.** Following are overarching comments pertaining to statistical limit determination.
    a. Section 5.0 "*presents methods for statistical screening, adjustment, and limit determination for the OU-1 Baseline groundwater monitoring data.*" The information presented seems relevant to

the planning document; as appropriate, revise to include it there (see EPA's comment on section 1.1).

b. Foundational to the statistical design and application are a robust conceptual site model, quality data, and tested statistical assumptions.

i. Revise the report to include or reference supporting CSM information.

ii. While Section 4.1 identifies data rejected for reasons of data quality, revise to provide an affirmative statement that the data used for the statistical evaluation presented in this report are of sufficient quality for the intended purpose; include or reference supporting information, e.g. a data quality criteria presented in a QAPP.

8. **Sections 5.3, 5.8.2, and 5.9 on pages 12, 16, and 19, general comment.** Sections 5.3, 5.8.2, and 5.9 refer to statistical approaches from three guidance documents:
   - "*Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities – Interim Final Guidance*" (IFG) (EPA, 1989)
   - "*Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities – Addendum to Interim Final Guidance*" (Addendum) (EPA, 1992).
   - "*Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities – Unified Guidance*" (Unified Guidance) (EPA, 2009)

   However, Section 1.1 of the Unified Guidance (EPA, 2009) identifies constraints in application of the 1989 and 1992 guidance documents and improved statistical techniques since their publication, stating: "*This Unified Guidance document addresses these concerns and supersedes both the earlier IFG and Addendum.*" Revise the deliverable to remove the superseded guidance documents and rely on approaches from the Unified Guidance (EPA, 2009, errata 2010), incorporating the older approaches only as directed therein.

9. **Section 5.4, page 13, last paragraph in the section.** Add the following sentence to the end of the paragraph, "*Establishing a baseline for the OU-1 groundwater well network for some constituents may incorporate existing impacts to groundwater and therefore the baseline is not representative of background for these constituents.*"

10. **Section 5.5, page 13, general comment.** The second paragraph of Section 5.5 proposes an intra-well approach to statistical evaluation because it provides independence from spatial variability. Revise to provide the following clarifications.

a. Discuss how spatial variability was evaluated sufficient to determine that the intra-well approach statistics and associated assumptions specified in the guidance are applicable.

b. Discuss whether the site data are consistent with the assumptions and limitations of an intra-well approach. For example, the Unified Guidance "*recommends the use of intra-well testing only when it is clear that spatial variability is not the result of recent contamination attributable to the regulated unit*" (EPA, 2009, Section 6.3.2).

c. Discuss how an intra-well approach will account for changes in aquifer conditions because of upgradient sources, regional aquifer use, climatic conditions, or similar factors.

11. **Section 5.6.1, page 14, general comment.** Section 5.6.1 proposes prediction intervals as the statistical method. The following comments are noted.

    a. The first bullet list under Section 5.6.1 identifies several statistical methods as less appropriate than prediction intervals. Note that a combination of statistical methods may be necessary to achieve necessary outcomes.

    b. The second bullet list under Section 5.6.1 lists the assumptions for prediction limits; however, these are not wholly consistent with the Unified Guidance. Revise for consistency, discussing the following two assumptions in particular, and update the statistical method(s) as necessary.
    - EPA, 2009 (Section 18.1.1): Basic requirements for prediction limits include "*a minimum of 8 background measurements is available; more for non-parametric limits or when accounting for multiple, simultaneous prediction limit tests.*"
    - EPA, 2009 (Section 6.3.2): See Comment 10.b above regarding an intrawell approach and background contamination. Similarly ITRC, 2013 (Section 5.4) states: "*Intrawell prediction limits can be used when spatial variation is significant, but require the assumption that intrawell background is uncontaminated.*"

12. **Section 5.7, page 15, last bullet.** The last bullet of Section 5.7 notes that non-detected constituents will be evaluated under the Double Quantification Rule. Revise to specify the timeframe for repeat sampling. From the Unified Guidance (EPA, 2009):
"*A sufficiently long interval should occur between the initial and repeat samples to minimize the possibility of a systematic analytical error. But the time interval should be short enough to avoid missing a subsequent real detection due to seasonal changes in the aquifer depth or flow direction. It is suggested that 1-2 months could be appropriate, but will depend on site-specific hydrological conditions.*"

13. **Sections 5.7 and 5.8, pages 15-18, general comment.** While Sections 5.6 and 5.8 and the referenced appendices present components of exploratory data analysis, revise to also include a table summarizing the process (e.g., accounting for non-detects, testing for normality, outliers, background stability, spatial variation, temporal independence) and outcomes.

14. **Section 5.8.1, page 16, first full paragraph.** This paragraph states: "*If a data set was later modified as a part of the screening and adjustment process -- through removal of outliers, removal of trends, or autocorrelation adjustments – the data set's distribution was also re-evaluated after modification.*" Revise Section 5.8.1 to clarify where the results of such reevaluation are presented. If an Appendix table includes post-modification distribution results, revise to clarify this in that Appendix.

15. **Section 5.8.2, page 16, general comment.** The following comments pertain to outlier analysis.

    a. Per the second paragraph of Section 5.8.2, outlier screening is conducted using the "USEPA 1989 Method" based on the method's inclusion in the 1989 IFG. Because the 2009 Unified Guidance supersedes the 1989 IFG and does not include this method, revise to cite a current source. An equivalent "*discordance method*" is included in "Data Quality Assessment: Statistical Methods for Practitioners, EPA QA/G-9S" (EPA, 2006) and the updated source of the method cited in the

1989 IFG is ASTM E178 – 21 "Standard Practice for Dealing with Outlying Observations" (ASTM International, 2021).

b. Generally, the Unified Guidance does not recommend that outlier removal be "*solely on a statistical basis,*" but rather supported by scientific reasoning (EPA, 2009). That said, if high-magnitude outliers cannot be explained, removing them may still be advisable "*to improve the power of prediction limits and control charts, and thus result in a more environmentally protective program*" (EPA, 2009). Revise to discuss the scientific reasoning behind outliers removed and to assess the impact of outlier removal on statistical analysis.

c. As presented, both Dixon's Outlier Test and Tukey's Method focus on identifying extreme outliers. Revise to discuss efforts taken to identify multiple outliers when present and avoid "*masking*" by similar outliers.

