

MEMORANDUM | July 10, 2025

TO Katie Daugherty and David Lacey, Oregon Department of Environmental Quality (DEQ)

FROM Peter Shanahan, HydroAnalysis LLC (HALLC); Jennifer Hart and Gail Fricano, Industrial Economics, Inc. (IEc)

SUBJECT Five Tribe review of “In Situ Stabilization Pre-Final Design Report,” dated June 6, 2025

This memorandum, submitted on behalf of the Five Tribes,¹ reviews the *In Situ Stabilization Pre-Final Design Report* (ISS PFD Report) prepared by Environmental Resources Management, Inc. (ERM) on behalf of Legacy Site Services LLC (LSS) (ERM 2025).

General Comments

1. The ISS PFD Report is largely silent on future plans for the existing Groundwater Extraction and Treatment (GWET) System. Sections 6.2 and 6.3 and ERM’s responses to comments on an earlier design document imply that the system will be abandoned, at least temporarily. Section 6.13 fails to mention the GWET System when discussing site restoration. Please clarify plans with respect to groundwater extraction during and after the Interim Remedial Action Measure (IRAM).
2. The design plans present the ISS areas as known and certain. We recommend that the plans and specifications include a provision for ISS treatment of dense nonaqueous phase liquid (DNAPL) that has not previously been identified that may be encountered during construction.

Specific Comments

3. Figures 8 and 9 are contour maps showing the interpreted top elevation of the intermediate and deep zones, respectively. Apparently based on new soil borings, these maps differ in some locations from the versions included in the Pre-Design Investigation Report (ERM 2024, Figures 6 and 7) and now show a small, shallow valley at the northern corner of Lot 4. This new interpretation of the zone surfaces is not discussed in the report. We recommend that the new findings and their implications with respect to the site hydrogeology and the site remedy be discussed.

¹ The five tribes are the Confederated Tribes of the Grand Ronde Community of Oregon, the Nez Perce Tribe, the Confederated Tribes of Siletz Indians, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon.

4. Also, with respect to Figure 8, the map shows a comparatively deeper depression in the surface of the intermediate zone at -10 feet that does not correspond to an actual boring at that location. We recommend that the contours at this location be reviewed for accuracy.
5. Sections 6.5.2 and 6.5.3 indicate that unimpacted soil “will be excavated, screened, and stockpiled for backfill.” Please clarify the meaning of “screened.” Does this mean inspected and/or tested (e.g., for contamination) or physically screened to remove boulders and debris?
6. Section 6.12 indicates that “Stormwater which falls directly into the excavation...will be managed...” Should this be “Rain that falls directly into the excavation” or “stormwater that collects within the excavation”?
7. Section 4.1 states “The TS [Treatability Study] Phase 1 report is included as Appendix F.” However, Appendix F is titled, *Treatability Study Initial Results*, which includes tables and figures with no written narrative to explain the content of the tables and figures. We recommend revising Section 4.1 for accuracy.
8. Appendix F, Table 1 includes a number of in situ chemical oxidation (ISCO) tests. The acronym “ISCO” is not defined in the table’s legend and there is no discussion of these tests in Section 4.1 of the report. We recommend better definition and discussion of the ISCO tests. More generally, the discussion in the text and the descriptive terms in Table 1 are not well coordinated and the information is difficult to follow.
9. Appendix H, Area C Excavation Plan shows ISS Mixing Area C to be directly adjacent to existing GWET Trench 4. Please clarify if the intent is to preserve Trench 4 or if it will be removed and/or altered during ISS treatment.

Editorial Comments

10. For clarity, we recommend the title of Figure 22 be changed to “Maximum PDI Chlorobenzene Concentrations in Soil.”
11. Section 6.4 includes the statement “Visibly clean or nonimpacted soil will be segregated from each other...” We think this is intended to convey that nonimpacted soil will be segregated from impacted soil, and we recommend the sentence be revised to clarify.
12. “Geotechnical” is spelled incorrectly on the title page for Appendix E.
13. Appendix F, Table 3 – The units of the tabulated numbers are not indicated.
14. Appendix H, Existing Site Plan – The plan labels several areas as “Existing Potential Stockpile Area.” We recommend striking the word “Existing” unless soils are currently being stockpiled.
15. Appendix H, Erosion and Sediment Control Plan – The plan shows “Existing Haul Routes” and other “Existing” features. We recommend striking the word “Existing” if these features do not currently exist.

References

ERM (Environmental Resources Management, Inc). 2024. In Situ Stabilization Pre-Design Investigation, Arkema Inc. Facility, Portland, Oregon. Prepared for Legacy Site Services LLC, agent for Arkema Inc. Environmental Resources Management, Inc., Portland Oregon. December 9.

ERM (Environmental Resources Management, Inc). 2025. In Situ Stabilization Pre-Final Design Report, Arkema Inc. Facility, Portland, Oregon. Prepared for Legacy Site Services LLC, agent for Arkema Inc. Environmental Resources Management, Inc., Portland Oregon. June 16.