



Oregon

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Northwest Region

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December 19, 2024

via electronic delivery

Dwight Leisle, P.E.
Port of Portland
7200 NE Airport Way
Portland, OR 97218

RE: Supplementary Groundwater Source Control Evaluation Work Plan
Willamette Cove Uplands
ECSI# 2066

Port of Portland and Metro Representatives:

DEQ staff reviewed the *Supplementary Groundwater Source Control Sampling Work Plan* (SCE Work Plan), *Willamette Cove Upland Facility* ("site") prepared by Apex on behalf of the Port of Portland (Port) and dated November 11, 2024. This SCE Work Plan presents a scope of work intended to satisfy recommendations provided in the Updated Groundwater Source Control Report (Apex, 2023) recommending collection of groundwater samples between upland monitoring wells and porewater locations utilized during in-water Pre-Design Investigation (PDI) efforts.

As indicated in DEQ's June 12, 2024, comments on the *Updated Groundwater Source Control Evaluation*, and based on review of this SCE Work Plan, DEQ reiterates that groundwater discharge appears to represent a low recontamination risk to Willamette River sediments and DEQ is unlikely to compel the Port of Portland (Port) and Metro to implement additional upland source control measures for this pathway. However, since the Port and Metro are planning to proceed with the investigation, DEQ has prepared the following comments identifying components of the SCE Work Plan that would benefit from increased clarity.

In addition to DEQ's comments provided below, enclosed are comments for consideration prepared by EPA Region 10 (December 18, 2024) and the Five Tribes (December 19, 2024).

General Comment

1. DEQ understands it is the Port and Metro's intention to assess concentrations of COCs in groundwater between upland monitoring wells and offshore porewater sampling locations along three transects aligned generally perpendicular to the shoreline. DEQ encourages the Port and Metro to consider collecting additional porewater samples between the transects to address gaps in coverage based on existing data (see Specific Comment 4).
2. To facilitate evaluating the appropriateness of proposed boring and sample locations/depths as shown in Figures 13-15, please overlay the estimated flow net and groundwater flow paths as depicted in Figure 7 onto cross-sections A-A', B-B' and C-C'.

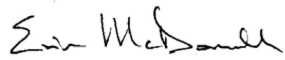
Specific Comments

1. **Section 1.1, Purpose and Objectives.** As indicated previously, DEQ does not consider groundwater discharge to be a significant recontamination risk to Willamette River sediments. With that said, the objectives of the proposed investigation are not clearly stated in this section. Please provide further discussion regarding the goals of the investigation (e.g., documenting changing redox conditions favorable to lowering arsenic concentrations as groundwater approaches discharge zones, comparing COC concentrations between groundwater and porewater to support or rule out groundwater influence altogether, etc.).
2. **Section 3.2.4, Groundwater Gradients.**
 - a. Observations of an upward vertical gradient on a regional scale do not preclude the potential for localized variations in the direction of the vertical gradient (i.e., as has been observed at the Seaport Midstream Partners terminal between river miles 4.8 to 5.0 on the west side of the Willamette River). While a regional trend can be considered a line of evidence in support of limited downward vertical flow, it should not be solely relied upon. Shallow-deep monitoring well pairs provide the best source of data for evaluating the direction and magnitude of vertical flow. Please revise the discussion to note this uncertainty.
 - b. To date, DEQ has not observed evidence of a laterally extensive aquitard in the Willamette Cove upland. Also, it is overly simplifying to state that by virtue of the presence of a confining unit the perched shallow groundwater containing dissolved COCs is “by definition” vertically isolated from deeper regional aquifers. Even where known to be laterally continuous, confining units can be “leaky” due to heterogeneity and allow vertical flow. Please remove this language and revise discussion to more accurately reflect this source of uncertainty.
3. **Section 3.3, Groundwater Discharge Model.** Based on the variable geology encountered at the site and lack of data regarding measured vertical gradients, please explain the basis for the assumption of isotropic groundwater conditions. For example, if there are data regarding hydraulic conductivity measured in the horizontal and vertical directions, please provide and discuss accordingly.
4. **Figure 9, BaP Eq in Porewater.** DEQ notes there are gaps in porewater sample coverage between section lines A-A’ and B-B’ (i.e., landward of WC-P012 and WC-P027) and between section lines B-B’ and C-C’ (i.e., landward of WC-P031 and WC-P028). The Port and Metro should consider collecting additional porewater data between the transect lines. Comment similarly applies to porewater data for DDD as shown in Figure 11. See also General Comment 1.
5. **Section 3.0, Analytical Testing Program.** Please analyze groundwater samples for total PCB as congeners instead of total PCBs as Aroclors and revise Table A-2 accordingly.