16. **Section 5.8.3, page 17, general comment.** The following comments pertain to linear statistical trends.
    a. The partial paragraph at the top of page 17 states: "*Trend evaluation was not performed on data sets that consisted of 100% nondetects after outlier removal.*" As noted in Appendix L, Section L.4.1: "*A sample size of n ≥ 4 is required for the test.*" Revise to clarify the minimum number of detected results used to evaluate a trend after outlier removal. Note that while a minimum sample size of 4 detected results is required for Mann-Kendall trend analysis, 8 to 10 results are preferred (EPA, 2009; ITRC, 2013).

    b. The second full paragraph on page 17 states: "*In those instances where a data set exhibited a statistically significant linear trend, older data were excluded one observation at a time (beginning with the oldest observation) until the statistical trend was no longer observed.*" While this may be appropriate for analytes reflecting natural aquifer conditions, this may not be appropriate for contaminants introduced to the aquifer or for aquifer parameters subject to change with site activities (e.g., covers, leachate). Additional text discussion is warranted in these cases, and alternate statistical approaches may be needed.

17. **Section 5.8.4, page 17 and Appendices E and I, general comment.** The following comments pertain to statistical independence (autocorrelation).

    a. For data indicating autocorrelation effects, the third paragraph of Section 5.8.4 states: "*reducing the data set to semi-annual observations (n = 4) or annual observations (n = 2) precludes further application of the rank von Neumann ratio test at acceptable confidence levels (90% or above).*" However, a note to the Appendix E tables states: "*Autocorrelation identified in quarterly data. Limit not determined if autocorrelation is also present in semi-annual data.*" This note implies that if autocorrelation is not present in the semi-annual data (n=4), the rank von Neumann ratio test could still be applied.
        i. Revise the discussion in Section 5.8.4 and/or the note to Appendix E for consistency and appropriate statistical rigor. In an acceptable confidence level (90% or above) cannot be demonstrated at n=4, statistical limits should not be calculated at n=4, regardless of autocorrelation effects at n=4.
        ii. Well D-83 (Appendix E, pp. 1-3) is an example of statistical limit calculation at n=4.

Example, D-83 *In App E, green is Autocorrelation*	App E, Page 2: **Autocorrelation** (α=0.01)	**N** (#)	App E, Page 3: **Statistical Limit**	**N** (#)	**Limit** (µg/L)
Hardness	Yes (n=8 [sic])	4	Parametric Prediction Limit	4	404,052
Manganese, Total	Yes (n=8)	4	Parametric Prediction Limit	4	472.2

1. Hardness (as $CaCO_3$) and total manganese show autocorrelation at n=7 and n=8, respectively. On page 2 of Appendix E, correct the starting n for hardness as n=7.
2. On page 2 of Appendix E, it is difficult to discern whether autocorrelation effects are present at n=4. As presented, autocorrelation appears to be present at both the initial and reduced n values. Revise for clarity and correctness.
3. On page 3 of Appendix E, statistical limits are calculated for both analytes at n=4 and an acceptable Type 1 error rate (α=0.01). If autocorrelation effects are evident at n=4 or an acceptable confidence level (90% or above) cannot be demonstrated, remove the calculated statistical limits.

b. In Appendix E, autocorrelation is addressed by flagging or omitting the winter (typically February) and summer (typically August) analytical results. Revise Section 5.84 to present the basis for selecting these events. Note that Section 5.8.5 indicates that insufficient data have been collected to assess seasonality.

18. Section 5.9, pages 18 to 20, general comment. The following comments pertain to the prediction limit approach.

a. Bullet 1 (page 18) assumes quarterly sampling during Baseline, RA, and Post-RA monitoring. Considering recent requests to reduce the frequency of sampling, present the implications of less frequent (semi-annual or annual) sampling as well.

b. Bullet 3 (page 18) notes that the Unified Guidance presents parametric prediction limit coefficients for a maximum of 40 constituents, compared to the 58 constituents for OU-1. For reader clarity, add a brief statement noting the significance of the difference and whether anything was done (e.g., to change the OU-1 list, to identify other coefficients).

c. Bullet 4 (page 18) notes a 1-of-2 retesting strategy for constituents with detections. Revise to specify the timeframe for repeat sampling. See Comment 12 above.

d. The second full paragraph on page 19 suggests updating the background data set to include additional results. For current purposes, revise to clarify that no data collected after the RA begins will be added to the background data set.

e. The third full paragraph on page 19 presents an alternate approach for one constituent at one monitoring well, identified as the "IFG approach."

i. Because the IFG has been superseded, revise to include a current reference or an alternate approach.

ii. Revise to clarify the intent of presenting the alternate method (e.g., additional line of evidence, selected approach). From Section 6.2.3 of the Unified Guidance (EPA, 2009): "*At sites employing multiple types of test procedures (e.g., non-parametric prediction limits for some constituents, control charts for other constituents), effective power should be computed for each type of procedure to determine which type exhibits the least statistical power. Ensuring adequate power across the site implies that the least powerful procedure should match or exceed the appropriate ERPC, not just the most powerful procedure.*"

19. **Section 5.10, page 20, second paragraph in the section.** This paragraph states: "*Observations identified as statistical outliers (Section 5.8.2), observations contributing to linear trends (Section 5.8.3), and observations contributing to autocorrelation (Section 5.8.4), were removed prior to limit determination.*" See the above comments on these sections.

20. **Section 5.10, page 20, fifth paragraph in the section.** This paragraph indicates that non-parametric prediction limits are "*set equal to a high-order observation from the data set – typically the highest value observed.*" Because this approach is highly sensitive to high outliers, describe any additional actions that will be taken to assess and address suspected outliers (e.g., box plots, review of laboratory reports, selection of the second highest observed value). See Unified Guidance Section 18.3 (EPA, 2009) and comment on Section 5.8.2 above.

