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MEMORANDUM

To: Tom Mackie, Washington State Department of Ecology
From: Susan McGroddy, on behalf of the Port of Seattle
Subject: Revised T-91 sampling plan
Date: March 15, 2018

The Terminal 91 (T-91) sampling and analysis plan (SAP) approved by the Washington State Department of Ecology (Ecology) in October 2017 proposed two phases of sediment collection (Windward 2017). The first phase included the collection of surface sediment samples throughout the submerged lands, and the second phase included the collection of sediment cores for subsurface sediment chemistry testing and geochronological analysis. The SAP included proposed core locations, but the final core locations were to be determined following a review of the Phase 1 surface sediment chemistry results.

This memorandum provides the proposed core locations for the Phase 2 sampling, as well as additional surface sediment locations based on the results of the Phase 1 surface sediment chemistry results. All of the samples will be collected and analyzed following the procedures provided in the approved SAP (Windward 2017).

PHASE 1 SURFACE SEDIMENT CHEMISTRY RESULTS

The chemistry results of the surface sediment samples collected in November 2017 were presented in the draft surface sediment data report submitted to Ecology in February 2018 (Windward 2018). The surface sediment data can be used to delineate the areas of concern within the submerged lands area. The contaminants that exceeded the Washington State Sediment Management Standards (SMS) in surface sediment samples were polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), mercury, and semivolatile organic compounds (SVOCs). The sediment samples collected from the eastern and western perimeters of the submerged lands area did not

contain contaminant concentrations above the SMS. The samples collected in the vicinity of Piers 90 and 91 and the area between the two piers contained the highest contaminant concentrations.

PHASE 2 SAMPLING

Sediment cores

In Section 3.2 of the T-91 SAP, three core locations were identified within the submerged lands area (Windward 2017). Two sediment cores (T91-20187-SC-01 and T91-2018-SC-02) were proposed to be collected in the vicinity of the outfalls/combined sewer overflows (CSOs). One sediment core (T91-2018-SC-03) was proposed to be collected in the former dry dock area.

The surface sediment samples collected in the vicinity of Outfall A did not contain sediment contaminants at concentrations above the sediment cleanup objective. There is no evidence of sediment impacts associated with Outfall A. Therefore, sediment core T91-2018-SC-01 is proposed for deletion from the Phase 2 sampling. The other two cores will be collected. In addition, in order to select the core for analysis in the vicinity of the former dry dock area, three cores will be collected in the vicinity of the former dry dock. These cores will be visually inspected to determine whether or not there are paint chips present, and one core will be selected for analysis based on this visual inspection.

Geochronological cores

In Section 3.3 of the T-91 SAP, three geochronological cores were proposed (Windward 2017). All of the proposed geochronological core locations were in areas where the surface sediment chemistry concentrations were very low. Measuring the sedimentation rates outside of the areas of contaminated sediment will not be useful in developing a conceptual site model for the site. Therefore, the three geochronological locations proposed in the SAP will not be sampled, and a new geochronological core location in the vicinity of Outfall 68/CSO is proposed. Table 1 summarizes all proposed core sampling locations for Phase 2.

Table 1. Phase 2 core locations

SAP Location ID	Current Proposed Location ID	Proposed Location Coordinates		Proposed Location coordinates
		Easting (ft) ^a	Northing (ft) ^a	
Chemistry cores				
T91-2018-SC01	na	na	na	Location was removed because the surface sediment contaminant concentrations in the area were below SMS.
T91-2018-SC02	T91-2018-SC01	1259280	234666	Location was retained.
T91-2018-SC03	T91-2018-SC02	1259263	234339	Three cores will be collected in this area, and the core for analysis will be selected based on a visual inspection for the presence of paint chips.
Geochronology cores				
T91-2018-SCGC01	na	na	na	Location was removed because the surface sediment contaminant concentrations in the area were below SMS.
T91-2018-SCGC02	na	na	na	Location was removed because the surface sediment contaminant concentrations in the area were below SMS.
T91-2018-SCGC03	na	na	na	Location was removed because the surface sediment contaminant concentrations in the area were below SMS.
na	T91-2018-SCGC01	1259266	234619	New location was added to assess sedimentation in the vicinity of Outfall 68/CSO.

^a Washington North Zone, NAD83 geographic and state plane coordinates – US survey feet.

CSO – combined sewer overflow

NAD83 – North American Datum of 1983

ID – identification

SAP – sampling and analysis plan

na – not applicable

SMS – Washington State Sediment Management Standards

Additional Surface Sediment Locations

In addition to the core samples, four surface sediment samples are proposed for Phase 2 sampling (Map 1). The surface sediment sample locations were selected to provide additional spatial information regarding the vicinity of locations with SMS exceedances in the surface sediment sampling, as described in Table 2.

Table 2. Phase 2 surface sediment locations

Additional Proposed Location ID	Proposed Location Coordinates		Notes
	Easting (ft) ^a	Northing (ft) ^a	
T91-2018-SS29	1258128	233388	Located on the west side of Pier 91, between SS05 and SS06, two locations in this area that exceeded SMS. Selected to provide additional characterization along the east side of Pier 90.
T91-2018-SS30	1259264	233724	
T91-2018-SS31	1259219	232808	
T91-2018-SS32	1259214	232378	

^a Washington North Zone, NAD83 geographic and state plane coordinates – US survey feet.

ID – identification

NAD83 – North American Datum of 1983

SMS – Washington State Sediment Management Standards

REFERENCES

Windward. 2017. Terminal 91: submerged lands area preliminary investigation sampling and analysis plan. Final. Prepared for Port of Seattle for submittal to Washington State Department of Ecology. Windward Environmental LLC, Seattle, WA.

Windward. 2018. T-91 submerged lands area preliminary investigation. Surface sediment characterization results. Windward Environmental LLC, Seattle, WA.