Thank you for working closely with DEQ to complete a source control evaluation.

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
Northwest Region Cleanup Program

Attachments:

1. Five Tribe review of the Supplementary Source Control Evaluation Sampling Work Plan, and dated December 19, 2024.
2. EPA comments on the Supplementary Groundwater Source Control Evaluation Sampling Work Plan and dated December 18, 2024.

Cc: Daniel Hafley, DEQ
Jeff Schatz, DEQ
David Lacey, DEQ
Sarah Greenfield, DEQ
Alison Clements, Metro
Herb Clough, Apex
Steve Misner, Apex

MEMORANDUM | December 19, 2024

TO Erin McDonnell 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 “Supplementary Groundwater Source Control Evaluation Sampling Work Plan, Willamette Cove Upland Facility,” dated November 14, 2024

This memorandum, submitted on behalf of the Five Tribes,¹ reviews the *Supplementary Groundwater Source Control Evaluation Sampling Work Plan, Willamette Cove Upland Facility* prepared by Apex Companies, LLC (Apex) on behalf of the Port of Portland and Metro (Apex 2024).

Comments

1. Based on our review of the work plan, the proposed investigation is robust and likely to achieve the purpose and objectives described in Section 1.1 of the work plan.
2. Sections 5.3.1 and 5.3.2 indicate that borings “will be continuously cored, and the soil cores will be logged and recorded using the Unified Soil Classification System.” These sections of the work plan also state that no soil samples will be collected for laboratory analysis. We recommend that the plans indicate that visual and olfactory observations will be recorded and that soil cores will be screened in the field using portable gas samplers. Further, we recommend that the plan include contingencies for collecting any visually contaminated or anomalous soil samples for laboratory analysis. In particular, the two easternmost angle borings will be drilled within the area of the former log pond. Therefore, contaminated soil may be encountered and, if so, should be further evaluated.
3. Section 5.3.3 indicates that ferrous iron will be sampled in the field during purging of groundwater monitoring wells. We recommend the work plan provide a more detailed description of how this will be done.
4. In Section 6.1, the project schedule lists spring 2025 as the anticipated timeframe to conduct field work. Also, in Section 5.3.2, with respect to the in-water sampling, the work plan states, “If the in-water sampling will be conducted outside the July 1 through October 31 work window, a variance will be obtained through the U.S. Army Corps of Engineers and DSL [Oregon Department of State Lands] (joint variance request).” If there is a technical rationale for

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.

conducting in-water sampling in the spring (e.g., river stage), we recommend the work plan provide that justification; otherwise, we recommend the in-water work be conducted within the designated work window.

References

Apex Companies, LLC (Apex). 2024. Supplementary Groundwater Source Control Evaluation Sampling Work Plan, Willamette Cove Upland Facility, Portland, Oregon, Prepared for: Port of Portland and Metro. Tigard, Oregon. November 14.



REGION 10

SEATTLE, WA 98101

December 18, 2024

MEMORANDUM

SUBJECT: EPA Comments on Supplementary Groundwater Source Control Evaluation Sampling Work Plan
Willamette Cove, Portland, Oregon
ECSI # 2066
November 14, 2004

FROM: Eva DeMaria, Remedial Project Manager
Superfund and Emergency Management Division

TO: Erin McDonnell, Project Manager
Northwest Region Cleanup Program, Oregon Department of Environmental Quality

The following are the U.S. Environmental Protection Agency's (EPA's) comments on the document titled *Supplementary Groundwater Source Control Evaluation Sampling Work Plan* (Work Plan). The Work Plan was prepared Apex Companies, LLC (Apex) for the Port of Portland and Metro for the Willamette Cove Upland Facility (the Facility). The Facility is listed as Environmental Cleanup Site Information (ECSI) #2066. The 24-acre Facility is located on the east bank of the Willamette River between river miles 6.5 and 7 and is upland of the Willamette Cove remedial design project area within the Portland Harbor Superfund Site (PHSS).

