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September 30, 2025 *via electronic delivery*

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RE: Revised Basis of Design Report
Willamette Cove Uplands
ECSI# 2066

Dwight:

DEQ staff reviewed the *Revised Basis of Design Report* (BODR) for the Willamette Cove Upland Facility (site) prepared by Apex on behalf of the Port of Portland (Port) and dated June 11, 2025. The Willamette Cove property is situated on the east bank of the Willamette River between River Miles 6 and 7. The approximate 19-acre upland area, or Uplands, is located above the top of riverbank (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 revised BODR and accompanying response to comments (RTCs) was intended to address DEQ comments on the draft BODR (Apex, 2024) articulated in a DEQ letter dated February 18, 2025. The Willamette Cove property, under Metro ownership, will be redeveloped as a nature park with recreational uses.

DEQ has the following comments on the revised BODR which we request be incorporated into subsequent remedial design (RD) deliverables. We appreciate the continued coordination as we move towards completion of the remedial design process and proceed to implementation of a protective cleanup.

General Comments

1. To achieve the site RAOs, the BODR proposes a substantial volume of soil contamination to be excavated in the Uplands (up to 3 feet in depth; on average 1.5 feet over 19 acres) for offsite disposal and subsequently construct an extensive remedial cap within much of the upland area, generally consisting of a soil cap thickness of 3 feet over approximately 85% of the upland area with underlying demarcation. Preliminary estimates provided in the BODR include the removal of 47,700 cubic yards of contaminated soil for transport and disposal at a regulated landfill and 70,000 cubic yards of clean soil (e.g., below risk levels) to cap the upland area. This remedial approach will be refined during design based on park planning efforts to ensure the site is protective of future site uses.

2. DEQ has the following expectations:
    a. If additional sampling is pursued to support a partial excavation approach, submit a sampling plan in the coming months (e.g., by end of 2025) to facilitate incorporation of this supplemental data into the 60% remedial design, if not earlier.

b. In addition to riverbank layback areas, develop a sampling plan for areas beneath concrete slabs to reduce data gaps and ascertain results to evaluate the feasibility of soil reuse onsite earlier in the remedial design process (e.g., to inform 60% RD).

3. The BODR relies on interpolation to predict contamination depths to inform the required depth of removal for each DU. Confirmation sampling will be needed to verify these assumptions and final removal depths.

4. DEQ previously requested pre-removal baseline risk values because our review of draft BODR found inconsistencies and data gaps. Please provide tables and figures with ecological hazard quotients (HQs) and hazard indices (HIs) for each receptor, and human health cancer risk for both pre-removal (baseline) and residual risk (post remedial action) for each decision unit and depth. These can be consolidated into one or more appendices in a future RD deliverable. See specific comments for additional details and context.

Specific Comments

1. **Section 2.1.1: Extent of Site.**
   a. The presence of recreational users and terrestrial animals and plants on the riverbank extends below mean high water. DEQ believes an evaluation of these uses to mean low water (MLW) is more appropriate and correspondingly requests screening of upland remediation goals (RGs) from top of bank to mean low water. Note that the response to DEQ Specific Comment 1 cites two different water marks: mean high water and ordinary high water.
   b. DEQ is encouraged that upland parties are working with the in-water Willamette Cove Group to ensure that upland remediation goals are achieved for upland and in-water uses. Under a scenario where upland RGs are not achieved to MLW as part construction of the in-water remedy, additional cleanup measures may be necessary under DEQ authority.

2. **Section 2.1.2: Structures and Improvements.** There is a remnant concrete structure in the northeast corner of the Inner Cove area which is located mainly below the top of bank but abuts or possibly crosses the top of bank boundary into the upland area. Please confirm and map this structure on a figure. Sampling has also been limited around and below this structure. DEQ would appreciate further discussion on the pending status of the structure and whether it should be incorporated into the upland RD.

3. **Section 2.1.6: Cultural Resources.** While the response to DEQ Specific Comment 3 states that an Inadvertent Discovery Plan will be updated during remedial design, this intention was not identified in the revised BODR. DEQ notes the importance and applicability of cultural resources laws during construction or earth-disturbing activities, including where to find the Inadvertent Discovery Plan template and other resources available on the Oregon Heritage SHPO website.

4. **Section 2.1.8: Existing Conditions and Site Use.** DEQ appreciates the commitment to providing additional details on planned park features as park master planning progresses, including upcoming updates on the Willamette Cove Preferred Park Design being developed by Metro. The BODR indicates that a large portion of the site will be covered with a 3-foot engineered cap with underlying demarcation. Additional evaluations conducted during the remedial design process will be performed to validate that the remedial action is protective for the recreational uses identified in the BODR and any other uses identified during park planning. In accordance with the ROD, a final quantitative evaluation of residual risk will occur after collection of additional data and completion of RD. The residual risk assessment should review baseline risk assessment assumptions and incorporate refined RD evaluations to confirm that engineering controls as designed and constructed are protective for future park users long-term. See additional input on Section 3.3.2.2.