21. **Section 6.0, page 21, second paragraph in the section.** The second paragraph of Section 6.0 states: "*These addenda will be submitted after the final validation of groundwater monitoring data from the applicable period and the submittal of the corresponding OU-3 Annual Monitoring Report.*" The OU-3 2023 Annual Hydrogeologic and Site Characterization Report was submitted on April 1, 2024. Revise to specify the submittal date for the addendum covering the 36 additional wells that had completed eight (8) baseline events as of the third quarter of 2023. Please also specify a turnaround time for the other wells.

22. **Appendices E, F, G, and J, general comment.** Inconsistencies are noted in the presentation of distributions and transformations, most notably for the radiological data. Revise the appendices to address these apparent inconsistencies. If differences in distribution are the result of re-evaluation of data after outlier removal, for example, this should be specified in the appendix. Two examples are provided below, but all should be addressed.

EXAMPLES *Inconsistency is red* *cell in yellow series*	**D-83** App E Distribution Normal?	**D-83** App F Transform?	**D-83** App G Distribution?	**D-83** App J Transform?	**D-85** App E Distribution Normal?	**D-85** App F Transform?	**D-85** App G Distribution?	**D-85** App J Transform?
Radium-226	No	n/a	Normal	No	Yes (no transform)	No	Normal	No
Radium-226 Dissolved	Yes (no transform)	No	Normal	No	Yes (no transform)	No	Normal	No
Radium-228	Yes (no transform)	No	Normal	No	Yes (w ladder: sqrt[x])	No	ln(x)	sqrt(x)
Radium-228 Dissolved	Yes (no transform)	No	Normal	No	Yes (no transform)	No	Normal	No
Thorium-228	NA (ND)	No	Normal	n/a	Yes (no transform)	No	Normal	n/a
Thorium-230	No	n/a	Normal	n/a	Yes (w ladder: x^[1/3])	x^(1/3)	ln(x)	x^(1/3)
Thorium-232	Yes (w ladder: ln[x])	ln(x)	ln(x)	n/a	No	n/a	Unknown	n/a
Uranium-234	No	n/a	Unknown	n/a	Yes (w ladder: sqrt[x])	sqrt(x)	ln(x)	sqrt(x)
Uranium-235	Yes (w ladder: sqrt[x])	sqrt(x)	ln(x)	n/a	Yes (no transform)	No	Normal	n/a
Uranium-238	No	n/a	Normal	n/a	Yes (w ladder: sqrt[x])	sqrt(x)	ln(x)	n/a

23. **Appendix L, general comment.** The statistical method descriptions in Appendix L do not include computing site-wide false positive rates. Revise to include these, including subdivisions applied.

Comments on the Operations and Maintenance Plan, March 2024

1. **Section 1.1, page 1, first sentence.** Revise the first sentence of this section by replacing the phrase "*as a guide for*" with the phrase, "*to document the requirements for" the post-construction operation, maintenance*…"

2. **Section 1.1, page 1, second and third bullets.** It's unclear why the word "*interim*" appears before the mention of landfill gas control system(s) and landfill gas monitoring systems in these bullets. Delete the word "interim" or explain why these systems are considered interim. EPA notes that the Missouri regulations being summarized in these bullets are as follows, "*(I) Maintenance of cover integrity (for example, recovering, regrading), vegetative growth to protect cover material and surface water drainage systems;*
(II) Operation and maintenance of the leachate collection system(s) and methane gas control system(s);
(III) Maintenance, sampling and testing of groundwater monitoring wells and methane gas monitoring systems; and
(IV) Necessary operation or maintenance, or both, of any other environmental control features which are included in the design and operation of the solid waste disposal area to protect the public health and environment."
Revise the bullets for consistency with the Missouri regulations.

3. **Section 2.0, general comment.** Add a subsection to this section on ICs which is consistent with requirements in the ICIAP.

4. **Section 2.1, page 3, first paragraph in the section.** This paragraph states that visual inspection will be conducted as soon as practicable after major storm events but does not adequately define major storm events. Include with the example of 5- year storms the corresponding amount of rainfall over a specific time period.

5. **Section 2.1, page 3, 6th bullet.** Add "*evidence of overly wet conditions (e.g., cat tails)*".

6. **Section 2.2, page 4, first paragraph in the section.** Similar to the comment on section 2.1, additional specificity is needed regarding the requirement to perform Site inspections after major storm events or other events that may result in damage to the stormwater management and erosion control system. Specify the storm event as described in the comment for section 2.1 and include specific "*other events*" that the existing text was meant to be representative of.

7. **Section 2.3 and 2.4, page 4, general comment.** For clarity and consistency with Sections 2.1 and 2.2, include the frequency of inspections for the groundwater monitoring system and interim landfill gas vents in their respective sections.

8. **Section 2.4, page 4-5, general comment.** Add the following items to the section: the criteria that will be used to determine when an interim gas vent is no longer needed; how that criteria will be measured and evaluated: and the time frame for those measurements and evaluations.

9. **Section 5.0, page 9, general comment.** Add a statement that revised plans will be submitted to EPA for review and approval.

10. **Figure 3, general comment.** Revise this figure to reflect updated site boundaries (i.e. include North surface water body), updated Area 1 and Area 2 boundaries, and updated OU-1 boundaries in accordance with the ESD and as they will be presented in the 100% RD. Update the legend to include the various colored lines. The ISL (pink), CDL (blue), and Bridgeton Landfill (yellow) boundaries do not appear to be consistent with other figures provided with the 90% RD or historical permit boundaries. Revise for accuracy and add either a date or source citation for these boundaries as well.

11. **Attachment A, general comment.** Add an area for notes to the inspection form so that when problems are identified, the location of the problem, or the specific well or gas vent can be documented during the inspection. Also, add a requirement to the plan for problems that are identified to be documented with photographs and incorporated into the inspection documentation. Update the form as necessary to incorporate changes to the O&M Plan based on EPA comments or other revisions to the plan.

