

Memorandum

To: Piper Peterson – U.S. Environmental Protection Agency

From: Roy Kuroiwa – Port of Seattle; Anne Fitzpatrick – AECOM; Tad Deshler – Coho Environmental

Project: Terminal-117 – Upland and Sediment NTCRA

Subject: Dioxin/furan Soil Sample Confirmation Decision-making Steps

Date: June 17, 2013

CC: Mary Mitchener – City of Seattle; Linda Baker – Integral Consulting; Greg Glass – contractor to USACE; Kristin Kerns – USACE; Kym Anderson, Stacy Heilgeist – Port of Seattle

This memorandum summarizes discussions between the Port of Seattle (Port), EPA, City of Seattle, and project consultant team during meetings held on May 14 and May 30, 2013 regarding dioxin/furan (d/f) confirmation testing for upcoming Phase 1 T117 upland excavation activities. Section 15.5 of the RAWP (IMCO 2013) and the Attachment A of the CQAP (Crete 2013) describes the planned confirmation sampling to be conducted for dioxins/furans. However, the plan did not provide options on how to respond to results of this sampling. Per EPA request, this memo documents the process by which decisions and potential actions will take place pending results of the sampling.

Confirmation samples ('target samples') will be collected from six target grid cells (K, T, Z, AA, GG, and KK) and analyzed for d/f [in addition to other chemicals of concern (COCs)] as previously planned. Five of these six target cells are to be excavated (all except cell T). Excavations from these five target grid cells will remain open (i.e., not backfilled) while the d/f analyses are completed. In addition one composite sample ('phase composite' sample) will be created from all remaining grid cells within each phase (excluding the target grid cells) following completion of excavation based on other COCs. Phases 2 and 7 will not require a composite because d/f pre-confirmation sampling has already been conducted.¹

Areas under building footprints not included in excavation phases will be handled as follows. Additional sampling is planned for the north building footprint area using six borings to determine whether excavation is necessary, as described in Section 4.9.1 of the CQAP. Analyses for d/f will be conducted for each boring, but only after the depth at which RvALs are met for the other COCs is determined. Regardless of whether excavation is warranted within the north building footprint area based on the results for

¹ For example, the phase composite sample would be a six-point composite if there were seven grid cells in the phase and one of the cells had a target sample.

the other COCs, no additional confirmation sampling for d/f will be necessary for the grid cells under the north building footprint because d/f will have been sufficiently characterized by the six soil borings. The small area under the south building footprint that is not already identified as requiring removal will be included in the Phase 9 phase composite sample after removal of the building pad.

Compositing and analytical methodology will be conducted in accordance with the CQAP for grid cell sampling, with the exception of a total 48 ounces being required for the initial composite instead of the 32 ounces to allow for sufficient volume.² These composite samples will be created by compositing aliquots from each grid cell within a phase after the final excavation depth for each grid cell is known, based on the analysis results for the other COCs, so that the composite accurately represents the post-excavation condition for that phase. These seven phase composite sample will be archived, pending the analysis results of the original six target samples. With the exception of the six cells represented by those target samples, all cells within a phase will be backfilled, as dictated by the results from the analysis of the other COCs.

The d/f results from the samples from the target cells will be compared to the d/f removal action level (RvAL) of 11 ng/kg. If the TEQ is less than the RvAL, then that target cell will be backfilled, if warranted based on analysis of other COCs. If the TEQ in a sample from a target cell is greater than the RvAL, several actions will occur. First, additional excavation of at least one foot from that target grid cell will occur. An additional confirmation target sample will be collected and analyzed from that target grid cell, and the cell will remain open where practicable while additional testing is conducted. This new sample will also be tested for the other COCs to obtain a representative sample of the final surface. Second, the phase composite sample from that phase and the phase composite samples from Phases 3 and 4 (which have no target d/f cells) will be analyzed for d/f.

Analytical results of the phase composite samples³ will also be compared to the d/f RvAL. If the TEQ is less the RvAL in all samples, then no additional excavation is warranted based on d/f results. In this instance, the d/f conceptual site model will be considered confirmed and at the spatial scale of excavation phases, the d/f RvAL is met.

If the TEQ in one or more of the phase composite samples is above the RvAL, then additional data evaluation will take place. The specific evaluation activities will include review of the depths at which samples were collected, field observations of the soil that made up the composite samples, and the magnitude of exceedances. Additional analyses of discrete samples from specific grid cells may also be conducted. This reevaluation could result in either a) the re-excavation of previously backfilled grid cells and

² Only a portion of the collected soil from each grid cell will be used to form the phase composite samples; remaining soil will be archived for potential future analyses of individual cells.

³ Four samples may be collected and analyzed, including: re-sample of the target cell, phase composite sample from the area with the target cell exceedance, phase composite samples from phases 3 and 4. More samples may be analyzed pending results of other target grid cells. If all six target grid cells have elevated d/f exceedances above the RvAL, then all of the phase composite samples will be analyzed.

additional removal or b) the Port may request a construction approval letter from EPA, qualified as needed, based on the d/f results in the composite sample(s) and its location and depth. In the event that re-excavation is conducted based on d/f results, an additional confirmation sample will be collected and analyzed for that grid cell and submitted for the COC list to document final condition in that area.

References

Crete 2012. *Proposal to Use Indicator COCs for Soil Confirmation*. Terminal-117 Phase 1 NTCRA Design.. Prepared for the U.S. EPA and Port of Seattle by Crete Consulting Inc., Seattle, Washington. August 1, 2012.

Crete 2013. *Construction Quality Assurance Plan (cQAP) Phase 1: Sediment and Upland Cleanup*. Attachment A, Section B1.1. Lower Duwamish Waterway Superfund Site, Terminal 117 Early Action Area. Prepared for the Port of Seattle and City of Seattle, for submittal U.S. EPA Region 10, Seattle, Washington. October 5, 2013.

IMCO 2013. *Terminal 117 Cleanup Sediment & Upland Areas Removal Action Work Plan (RAWP)*. Submitted to the Port of Seattle, Seattle, Washington. Prepared by IMCO General Construction. Final sent to EPA on May 24 for approval.

Port of Seattle 2013. *Selection of Six Confirmation Grid Cells for Dioxin/Furan Analysis per EPA Memorandum (August 16, 2012)*. Terminal-117 Upland and Sediment NTCRA. Prepared for the U.S. EPA by the Port of Seattle, Seattle, Washington. February 26, 2013.