



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7**

11201 Renner Boulevard
Lenexa, Kansas 66219

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

Dear Mr. Rosasco:

The U.S. Environmental Protection Agency has completed its review of Appendix F of the West Lake Landfill Operable Unit (OU)-1 Design Investigation Workplan (DIWP) submitted on March 30, 2020. The EPA provided comments on the rest of that document to the Respondents on May 6, 2020. The EPA is also enclosing additional comments on the Remedial Design (RD) Quality Assurance Project Plan (QAPP) specific to PSQ #4, which is related to the OU-1 groundwater monitoring program.

The enclosed comments are based on the limited information provided in the memorandum contained in Appendix F of the DIWP. The comments included in this letter are not required to be addressed in the revised documents due to the EPA on June 5, 2020; however, they must be addressed in the OU-1 Groundwater Monitoring Plan and approved by the EPA prior to the initiation of OU-1 groundwater monitoring activities.

The EPA is concerned that there appear to be inconsistencies or confusion between the OU-1 DIWP, the RD QAPP and the OU-3 Remedial Investigation/Feasibility Study Workplan with regards to the technical work being done (e.g. boring locations), who will be doing the work, and a schedule for performing the work. Please contact the EPA as soon as possible to schedule a meeting to discuss these issues so that they can be adequately addressed in the appropriate required submittals.

Please note that if activities associated with OU-1 groundwater monitoring are to be implemented prior to the EPA's final approval of the OU-1 Groundwater Monitoring Plan (e.g., ground water elevation measurements), then approval for these associated activities must be received from the EPA prior to commencement of that work.



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

Sincerely,

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

Enclosures

Comments on Appendix F of the draft DIWP submitted to EPA on March 30, 2020

1. **First paragraph of the memorandum, page 1.** The OU-1 Groundwater Monitoring Plan should reference Section 12.2.6 of the Record of Decision Amendment (RODA), where the groundwater monitoring requirement is documented.
2. **Objectives of the GWMP, bullet 2, page 1.** Add the word “*and*” so that the sentence reads, “...about the movement of *and* changes in contamination...”, as written in the SOW.
3. **Objectives of the GWMP, first paragraph, page 2.** The OU-1 monitoring program is to be conducted so that there will be eight quarters of data collected to establish a baseline prior to initiating the Remedial Action field work, regardless of whether the work is being performed as part of OU-3 or not. The work for OU-1 should be prioritized to the extent necessary to implement the required monitoring program.
4. **Objectives of the GWMP, first paragraph, second to last sentence, page 2.** The second half of this sentence should be revised to read, “...and some constituents analyzed in the *OU-3 program* will also be analyzed in the OU-1 program.”
5. **Site Hydrogeology, last paragraph, page 2.** This paragraph should be deleted or revised to read, “The radiologically impacted material (RIM) within OU-1 Areas 1 and 2 is located within unconsolidated materials (waste, fill, alluvium). Given the objectives of the OU-1 groundwater monitoring program are focused on the evaluation of the remedy’s performance, the program will focus on wells that monitor the alluvial zone but will also include wells that monitor the St. Louis/Upper Salem zone. Other zones may be monitored if there is reason to suspect they are impacted.”
6. **Groundwater Flow Direction, last paragraph, page 3.** This section states that groundwater flow direction will be refined during OU-3. Add a statement that groundwater elevation measurements for OU-1 monitoring purposes will be prioritized so that they can be collected once a month, as soon as the inactive wells are re-developed.
7. **Proposed Groundwater Monitoring Network – Area 1, pages 3-4.** The groundwater flow direction section states that the northern and western sides of Areas 1 and 2 can generally be considered downgradient; however, five of the seven alluvial wells are proposed on the east side of Area 1. Only one monitoring location is proposed on the west side of Area 1, and that is closer to the southwest corner. Additional data collection, including groundwater elevation data and analytical data, is necessary to determine an appropriate monitoring network to establish baseline conditions for OU-1. Existing wells in the vicinity of Area 1 should be used to collect this data even if they may not be part of the final OU-1 monitoring network. Propose additional wells accordingly.
8. **Proposed Groundwater Monitoring Network – Area 1, pages 3-4.**
 - The two new wells proposed for the OU-1 monitoring network are proposed to be installed as part of Phase II of the OU-3 work. This timing may not be acceptable for implementing the OU-1 monitoring program and may need to be prioritized over other OU-3 well installations. This needs to be further discussed between the OU-1 and OU-3 teams.