12. **Appendix B, Section 1.1, page 1, second paragraph, first sentence.** Delete the phrase "*specified for the remedy in the 90% Remedial Design (RD)*", and replace it with "*specified in the ROD Amendment and final Remedial Design (RD)*"

13. **Appendix B, Section 2.0, page 2.** Add a statement that EPA will be notified of any emergency repair situations as soon as possible but at least in accordance with the Emergency Response Plan.

14. **Appendix B, Section 2.1, page 2, first paragraph, second sentence.** Clarify the mowing schedule and specify the mowing height. EPA notes that MoDNR recommends mowing twice a year.

15. **Appendix B, Section 2.1, page 2, 2nd bullet.** Revise this bullet by adding the italicized language as indicated, "…that are observed to hold water, *or that could potentially hold water,* will be repaired

16. **Appendix B, Section 2.1, page 2, third bullet.** This bullet states, "*If an area greater than 0.5 acres has less than 25 percent vegetative coverage*" then certain maintenance activities will be performed. This statement is not clear. EPA notes that typical soil erosion and sediment control districts require 70% to 80% coverage to be acceptable. Revise for clarity and ensure the requirement to perform maintenance as a result of dying vegetation adequately protects the cover from erosion.

17. **Appendix B, Section 2.2, general comment.** The bullets in this section refer to gas vent manholes. However, no details in either the drawings or specifications within the 90% Design could be found for these manholes. EPA acknowledges that item 1 from drawing C8.02 does depict some open space around the gas vent pipe within the bio-intrusion, protective soil, and topsoil layers of the cover. However, it's not clear what that will be constructed with or what design dimensions are for this space. Provide additional description of the manholes being referred to in these bullets. Add information to the relevant drawing as needed further specifying the design of the gas vents and any associated structures. The information requested in comment 7 above on the O&M plan is also applicable to this bullet.

18. **Appendix B, Section 2.5, second bullet.** Acknowledge in this bullet that replacement of abandoned wells will be required unless waived in writing by EPA**.**

Comments on the Site Management Plan, March 2024

1. **Section 2.0, page 2-1, placeholder.** "*OU-1 is anticipated also to include portions of the Closed Demolition Landfill (CDL) and Inactive Sanitary Landfill (ISL) that were found to contain radiologically impacted materials (RIM) during design investigations that occurred after issuance of the Record of Decision Amendment (RODA) (EPA 2018). The addition of these areas is expected to be part of an Explanation of Significant Differences to be issued by EPA later in 2024.*" Revise this statement and any other similar text in this plan to reflect the information included in EPA Comment 1 of the 90% RD comments submitted to Paul Rosasco on October 10, 2024, and the ESD.

2. **Section 4.0, page 4-1, second paragraph.** This Section needs to be updated to accurately reflect the site area based on information from the DI and the ESD. The first sentence of this paragraph states, **"***The entire West Lake Site is enclosed by fencing, and access to the Site is controlled by Bridgeton Landfill, LLC.*" It's unclear why this language was changed from the previous version of the SMP which stated, "*The larger West Lake Site, except for the borrow area and Lot 2A2, is enclosed by fencing, and access to the Site is controlled by Bridgeton Landfill, LLC.*" The previous language from the previous version of the SMP is more accurate. The statement regarding Lot 2A2 and 2A1 in this section should also acknowledge potential access via Old St Charles Rock Road with signage for authorized access only. Also include discussion of the north Surface water body (NSWB), which is not surrounded by fencing, but access is limited due to very steep slopes and dense vegetation and fencing along the southwest side from an adjacent property

3. **Section 4.0, page 4-1, second paragraph.** Given that the entire West Lake Landfill Site is not fenced and that some fencing is not related to OU-1 and does not have placards for radioactive materials, the paragraph should clarify which fencing contains these placards and why. For example, "*Fencing has been placed around a portion of OU-1 Area 1, as well as, Area 2 and the Buffer Zone which have been used to establish radiation control areas. RIM was previously identified at the ground surface within these areas but is now covered. Aluminum placards are posted on these fences approximately every 40 feet…*"

4. **Section 4.3, pages 4-1 and 4-2, general comment.**
    a. The entry procedures being discussed in this section appear to be related to entering radiation control areas rather than all of OU-1. Revise for accuracy and incorporate the radiation control areas into the explanation.

    b. The first sentence of the third paragraph on page 4-2 states that vehicles and personnel inside radiation control areas should be confined, if possible, to locations with rock cover, intermediate cover, or final cover. Clarify the meaning of intermediate and final cover as used in this section. If appropriate, add a citation to the relevant specification that defines intermediate and final cover.

5. **Section 5.0, 5.1 and 5.2, pages 5-1 and 5-2, General Comment.** EPA acknowledges that all vegetation has been removed from areas with RIM at or near the surface of OU-1 and a non-combustible cover has been placed over these areas. However, timely response to an emergency on OU-1, such as a surface

fire, is still warranted given the potential for the landfill surface to be disturbed and waste in the subsurface to be exposed during the response or as a result of uprooted and fallen trees. EPA will no longer require periodic nighttime visual inspections of OU-1 but does expect all other requirements in the OU-1 Site Management Plan and Emergency Response Plans to be followed. With this change, the OU-1 Emergency Response Plan should also be reviewed to ensure adequate planning is specified for responses to emergencies that occur when no personnel are on-site. The reference to visual assessment throughout the night in the second paragraph of section 5.0, all of Section 5.2, and inspection points on figures in this document should be removed from the revised Site Management Plan and any necessary changes to the OU-1 Emergency Response Plan should be made as soon as possible.

6. **Section 6.0, page 6-1, first paragraph.** Paragraph 5.7 (c) (3) from the modified Statement of Work (SOW) specifies that the Site Management Plan include a description of environmental monitoring to be performed during the RD activities. Paragraph 5.7 (f) from the SOW specifies that the Site Wide Monitoring Plan include the description of monitoring for the Remedial Action. Revise this paragraph for consistency with the SOW and to clarify that that monitoring specified in the Site Management Plan is to be conducted during the RD. Future revisions to the Site Management Plan submitted during RA can remove the sections on RD monitoring, if desired.

