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July 31, 2023 *via electronic delivery*

Dwight Leisle, P.E.
Port of Portland
7200 NE Airport Way
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RE: Remedial Design Investigation Report
Willamette Cove Uplands
ECSI# 2066

Dear Dwight:

DEQ staff reviewed the *Remedial Design Investigation Evaluation Report, Willamette Cove Upland Facility* ("site") prepared by Apex on behalf of the Port of Portland (Port) and dated March 22, 2023. The Willamette Cove property is situated on the east bank of the Willamette River between River Miles 6 and 7. The approximate 19-acre site is comprised of the upland area, or Uplands, located above top of riverbank (or TOB) of the Willamette Cove property. USEPA is lead agency for cleanup of the adjacent Willamette River and sediment, and the Willamette Cove riverbank (below TOB). DEQ's March 2021 Record of Decision (ROD) documents the selected remedial action to address soil contamination in the Uplands and corresponding site-specific remedial action objectives (RAOs) to achieve protectiveness of human health, ecological receptors, and beneficial uses. The selected remedial action requires a pre-remedial design investigation to support remedial design/remedial action (RD/RA) and residual risk assessment of the constructed remedy, both which are of critical importance for this project. The Willamette Cove property, under Metro ownership, will be redeveloped as a nature area park.

In coordination with DEQ, Port of Portland and Metro developed and implemented a comprehensive approach to remedial design sampling using incremental sampling methodology (ISM) to provide a robust dataset for remedy design. The upland Remedial Design Investigation (RDI) was conducted in general accordance with the approved RDI Work Plan during the Summer through Fall of 2022.

Data presented in the RDI Report represent an enormous sampling effort on the part of the Port/Metro, and a sizeable data compilation and analysis effort. We recognize and appreciate the professionalism and commitment exhibited in completing the work.

DEQ has the following comments on the RDI Report.

General Comments

General Comment 1, Nature and Extent of Contamination. As noted in the report, contaminant concentrations at the site do not consistently decrease with depth, nor has the depth of actionable contamination been determined across the site. New ISM data indicate that the conceptual site model for contamination is more complex than initially posited (contaminant confined to shallow soil and generally decreasing with depth). There were also notable detections of contaminants (e.g., PCBs) not originally

considered to be common or risk drivers. Please discuss, and the conceptual site model should be updated for remedial design work moving forward.

General Comment 2, Sampling Results Variability. There is a considerable degree of variability between ISM and replicate sampling results. DEQ believes that this is partially attributable to contaminant heterogeneity in soil, perhaps exacerbated to some degree by the smaller increment (30) size used. The variability is nevertheless concerning. Given the variability observed and to apply a reasonable level of conservativism, DEQ believes that it is appropriate to use the *maximum* detected ISM concentration (for individual contaminants) when considering sample and replicate results for risk screening/remedy design.

General Comment 3, Data Uncertainties. As noted in comment 2 above, sampling variability for specific COCs was observed, such as replicates of the mean concentration for PCBs, dioxin/furan TEQ, and mercury. Many areas of data uncertainty will be areas subject to soil removal for these and other COCs; however, specifics regarding areas planned for soil removal areas (lateral and depth) are under development and will be presented in the forthcoming Basis of Design Report. DEQ will defer further analysis at this time and revisit data uncertainty during remedial design to focus efforts on areas that may not be carried forward for soil removal where uncertainty remains. Recommendations to consider will be provided in separate correspondence to address data uncertainty including poor reproducibility of specific COCs and adjustments of data concentrations where the RSD is >35% and <50%.

General Comment 4, Arsenic. Acknowledging the preliminary remedial goal identified in the Record of Decision, and uncertainly associated with comparing the PRG to ISM sampling results, DEQ is not seeking cleanup within the Uplands below regional background levels for arsenic. This is appropriate based on practical and site-specific considerations, including:

- Arsenic is not a priority COC or risk driver for the site.
- Clean Fill that will be imported onsite (minimum of 1-foot and greater depths in other areas to address residual ecological risk) may naturally contain arsenic concentrations between the PRG (4.4 mg/kg) and the regional background concentration of 8.8 mg/kg. Arsenic concentrations in this range would be considered acceptable.
- DEQ's analysis of contaminant data indicates that arsenic within and above the background range is most often co-located with contamination that would require excavation.
- In the limited instances where arsenic levels are present above background and no remedial action is required for other COCs, a lines of evidence (LOE) approach is recommended.
- Analysis alternatives, such as statistical comparison considering variance, can be performed if needed as a LOE assessment.
- An exceedance ratio of background, including the cumulative exceedance ratio, is not a direct indication of risk.
- Confirmation sampling during/following remedial action presumably will include discrete sampling in combination with ISM.
- This decision is specific to arsenic, most detections of which at the site are attributable to geologic materials from which site soil are derived (natural enrichment). In contrast, elevated concentrations of mercury in site soil are attributable to contaminant releases, and a priority COCs for ecological risk.