- The distance between the PZ-113 wells and the proposed location for the MW-111 wells is too great to adequately monitor the west side of Area 1. Therefore,
 - At least one additional alluvial monitoring location is needed between PZ-112 AS and MW-111 AS and AD;
 - PZ-112 AS should be used during the baseline phase to collect groundwater level measurements and analytical data to evaluate groundwater conditions in the Area 1 vicinity; and
 - Alluvial monitoring well(s) in the southwest corner of Area 1 is needed based on reported intermittent flow to the southwest and the concentration and volume of RIM in this part of Area 1.
 - An additional alluvial monitoring location must be proposed on the north side of Area 1 between PZ-113 and PZ-207, which appear to be greater than 400 feet apart.
9. **Excluded Wells, page 4.** The EPA does not agree that the four wells discussed in this section should be excluded from the initial monitoring performed to establish baseline conditions and identify a long-term monitoring network for OU-1 Area 1. The following existing monitoring wells must be added to the OU-1 monitoring network for use as groundwater elevation monitoring points, and as analytical sampling points during the baseline phase (i.e. not part of the long-term monitoring network), to identify analytes required to be monitored in the OU-1 Groundwater Monitoring Plan: D-3, I-4, S-5, PZ-112 AS, D-87.
10. **Proposed Groundwater Monitoring Network – Area 2, page 4.** The 19 new proposed monitoring wells represent five additional monitoring locations with multiple well depths. The spacing of the wells in the proposed monitoring well network along the north and west sides of Area 2 as depicted on Figure 10 of the DIWP is not sufficient and the EPA requests the following changes:
- the MW-400 grouping be moved north west along the south side of the landfill to the northwest corner of Area 2.
 - a shallow alluvial well be paired with D-6.
 - the MW-406 grouping be moved north and slightly east toward D-6;
 - and an alluvial well pair be added at the south end of the buffer zone between MW-406 and MW-404
11. **Excluded Wells, page 5.** The EPA does not agree that the four wells discussed in this section should be excluded from the initial monitoring performed to establish baseline conditions and identify a long-term monitoring network for OU-1 Area 2. The following monitoring wells should be used as groundwater elevation monitoring points, and as initial analytical sampling points during the baseline monitoring phase (i.e. not part of the long-term monitoring network) to identify analytes required to be monitored in the OU-1 Groundwater Monitoring Plan: S-10, I-11, D-12 and D-13.
12. **Future Evaluation, page 5.** There is no *Future Evaluation* section for Area 1. The same type of evaluation described in this section should also be performed for the OU-1 monitoring network. An initial evaluation of the analytical data collected from all the wells should also be conducted after the baseline phase of sampling events to help identify future analytes and final monitoring locations.
13. **Baseline Monitoring, page 5-6.** The discussion in this section seems to imply that the baseline monitoring phase will consist of only two quarters of sampling. This monitoring phase should

consist of four quarterly monitoring events. The baseline sampling events should include analytical samples from the wells discussed in comments 10 and 12 on the Excluded Well sections.