7. **Section 6.1, 6.2, 6.3, and 6.4, general comment.** EPA comments on the Site Wide Monitoring Plan will likely result in changes to the draft air monitoring plans and possibly other draft monitoring plans. In order to make sure current monitoring plan requirements during the RD remain clear, consider referencing the SWMP for future RA monitoring and attaching the current and approved monitoring plans to the Site Management Plan so that the current RD monitoring remains clear. Likewise, adjust the references as appropriate to relative monitoring plans within each sub-section. The supplemental documents in the SOW are intended to be stand-alone documents, so remove references to these documents as appendices of the 90% RD to avoid confusion.

8. **Section 6.2, page 6-1, first paragraph.** The first sentence of this section states that methane gas monitoring will be performed upon completion of the RA in accordance with the Methane Gas Monitoring Plan. However, Section 4.0 of the Site Wide Monitoring Plan states that installation of new gas monitoring wells around OU-1 will be implemented following EPA approval, pending contractor availability. It further states that methane monitoring will continue through RA to evaluate if installation of the landfill cover system changes the distribution of methane gas at the landfill perimeter and the need for continuation of methane gas monitoring after RA is complete will be evaluated at that time. Revise the description of methane monitoring in Section 6.2 for consistency with the Site Wide Monitoring Plan.

9. **Section 7.1, page 7-1, last paragraph in the section.** The last sentence of this paragraph states that it is anticipated that there will no longer be any pathway for radionuclides migration in air upon completion of the final cover and the air monitoring program will be terminated. EPA agrees this is appropriate for all radionuclides except radon because the cover design includes the installation of passive vents which provide an alternative migration pathway for radon that will bypass portions of the engineered cover. As discussed in comments provided for the 90% Design, some monitoring for radon must be conducted after the completion of the RA to confirm radon at the fence line does not exceed the regulatory standard. EPA acknowledges that modeling based in part on the expected landfill gas production rates after installation of the engineered cover suggest radon will be significantly below regulatory standards.

Nevertheless, some monitoring must be conducted given the uncertainties within the modeling process to confirm these estimates. The number of locations and frequency of this monitoring can be decreased over time if warranted based on the results. Ultimately, when the vents are sealed, this monitoring will no longer be necessary. Revise the sentence by adding an exception for radon monitoring.

10. **Figures 1 through 4, general comment.** Revise the figures to reflect updated site boundaries (i.e. include North surface water body), updated Area 1 and Area 2 boundaries, and updated OU-1 boundaries in accordance with the ESD and as they will be presented in the 100% RD. (see comment 1 from EPA's October 10, 2024, comment letter on the 90% Design). Also add the extent of RIM to these figures. EPA recommends the old Area 1 and Area 2 boundaries be removed to prevent confusion. If any old Area 1 and Area 2 boundaries are included in a Site Management Plan figure, then a citation must be added that identifies the source of the boundary.

Comments on the Institutional Controls Implementation and Assurance Plan (ICIAP), March 2024

1. **General comment**. The ICIAP contains information about the previously implemented land use controls but provides very little information about how the OU-1 RODA requirements for Institutional controls will be achieved during the West Lake OU-1 Remedial Design and Remedial Action. The existing declarations of covenants and restrictions are not consistent across impacted areas and are not in compliance with the Missouri Environmental Covenants Act. A comprehensive declaration of covenants should be prepared for signature by all parties required by RSMo 260.1009 and properly recorded in accordance with RSMo 260.1024.

2. **General comment.** Review the guidance documents referenced in the introduction of this ICIAP to ensure this document addresses the key elements of ICIAPs, including all the pertinent "recommended" elements.

3. **General comment.** Sections of the site are referred to by various means, such as parcel IDs and owner names. These designations lack clarity in this ICIAP as a standalone document and are not consistent through the document. For example, Lot 2A2 is described in the main text of the document but does not appear in the same manner in the attached tables. Either clarify when working names are used with parcel IDs or provide an additional table to clearly cross reference working descriptions (i.e., ISL. CDL. Area 2) with parcel numbers.

4. **General comment.** Restrictive covenants detailed in this report do not meet the following minimum LUC requirements of the RODA:
   - *"Prevent development and use for residential or recreational purposes…"* is not met by any covenant. No covenant clearly prevents the recreational development of any land parcel.
   - *"Prevent construction activities…"* is not met by any covenant. No covenant prevents the use of heavy machinery that might disturb vegetation or otherwise compromise the landfill cover.
   - *"Prevent the use of groundwater underlying OU-1…"* is not met by any covenant. The 1997 restrictive covenant and the 1998 supplemental covenant only restrict groundwater usage for drinking water across OU-1. The 2016 covenant restricts only the groundwater under Areas 1 and 2 and is limited to drinking and agricultural uses. Neither is sufficient to prevent the uses of groundwater <u>for all purposes</u> across OU-1.

- Covenants on land where RIM will remain behind must remain in place in perpetuity. None of the restrictions except the negative easement for landfilling, contain this requirement to remain in place in perpetuity.

Create land use controls that attain the requirements of the Record of Decision Amendment.

5. **General comment.** All Covenants presently employed at the sight are missing several components required by Missouri Environmental Covenants Act. The Act, in section RSMo 260.1009, contains six requirements as stated below:

   An environmental covenant shall:

   1. *State that the instrument is an environmental covenant executed under sections 260.1000 to 260.1039;*
   2. *Contain a legally sufficient description of the real property subject to the covenant;*
   3. *Describe the activity and use limitations on the real property;*
   4. *Identify every holder;*
   5. *Be signed by the department, every holder, and unless waived by the department, every owner of the fee simple of the real property subject to the covenant; and*
   6. *Identify the name and location of any administrative record for the environmental response project reflected in the environmental covenant."*

The presently employed ICs do not meet requirements (1), (5), and (6)

Create covenants that meet the requirements of the Missouri Environmental Covenants Act (MoECA).

6. **General comment.** Clarify in this document whether existing covenants for parcels within Operable Unit 1 will be revised, replaced, or whether new ICs or covenants will be implemented that meet the requirements of both the RODA and the MoECA.