5. **Section 2.1.8: Existing Conditions and Site Use, and Response to DEQ Specific Comment 4, Bullet 2.** For clarification purposes, the ROD documents the fact that DEQ received a letter from Metro Council after the public comment period on the proposed cleanup and included additional details regarding the vision for the future Willamette Cove park. Considering Metro Council's letter included more details regarding potential park features and that public comment strongly opposed a consolidation area onsite, DEQ incorporated a contingency option that allowed (but did not require) Metro to perform additional soil removal to better align with future park plans. No change is necessary to the section text.

6. **Section 2.2: Remedial Design Dataset.** To clarify, DEQ has not changed the remediation goal for arsenic identified in the ROD but is not seeking cleanup within the Uplands below regional background levels for arsenic. This decision was based on practical and site-specific considerations outlined in DEQ's July 31, 2023, General Comment 4 on the Remedial Design Investigation (RDI) Report.

7. **Section 2.2: Remedial Design Dataset, and Section 3.3.2.4: Consideration of Data Uncertainty in Excavation Design, and Response to Specific Comment 5.** This section identifies contaminant of concern (COCs) with unacceptable data variability in the 0.5-acre incremental sample mean concentrations. Add the following COCs to the list requiring data adjustment based on the reported replicate statistics in Appendix I of the RDI Report (Tables I-1 to I-4) and to Tables 8 and 9.

   West Parcel:
   - Individual Aroclors (in addition to Total PCBs)
   - Individual dioxins and furans, and dioxin TEQ
   - Individual PAHs, Total HPAH, Total LPAH, cPAHs

   Central Parcel:
   - Individual dioxins and furans, and dioxin TEQ
   - Individual Aroclors, Total PCBs
   - Individual PAHs

   East:
   - Arsenic and mercury.
   - Individual dioxins and furans, and dioxin TEQ
   - Individual Aroclors and Total PCBs

8. **Section 2.3.3: Preliminary Assessment of On-Site Borrow Material, and Section 3.3.4: Imported Soil Fill and On-Site Borrow, and Response to Specific Comment 19.** For clarification, soil reused onsite will need to achieve the upland RGs and be acceptable from a cumulative risk standpoint.

9. **Section 3.2.3: Hot Spots, and Response to Specific Comments 17, 22, and 23.**
   a. DEQ requested hazard quotients and indices for each receptor for both baseline and residual risk for each decision unit and depth. Our review of the hazard quotients and indices in Table 11 (plants), Table 12 (invertebrates), Table 13 (birds), and Table 14 (mammals) do not show each depth interval and do not appear to match baseline quantitative risk screening. Accurate baseline values are needed to review the HQs and HIs associated with each decision unit and depth interval, identify hot spots, and for selection of protective capping materials.
   b. Please update quotient and index tables and associated text to be consistent with baseline conditions including Table 4 and Tables 11-14 and Figures 8-17. Appendix B provides the residual risk figures. Please add the residual risk screening tables associated with the proposed remedy for each ecological receptor.
   c. For reporting, DEQ is a proponent of the use of practical significant digits; however, rounding should not occur until the end of the ecological risk screening (either HQ or HI). HQs and HIs should be presented using two significant digits. HIs should be calculated using all significant digits

from the individual chemical HQs. After review of the tables, it is not clear if there are systematic or rounding errors or if generic estimates of 9.9 (i.e., maximum allowable residual HQ after removal of existing hot spots) were applied to the leave surface. Providing the pre-removal versus residual risk calculations for each DU and depth may explain some inconsistencies; others may be resolved by consistent rounding methodology recommend by DEQ.

10. **Section 3.3.2.1: Human Health and Ecological Hot Spot Excavation, Removal of Soil Piles.** DEQ supports removal of all soil piles, including those in DU-41, DU-36, DU-33, and DU-30. A soil pile has also been observed within DU-21. Please confirm the status of the soil pile in DU-21 and its removal.

11. **Section 3.3.2.1: Human Health and Ecological Hot Spot Excavation, Partial Layer Excavation.**
    a. See General Comment 2 above requesting that additional RDI sampling be performed earlier in the remedial design process to support partial excavation of DUs currently identified as hot spots.
    b. If partial excavation of DUs is carried forward in RD, DEQ requested that decisions be made on a half foot basis (i.e., half of the DU depth); however, this specification was removed in the revised BODR and Table 10 proposes partial excavation depths to one-tenths (e.g., 0.4 and 0.6). It remains DEQ's preference to limit partial excavations and related sampling to support this approach to half foot increments.
    c. Confirm additional RD sampling proposed will be focused on the lower depth interval (e.g., 6 inches) for each DU candidate under reevaluation and will not incorporate underlying soil.