General Comment 5, Unsampled Berms on East Parcel. Berms adjacent to DU-30, DU-33 and DU-36 are large (about 6 feet tall) and were not sampled. Based on the results from DU-41, which is the berm area adjacent to DU-28, DU-29 and DU-30, these berms should be considered hot spots (similar to DU-41) pending additional data collection. Based on visual observations, perhaps surface soil from the East Parcel was pushed out into these berm areas at some point in time.

General Comment 6, Developing Future Data Needs. In general, DEQ anticipates that based on the recent RDI data, the following will be subject to excavation across the Uplands: a) the top 1-foot of soil across the

upland; b) many portions of the site to depths of 1-2 feet below current ground surface (bgs); c) some decision units in the 2-3 ft bgs range. Also select soil berms. Additional contaminant data are expected to be necessary:

- Underlying soil where concentrations are present above human health PRGs and ecological hotspots for metals are present at depth of 3 feet; and
- At three feet below underlying future leave surfaces where not offset with importing clean backfill.

Confirmation sampling during/following remedial action activities is an acceptable approach. An alternative is additional pre-removal sampling in areas that may contain deeper contamination and subject to excavation (or capping). The latter may be preferred to minimize potential construction delays from verification sampling for specific COCs with longer turnaround timeframes (e.g., dioxin/furans).

Specific Comments

Section 2.2., Extent of Upland Facility. The riverbank area was excluded from the Upland Record of Decision with the understanding that the in-water remedial action would implement a protective remedy. DEQ continues to coordinate with EPA and responsible parties (Port of Portland and Metro) to ensure sufficient cleanup will be implemented on the riverbank to be protective of both upland and in-water receptors (ecological and human).

Section 2.1.6, Cultural Resources. Confirm no archaeological or historical resources were encountered. DEQ expects updated cultural and archeological plans in consultation with Oregon State Historic Preservation Office (SHPO) and appropriate Tribal governments in preparation of future remedial activities.

Section 3.2, Boundary Survey Field Confirmation. At the southeast portion of the site, there is continued uncertainty regarding the extent of Metro property versus BNSF property supporting the railroad bridge. DEQ requests this matter be resolved early in the design process including conducting a professional survey that maps the property boundaries *with accuracy and precision*. The results of the survey should be presented in the forthcoming Basis of Design Report or earlier.

Section 3.3.1, ISM Sampling (DU-1 through DU-36, DU-38). Confirm that 130 grams of soil was the target for each increment location, with a total mass of 3,900 grams at each decision unit using 30 increments. Also, discuss how often the mass of the soil was significantly greater than 130 grams (e.g., rarely, moderately, frequently) and the aliquot was homogenized and excess soil was removed. Clarify whether this was before combining the 30 aliquots for the total ISM sample and provide further discussion regarding aliquot weight deviation.

Section 3.3.3, Concrete Slab Composite Sampling. Consistent with Section 3.3.1 comment, please provide additional details in the context of composite sampling methodology and when homogenized soil was greater than 800 grams and the weight of the homogenized soil was adjusted to 800 grams by removing excess soil. Clarify if weight was adjusted prior to or after combining the five composite sample aliquots.

Section 3.4, Deviations from the Work Plan. Expand discussion on the laboratory processing of the ISM samples and any deviations from the work plan.

Section 5.1, Preliminary Soil Excavation Depths and Volumes. Note estimated soil volumes identified in the ROD were provided by the Port of Portland and presented in the Feasibility Study. Regarding arsenic, the more recent estimates provided for additional removal driven exclusively by arsenic appears overestimated. Please provide calculations and assumptions.

Tables. Composite results for DU-44 under the concrete slab in DU-16 exceeds ecological hot spot levels for dioxins and furans (i.e., dioxin TEQ at 60.7 ng/kg) and mercury, and PRGs for lead, nickel, and zinc. This sample location is missing from cumulative risk tables. Please add this sample to the tables.

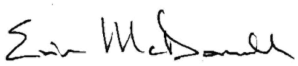
Appendix F, Laboratory Replicate Samples (Quality Control Duplicates), Appendix F. The workplan called for laboratory duplicates of the processed 3,900 grams of soil in order to assess the variability in laboratory processing. Please present and discuss results the report. [Section 5.3 of the work plan states the "Laboratory quality assurance/quality control (QA/QC) will include a method blank and a batch laboratory control sample (LCS), sample duplicate 1 (DUP1), sample duplicate 2 (DUP2), sample matrix spike (MS). Sample replicates will be formed by subsampling multiple increments of powdered sample."] Section 4.7.4 of Appendix F discusses the laboratory duplicates, but no results or discussion is provided. Please present the laboratory duplicate results in dry weight.

Next Steps

DEQ is not seeking a revised report; however, requests a response to comments. Thank you for working closely with DEQ on this comprehensive endeavor to support the cleanup project.

Please contact me anytime about the project at erin.k.mcdonnell@deq.oregon.gov or (503)229-6900.

Sincerely,



Erin K. McDonnell, P.E.
Project Manager/Engineer
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