7. **General comment.** This document must identify all parcels of property within OU-1 that are subject to institutional controls in accordance with the RODA and include the information in Sections 3.0, 3.1, and 3.2 in OSWER 9200.0-77 EPA-540-R-09-002, December 2012 for each parcel; including:
   - Document the specific revisions that will be made to existing land use controls (LUCs) or list the title, proposed language and restrictions, property owners, signatories and all other required information for each newly proposed IC,
   - Document whether each specific parcel will be restricted in its entirety or, if the restrictions will only apply to part of the parcel. If only part of a parcel will be restricted, explain how that will be documented and recorded (e.g., a survey or boundary marker).
   - Document any existing easements on parcels in OU-1 and, if present, incorporate language that explains how people performing work associated with the easement(s) will be notified of the hazards and requirements and protected from associated risks.

8. **Section 1.0, page 1, 2nd paragraph**. Since the Institutional Controls (ICs) are a component of the selected remedy, add the following language from the EPA guidance on Planning, Implementing, Maintaining, and Enforcing Institutional controls (PIME) to the end of this paragraph, "As response components, ICs are designed to achieve the precise substantive restrictions articulated in the decision documents that are needed at a site to achieve cleanup objectives."

9. **Section 1.0, page 1, 4th paragraph**. Clarify what is meant by oversight in this statement and clarify the roles for implementing, inspecting, maintaining, tracking, identifying breaches, and enforcing the ICs.

10. **Section 2.1, page 2, 1st paragraph.** Revise this paragraph to be consistent with the January 2025 Explanation of Significant Differences (ESD) with respect to the operable units. The ESD states that the originally estimated boundaries of OU-1 are expanded to incorporate all areas of the site that that contain RIM greater than 7.9 pCi/g, and specifically incorporates the CDL and northern part of the ISL. In addition to incorporating the full extent of RIM, it also states that OU-1 will be expanded to incorporate an appropriate OU-1 cover system transition zone and any other area beyond the extent of RIM necessary to implement the OU-1 remedy.

11. **Section 2.2.2, page 4, last sentence**. Revise this sentence to indicate that ICs are an integral part of the selected remedy necessary to protect human health and the environment. Section 12.2.7 of the RODA states, "The objectives of the ICs are to prevent exposure to contaminants on both a short-term and long-term basis for all populations that could cause unacceptable risk, and to maintain the integrity of the engineered components of the remedy."

12. **Section 2.4.2, page 6, general comment.** Revise this section to reflect the final cover layers in the Final RD and include the permeability requirement for the UMTRCA cover.

13. **Section 2.5.1, page 7, general comment.** This section refers to the O&M Plan which "contains procedures for surveillance, monitoring, and maintenance of ICs". Delete this language or revise the O&M Plan because the EPA could not find any information on Institutions Controls in the O&M Plan or O&M Manual. While it is appropriate for the O&M plan to contain information on ICs, the ICIAP is a stand-alone document, and therefore the details of all required activities associated with ICs, such as surveillance, monitoring, maintenance, or ownership tracking, must be incorporated into this plan. Some of this information may be included in Section 4.3.1 of this document but this section should be reviewed for completeness and consistency with Section 4.1 of OSWER 9200.0-77 EPA-540-R-09-002, A guide to preparing the ICIAPs at contaminated sites.

14. **Section 2.5.3, page 7, general comment.** The MoDNR contact is outdated. Update the MDNR Project Coordinator contact to the following: Ryan Seabaugh at 573-751-8628 or ryan.seabaugh@dnr.mo.gov

15. **Section 3.1, page 8, general comment**. Revise the text in this section to include the stated objective in the RODA for OU-1 ICs in addition to the purposes listed. The stated objective is *to prevent exposure to contaminants on both a short-term and long-term basis that could cause unacceptable exposure*, in addition to the purpose stated. EPA notes that all required OU-1 ICs should prevent intrusive activities without appropriate notification, not just areas where the implementation of the remedy is deferred until conditions allow completion of RA.

16. **Section 3.2.1, page 10**. The last sentence of this section states, "*A restrictive covenant will be put in place at the completion of the remedy to address additional land use restrictions in the cover area as required by the RODA (USEPA 2018).*" The purpose of this ICIAP is to document the specific covenants or ICs, restrictions, implementation process, property owners, signatories, time frame, and other requirements for implementing the ICs required by the RODA. Revise this document to include the necessary detail.

17. **Section 3.2.3, page 11.** Please include the parcel number for each bullet in this section. Also, clarify how a "*temporary proprietary control*" would be different from the other proprietary controls placed at this site. A "*temporary control*" would typically have a known sunset date or the criteria that must be met to request termination included in the instrument.
    - **First Bullet**: The transfer station vicinity will be required to have ICs in place until an investigation determines there is no contamination present that requires the IC. An investigation of the Transfer station area will be required when it is no longer operating (not just when it is removed) or when the pavement is removed or replaced. Revise this bullet accordingly.
    - **Second Bullet** - The North Quarry area where RIM will remain in place after the deferred remedy is implemented will require a permanent IC. Therefore, EPA does not believe a "temporary" proprietary control is appropriate in this area. Develop a permanent IC instrument in this area and incorporate language into the instrument that allows for cover construction work under an EPA-approved work plan to be conducted under the covenant or IC.
    - **Third Bullet**: The "North Entrance" area is believed to refer to the main entrance road, including the area north of the engineering office building. EPA has encouraged the respondents to complete delineation of RIM in this area so that, if necessary, it can be remediated during RA. If contamination is not identified in this area, an IC may not be needed.

18. **Section 4, general comment**. This Section or elsewhere in the ICIAP must include a discussion of requirements for potential intrusive activities occuring in areas where OU-1 ICs are in place. Examples of such requirements could include appropriate notifications, safety protocols, or monitoring requirements.

19. **Section 4.2, page 12, general comment**. Quoting the minimum land use restrictions from the RODA is inadequate. Revise the last paragraph of this section to describe the actual modifications or new ICs required in the RODA for OU-1. The actual restriction language that will be used in the instruments or draft copies of the instruments should be proposed in this document.