14. **Pre-RA Monitoring, page 6.** This phase of monitoring should also consist of four quarters of monitoring prior to implementation of the OU-1 RA. The Respondents have proposed to conduct the OU-1 monitoring as part of the OU-3 Work Plan; however, redevelopment and installation of wells associated with the OU-1 monitoring program may need to be prioritized in order to complete eight quarters of sampling prior to implementation of the RA. This issue needs to be further discussed between the OU-1 and OU-3 teams.
15. **RA Monitoring, page 6.** Please clarify whether the expanded constituent list discussed in this section will be the same list used for the baseline sampling events.
16. **Monitoring Constituents, first paragraph, page 6.** Clarify which QAPP this section is referring to. Verify that the OU-1 QAPP and OU-3 QAPP are consistent with respect to analytes and analytical methods or clearly identify differences, if the OU-1 monitoring will be done under the OU-3 Work Plan, as indicated in the DIWP.
17. **Baseline Monitoring Plan, first paragraph, page 7.** Clarify that the Baseline Monitoring Plan will consist of four quarters of sampling, not just the initial and verification events.
18. **Baseline Monitoring Plan, Second paragraph, page 7.** As indicated above, monitoring wells proposed as part of the OU-1 monitoring network may need to be expedited to meet the monitoring requirements for the RA.
19. **Pre-RA Monitoring Plan, first paragraph, page 7.** This paragraph should be revised to state that the Pre-RA Monitoring events could potentially be modified based on the results of four quarters of baseline monitoring, pending the EPA's approval of a proposal to modify the constituent list. Any such proposal must include data and justification for the requested modifications.
20. **Pre-RA Monitoring Plan, Bullet, page 7.** This bullet must be revised to indicate that the volatile organic compounds (VOCs) being monitored will be based on the four quarters of baseline monitoring, including the wells originally proposed to be excluded.
21. **Pre-RA Monitoring Plan, last paragraph, page 7.** Delete the last sentence of this paragraph which says, "The feasibility of collecting eight quarters of data from the proposed OU-3 monitoring wells prior to RA Monitoring will depend on the installation schedule of those wells". The Respondents proposed to do the groundwater monitoring under the OU-3 Work Plan. It is the Respondents' responsibility to ensure that coordination between contractors and their project schedules are sufficient to achieve the required eight quarters of monitoring for OU-1.
22. **Potentiometric Surface Map Q4 2019 Bridgeton Landfill detection Monitoring Event.** The 445-foot contour line appears to be drawn incorrectly on this figure.

Comments on Section 3.3.3 of the March 30, 2020 draft DIWP

23. **Section 3.3.3.** Revise this section in accordance with comments above on Appendix F, as necessary.

Comments Related to PSQ-4 of the March 30, 2020 draft RD QAPP

24. **Worksheet 11, Groundwater, 2nd paragraph, page 21.** Revise this paragraph to incorporate the concept that groundwater monitoring from existing wells within Areas 1 and 2 will be conducted during the baseline monitoring to evaluate the constituents to be monitored for OU-1. Also, add discussion stating that the leachate wells being installed in the waste in OU-1 will be monitored to evaluate constituents present in the leachate that may need to be included in the OU-1 groundwater monitoring program.
25. **Worksheet 11, Groundwater, 3rd paragraph, page 21.** Revise the third sentence in this paragraph to state, “Four Baseline events will be followed by at least four Pre-RA events, for a total...”.
26. **Worksheet 11, Groundwater, page 21.** There is no discussion regarding groundwater elevation measurements and no discussion of the adequacy of the OU-1 groundwater monitoring network and how that will be determined for PSQ-4. Add these topics to the QAPP.
27. **Worksheet 12, page 30.** Groundwater elevation data will also be collected and used as part of this project. Measurement performance criteria must be included for that activity.
28. **Worksheet 14 and 16, page 41.** The information related to PSQ-4 data collection is not specifically included on any of the documents in the RD schedule and may be related to the OU-3 schedule. Include task and schedule information for groundwater.
29. **Worksheet 15.** Since groundwater work may be conducted under OU-3, confirm whether the reporting limits (RL) and method detection limits (MDLs) for groundwater constituents are the same as those for OU-3.
30. **Worksheet 18, page 82.**
- Revise the text above the table to state that Baseline monitoring will consist of four quarterly events and Pre-RA monitoring will consist of 4 or more events.
 - Revise Table 18-5 to include the new wells requested in the comments on Appendix F of the DIWP. Add a column to the table for wells that are within the waste mass that indicates they will only be monitored during the baseline phase.
31. **Worksheet 21, pages 91-92.** The row related to FSP Section 2.6 water sampling, and hydrologic measurements, and the row related to SOP 5, list Parsons and FEI as the Originating Organization. The FSP indicates that this work will be conducted under OU-3. Revise the table, if necessary, to reflect the company and SOP that will actually be used.
32. **Worksheet 23, pages 94-99.** Confirm that the analytical methods and SOPs for the groundwater analyses are consistent with those in the OU-3 QAPP.

33. **Worksheet 29, page 132.** Clarify whether the groundwater project documents and records will be managed by Parsons personnel, and if not, revise the table accordingly.