EPA understands the primary objectives of the Work Plan are to summarize existing data and Facility characteristics, present the investigation approach and describe field sampling activities and laboratory analyses to be completed to collect additional groundwater data. The additional groundwater data to be collected under the Work Plan was recommended to be collected in the *Updated Source Control Evaluation* (Updated SCE; Apex 2023). EPA's comments are categorized as "Primary," which identify concerns that must be resolved to achieve the objective; and "To Be Considered," which, if addressed or resolved, would reduce uncertainty, improve confidence in the document's conclusions, and/or best support the objectives.

Primary Comments

1. The goals/objectives for this sampling are too general and should be defined more clearly with data quality objectives for each planned event (e.g. angled borings and offshore borings) aligned with specific evaluations planned after data collection. Absent this, EPA cannot determine if the current work described in the Work Plan will be adequate and appropriate for future evaluations. For example, the Updated SCE (Apex, 2023) presented an evaluation of and conclusions on attenuation from the uplands to the river based on concentrations of groundwater in the upland monitoring wells compared to porewater samples offshore. However, as pointed out in previous EPA primary comment 5 (EPA 2024), the offshore porewater sampling locations were too distant to be representative of the shallower groundwater flow paths that intercept the log pond area and its greater potential for contaminant transport to the river as illustrated in Figure 22 in the Updated SCE and Figure 7 in this Work Plan. The result of the evaluation was a potential biased attribution of the lower concentrations seen in the offshore porewater samples to attenuation when the lower concentrations could potentially be due to much deeper groundwater flow paths, outside the area of upland contamination, captured by those porewater samples. While the Work Plan now includes angled borings with locations that appear to be better aligned with the flow paths to characterize maximum contaminant transport from the log pond, it is unclear what purpose the proposed offshore borings have with future evaluations. Inconsistent with the previous EPA comment request (see EPA primary comment 5, EPA 2024), the offshore borings are not located laterally within 25 feet of the river/shoreline intersect as defined by the 10 foot msl NAVD88 datum. It is probable the deeper discrete sampling depths from these offshore borings will target groundwater flow paths not representative of the highest contaminant concentration pathway from the former log pond area.
2. The dynamic river stage condition at the site should be used to direct the time each discrete sample is collected within the angled riverbank borings to ensure groundwater discharge conditions are present at the time of sampling as opposed to surface water recharge conditions. Optimally, the timing for groundwater sampling within these discrete intervals should target when the river stage is in a seasonal low (or in a lowering condition period) and near, or at its daily, tidally influenced, low point to ensure the samples are most representative of groundwater conditions as opposed to surface water recharge conditions. The Work Plan should include a section that presents the optimal seasonal conditions for sampling groundwater in the angled riverbank boreholes (see the Remedial Design Guidelines and Considerations document, Section 5.1.4 for guidance [EPA, 2021]) and steps the field crew should follow to time the sampling when groundwater discharge conditions are most likely occurring.
3. The Work Plan should clarify that the same purge parameters and methodology presented for Monitoring Wells in Section 5.3.3 will also be used for the grab samples in the riverbank and in-water borings.

To Be Considered

1. The analytical method presented in Section 5.4 for pesticides should include and report DDD, DDE, DDT and DDx results.

References

Apex. 2023. *Updated Groundwater Source Control Evaluation, Willamette Cove Upland Facility, Portland, Oregon.*

EPA. 2021. *Portland Harbor Remedial Design Guidelines and Considerations, Portland, Oregon.*

EPA. 2024. *EPA Comments on Updated Groundwater Source Control Evaluation, Willamette Cove, Portland, Oregon.*