20. **Section 4.3.1, top of page 13**. This section states, "The O&M Plan contains procedures for surveillance, monitoring, and maintenance of the ICs." EPA could not find this information in the O&M plan or manual. Ultimately this ICIAP document should include any details related to IC inspections, monitoring, reporting of non-compliance, forms or other details related to assuring that the ICs are affective.

21. **Section 4.3.3, page 13, general comment**. This section states that the EPA will be responsible for oversight of the ICs being implemented as a component of the selected remedy. It is not clear how "oversight is being defined in this context. See Comment the on Section 1.0, page 1, 4th paragraph above. Update this section with Site-specific information on roles and responsibilities for the ICs required for OU-1.

22. **Sections 4.4.1, general comment.** The following Covenants do not include any provisions for EPA/MDNR approval to revisions of the covenant, and as such, are not sufficient for the ICs required by the RODA for OU-1.
    a. Declaration of Covenants and Restrictions, West Lake Quarry and Material Company
    b. Declaration of Covenants and Restrictions, Laidlaw Waste Systems (Bridgeton) Inc.
    c. Declaration of Covenants and Restrictions, Rock Road Industries, Inc.
    d. Supplemental Declaration of Covenants and Restrictions, Rock Road Industries, Inc.

e. Supplemental and Partially Restated Declaration of Covenants and Restrictions, Rock Road Industries Inc., Bridgeton Landfill, LLC
f. Declaration of Covenants and Restrictions, Rock Road Industries, Inc. 2016

Revise this section to reflect the new or revised ICs or covenants required for OU-1 in the RODA

23. **Section 4.4.2, general comment.** Revise the second to last sentence by replacing the word *should* with the word *must* or *shall.* Also, update this section as necessary based on the new or revised IC instruments required for OU-1.

24. **Table 2**. The IC Control Matrix is missing cleanup objectives for Parcel IDs 090220180 and 090220191. The text in this document states that Lot 2A2 (parcel 090220180) will be remediated to UU/UE and the expectation is that parcel 090220191 will also be cleaned up to UU/UE. Revise this table to accurately reflect planned activities or requirements for all properties in OU-1.

25. **Figures, General comment.**
    a. All Figures must be updated to reflect accurate information (such as cover extent, OU-1 boundaries, etc) that will be included in the 100% RD. Site Boundaries, Area 1, Area 2, OU-1 and OU-2 boundaries must be consistent with the information provided in EPA's comment 1 of the 90% RD comment letter submitted on October 10, 2024 and with the ESD.

    b. Add a figure that includes the final maximum extent of RIM and identify any areas where the RIM will be completely removed.

26. **Figure 2, general comment.** Revise this figure to reflect updated boundaries as indicated in EPA's general comment on the figures. Also revise the label "*OU-2 Closed Demolition Landfill*" to "*Construction and Demolition landfill*".

27. **Figures 3 and 4, general comment.**
    - The note on these figures pertaining to parcel data does not have an accurate date. It only lists 09/07. Please revise with the actual date the parcel data was acquired.
    - Update the potential cover extent to be consistent with the cover area that will be submitted in the 100% RD and update any other pertinent areas based on the EPA's general comment the all the figures.
    - On both Figures 3 and 4 there appears to be a sliver of property parallel to the NE side of parcel 10O540060 that has no parcel number or property owner listed. This area is part of the ISL that has been incorporated into OU-1 and must have an IC in accordance with the RODA. Incorporate the necessary information about this property into the ICIAP and revise these figures and the text as appropriate to address this area.

28. **Figure 4, general comment.**
    - The cover extent presented on Figure 4 must be updated to reflect what will be presented in the 100% RD and must include the North Quarry area where installation of the cover will be deferred. It must also show areas of the site where there is currently pavement that must remain in place until they are able to be investigated and remediated, if necessary.
    - Clarify which property parcel the OU-1 portion of north quarry is located in.

29. **Figure 4 and Table 2, general comment.** Figure 4 has a parcel owner category of West Lake Landfill Inc. and one for West Lake Landfill Inc ETAL; however, only one of these categories is listed on Table 2. Explain the difference between these parcel owners and include the West Lake Landfill Inc ETAL on Table 2 for consistency.

30. **Figure 5, general comment.** Revise Figure 5 to show UMTRCA cover over all areas with RIM in Area 1, including the area where installation of the UMTRCA cover will be deferred until the waste is stabilized sufficiently for the UMTRCA cover to be installed. Update the cover types, if necessary, to be consistent with the final Remedial Design Document (RD).

Comments on the Stormwater Pollution Prevention Plan, March 2024

1. **General Comment.**
   - **a.** The purpose of this plan is to specify controls to prevent stormwater pollution during the remedial action (RA). Because some specific information related stormwater controls will be specified in the future by the RA contractor, the plan cannot contain all the necessary information at this time. Therefore, to ensure the plan is updated adequately in the future, additional text should be added in each section that identifies where updates will be needed and who will be responsible for providing the additional information.

   - **b.** The generic description of stormwater sources and controls must be updated in the final Stormwater Pollution Prevention Plan (SWPPP) by providing some additional details specific to the site. These include the location of controls relative to work areas and corrective action plans to address potential releases of landfill materials in stormwater. To the extent that this will be the responsibility of the Remedial Action (RA) contractor during the RA, ensure the SWPPP is clear that the changes/updates to the SWPPP proposed by the RA contractor must include the previously mentioned information.

   - **c.** The SWPPP also specifies in several locations that the Remedial Action (RA) contractor is responsible for determining the phasing, locations, types, and sizes of temporary Best Management Practices (BMPs) to be installed during the remedial action. However, language in specification 01 41 26 appears to indicate the RA contractor must follow the SWPPP and that the engineer is responsible for modifications to the SWPPP. The roles and responsibilities for the engineer and the RA contractor appear to conflict between these two documents or could lead to confusion. Edit the SWPPP, the specification, or both to ensure the responsibilities of the engineer and the RA contractor are clearly designated and will result in effective communication and resolution of stormwater issues.