12. **Section 3.3.2.2: Additional Excavation to Address Excess Human Health Risk, Step 2: Evaluate the Residual Parcel Exposure Point Concentrations.** In addition to evaluating risk, if the site also wants to reuse soil located below the concrete pad, it is DEQ's expectation that sampling will occur before RA to confirm that soil proposed for reuse does not have contaminant concentrations above the upland RGs and does not contribute to unacceptable cumulative risk.

13. **Section 3.3.2.2: Additional Excavation to Address Excess Human Health Risk, Step 4: Assess Additional Excavation Needed to Address Localized Excess Human Health Risk.**
    a. Step 4 proposes to assess potential localized risks by screening residual COC concentrations (concentrations remaining after hot spot excavations and excavations to address human health risk described above) by screening against human health RGs; however, the scale (e.g., DU versus parcel-size) is not identified. For instance, DEQ believes an evaluation on a DU by DU basis is a reasonable exposure area of approximately half acre to evaluate potential localized recreational uses. Localized recreational areas that are more active can be accommodated if the proper steps are taken to assess and implement additional measures as needed. In general, an engineered 3-foot soil cap with demarcation will be constructed over the majority of the upland area which is an appropriate technology to protect future park users.
    b. Step 4 also proposes a line-of-evidence approach which needs further explanation. Please work with DEQ to identify appropriate lines-of-evidence which may include a combination of additional excavation, presence of a 3-foot cap, operation and maintenance considerations, institutional controls, etc.
    c. It is our understanding that following excavation activities to remove soil posing human health risk and higher risk to plants and animals, the BODR indicates that 37 DUs (e.g., approximately 85% of the Uplands) will be capped with 3 feet of clean soil. The BODR proposes a 1-foot cap or cover in the remaining 7 DUs containing low residual risk to plants and animals, and 5 of these 7 DUs are presently covered by concrete. Based on this current understanding there appears to be few DUs proposed for a 1-foot cap/cover that potentially could exceed a human health exceedance ratio on a DU by DU basis. If these areas are planned for localized use, DEQ would recommend further evaluation to determine if additional measures are needed.

d. While excavation is one option to address risk, capping or other engineering controls may be acceptable. Institutional controls and/or periodic reviews are potential mechanisms to address future changes in levels of recreational activity and over smaller areas.

14. **Section 3.3.2.3: Additional Excavation to Address Higher Relative Ecological Risk, and Response to Specific Comment 12 and 16.**
    a. The term higher risk used in the ROD describes the general cleanup approach to manage remaining contamination after hot spots (human health and metals for ecological health) are excavated and disposed of offsite. Specifically, following removal of hot spots there was a preference in the ROD for managing higher risk contamination through onsite consolidation and capping, and when consolation/capping is not feasible, there is a preference to excavate higher risk contamination for disposal offsite. In accordance with Metro's direction, there will be no onsite consolidation of contaminated soil as a remedial strategy.
    b. Preferences in managing higher risk contamination was not intended to promote a rank order curve evaluation for ecological risk. DEQ evaluates the magnitude of ecological risk on a 0.5-acre DU basis which is independent of risk in other DUs, and therefore, does not recommend using the knee of the rank order curves. The baseline hazard quotient and hazard indices for each DU and depth interval should be used and presented as outlined in DEQ's comments for baseline and residual risk.
    c. Note that the referenced Figure 6B presenting the bird HI graph needs to be labeled.

15. **Table 5.** DEQ's calculation did not reproduce some values provided in Table 5 and the reason for these inconsistencies is unclear. DU-19 is an example of where DEQ calculates a higher risk than is shown in the figure (and this DU is planned for excavation).

16. **Table 7 and Figure 5: Human Health Residual Risk Hazard Quotients.** The title of this table and figure is human health residual hazard quotient(s). The values should be identified as exceedance ratio or cancer risk. Risks are presented on a DU basis and vary from 1E-6 to 4E-6. This could indicate unacceptable risk on a smaller area for localized use areas; however, the magnitude of the risk is low.

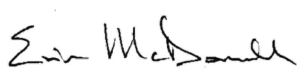
17. **Appendix A: Remedial Design Investigation and Data Tables, and Screening Summary Tables, and Response to Appendix A Specific Comment 1**. The human health exceedance figures do not show all the exceedances indicated in the appendix tables. The ecological screening tables report the soil concentration results but not do not provide a screening of the data presented in the RDI Report. Please revise. All baseline data tables and figures could be consolidated into one appendix.

Next Steps

Please address DEQ comments in future remedial design deliverables. It is our understanding the next pending RD document is a remedial design work plan and 30% remedial design report. Thank you for working closely with DEQ on this comprehensive undertaking to support the cleanup project.

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

Sincerely,



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