   - **d.** The final SWPPP should identify the drainage areas extent and/or land size upgradient of each drainage location. Alternatively, references to other plans or design drawings could be added to the SWPPP that provide this information. This helps ensure that soil erosion BMPs are sized and located to address anticipated stormwater characteristics. If changes to the drainage area extent or drainage direction will occur as a result of excavation and grading activities during the RA, the SWPPP must include a requirement to adjust the size and location of soil erosion BMPs to address the changing stormwater characteristics.

2. **Section 3.2, page 5, first sentence.** This sentence states that areas where waste is covered with daily cover will be treated as stormwater rather than contact water. However, Section 6.1 of the 90% Design states excavated materials within landfill boundaries may be evaluated for use as daily or intermediate cover. Contaminated Soil and landfill waste that are excavated may contain soluable organics or inorganic contaminants which could negatively impact stormwater quality. Waste and soils excavated from within landfill boundaries must be evaluated for their potential to impact stormwater quality before they are used as daily or intermediate cover if runoff from these materials will be handled as stormwater rather that contact water. The SWPPP should also specify in greater detail the permissible water contact with daily cover for water that will be characterized as stormwater. In any case, it's not clear that all the proposed sediment controls will be effective in minimizing the release of soluable contaminates of concern that may be present in excavated wastes during the Remedial Action. Evaluate this and incorporate alternative controls, if necessary, in the revised plan.

3. **Section 3.4.1, page 5, first bullet.** Delete the last sentence of this bullet.

4. **Section 3.6, page 9, general comment.** The list of potential sources of pollution does not include discussion of any potentially soluable constituents, such as organics or other soluable chemicals potentially present in excavated landfill wastes. As discussed in comments for Section 3.2, ensure the SWPPP explains how the potential presence of soluable chemicals will be addressed and, if appropriate, including planning for best management practices (BMPs) to address these materials.

5. **Section 4, pages 10 through 19, general comment.** EPA acknowledges that the RA contractor will be responsible for determining the phasing, locations, and types of temporary BMPs described in Section 4.2 subject to on-going review and approval by the Engineer. However, some additional information on BMPs should be added, to the extent practicable, to be submitted as a revision to this plan with the 100% RD. Other information must be added and approved prior to the start of any on-site construction. This information includes the following:

    a. Location of all controls on the site depicted on a site map.
    b. Additional detail for BMP maintenance including: good housekeeping; waste, garbage, and floatable debris; dust generation and vehicle tracking; material storage; maintenance and treatment; spill response; erosion/sediment controls and runoff; benchmark evaluation and monitoring; and allowed non-stormwater discharge.
    c. Specific references regarding storm frequency and duration should include sufficient detail necessary to confirm they are designed to meet the appropriate value during rainfall events.
    d. Modifications in order to incorporate specific pertinent details or items referenced in other documents so that this SWPPP is a stand-alone document. (e) All pertinent details and plan drawings related to soil types, vegetation, NCC make up and slopes.

6. **Section 5.3, page 21, general comment.** Add the physical location of the Emergency Response Plan (ERP) to this paragraph to ensure the team implementing the Stormwater Pollution Prevention Plan (SWPPP) has easy access to relevant information so they respond adequately to an emergency involving a spill or leachate in order to address or minimize stormwater impact. Alternatively, edit the section by incorporating information presented in the ERP into this document to ensure the ERP information will always be accessible for review by the SWPPP team. In addition, add to this section any relevant references to portions of the ERP that discuss sediment controls and/or BMPs to prevent impacts to

stormwater in the event of an emergency. In addition, if petroleum materials will be stored on-site to support RA activities, the SWPPP should include the petroleum reporting requirements of RSMo 206.500-550.

7. **Section 6.2, page 22.** Add the words "*and updated*" after "*reviewed*" in the first sentence.

8. **Section 6.3, page 22, general comment.** Add text to this section that specifies which personnel require training. Also state that training will be documented, and that documentation will be made available to EPA upon request. The text should also specify that the documentation will include the training content and attendance logs.

9. **Section 6.3, page 22, first paragraph.** Expand the discussion of training by including a requirement for it to include all site-specific procedures for phasing and identification of appropriate BMPs to address site conditions, inspection and maintenance of existing BMP controls and notification procedures for ensure damaged BMPs are repaired promptly and effectively. The paragraph should also include the description of the scope and method of the training that will ensure the SWPPP requirements are understood.

10. **Figures, General Comment.** Add a note on the title page for the "Figures" section or elsewhere in the plan that the plan will be updated prior to the start of any earth moving activities with figures that depict the following:
    - **a.** Stormwater drainage area and flow direction for each water outfall
    - **b.** Location of BMPs
    - **c.** Location of all stormwater conveyances including stormwater drain inlets, ditches, pipes, and swales, when applicable
    - **d.** Location of activities of potential stormwater contamination sources including but not limited to non-stormwater discharges, material loading/unloading/storage areas, hazardous substances, maintenance operations, solid waste storage areas, vehicle maintenance (including washing) and fueling
    - **e.** Detailed schematics for each type of BMP proposed at the Site

11. **Appendix A, Inspection Form.** The example SWPPP inspection report form lacks sufficient detail to ensure all aspects of a SWPPP inspection will be addressed. In addition to the weekly and post rain event inspections, additional inspections and/or information should be included in the report as follows:
    - **a.** Routine monthly site inspections that include the name of the inspector, the signature of the inspector and the date.
    - **b.** Documented observation and analysis of BMP effectiveness, deficiencies and corrective action that will be taken.
    - **c.** Observation of the outfall and receiving stream, as well as the integrity of any containment structure(s), including but not limited to above-ground tanks, secondary containment, external piping, etc.
    - **d.** Corrected deficiencies
    - **e.** A SWPPP inspection log kept on location that includes the following information:
        - **i.** Locations of potential stormwater contamination
        - **ii.** Observations including, stains, flow, sludge, color, oder, etc. or other indicators of non-storm water discharge.
        - **iii.** Notes and/or Corrective Actions

iv. Date BMPs are to be corrected.
v. Date BMPs were corrected.