



REGION 10

SEATTLE, WA 98101

MEMORANDUM

SUBJECT: Action Memorandum for the Non-Time Critical Removal Action at Slip 36 of the Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

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SITE ID: EPA 1D – WAD980722839, Site ID - 1000949

I. PURPOSE

The purpose of this Action Memorandum (AM) is to request and document approval of the Non-Time Critical Removal Action (NTCRA) described herein for Slip 36, which is part of the East Waterway Operable Unit (EWOU) of the Harbor Island Superfund Site (“Site”), located in Seattle, Washington (Figures 1). Slip 36 is owned by the United States of America and is operated by the United States Coast Guard (USCG). It is anticipated that the NTCRA will be conducted and funded by the USCG with oversight provided by the United States Environmental Protection Agency (EPA).

On May 28, 2024, after considering comments received during an extended public comment period, EPA issued an Interim Record of Decision (IROD) for the EWOU. The IROD selected a remedial action to address contaminated sediment within the EWOU, including Slip 36, and establishes remedial action levels (RALs). The RALs are contaminant concentrations in sediment established to delineate areas of the EWOU that require active remediation. Sediments in Slip 36 that exceed contaminant concentrations above the RALs will be subject to active remediation consistent with the IROD and as part of this NTCRA. Issuing the IROD was a culmination of a multi-year process that included completing a remedial investigation/feasibility study (RI/FS) and supplemental remedial investigation (SRI), which are included, along with other supporting information, in the Administrative Record. The remedial technologies selected by EPA in the IROD, including dredging and in-situ treatment, will be

used for the NTCRA. The expected cost of the NTCRA is approximately \$65 million. A summary of the RALs is presented in Table 1.

The IROD states that “Some derelict piling and piers, along with debris, may be removed during remediation, as determined during remedial design.”¹ The USCG has determined that Pier 36B is derelict² and, therefore, consistent with the IROD this pier will also be removed as part of the NTCRA. Considering the factors under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2)(i) & (ii), a NTCRA is appropriate for Slip 36.

II. SITE CONDITIONS AND BACKGROUND

The EPA/CERCLIS ID for the Site is WAD980722839, Site ID – 1000949. The NTCRA at Slip 36 is within the boundaries of the EWOU of the Harbor Island Superfund Site in Seattle, WA (Figure 1). The Harbor Island Superfund Site was included on the National Priorities List (NPL) on September 8, 1983, pursuant to Section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9605. Harbor Island is one of the primary industrial and commercial areas in Seattle and was constructed in the early 20th century in the Duwamish River. The East Waterway is approximately 1.5 miles long and 750 feet wide and was formed by dredging the Elliott Bay tidelands and the construction of Harbor Island in the early 1900s (Anchor QEA and Windward Environmental LLC [Windward], 2019). In the early 1900s, Slip 36 was constructed at the northern end of the East Waterway, on the eastern edge of the channel at the mouth to Elliot Bay. To the south of Harbor Island and upstream of the EWOU is the Lower Duwamish Waterway (LDW) Superfund Site.

The USCG acquired the Pier 36 complex from the Port of Seattle (Port) in 1976. The Port acquired Slip 36 from the United States Army. Prior to the USCG operations, Slip 36 was used for military operations as a supply depot between 1940 and 1960. Prior to use by the United States Army, Slip 36 was used for the construction of ships. Pier 36 was constructed and operated by the Pacific Steamship Company in the early 20th century. As the slip is currently configured, there are five distinct features: Pier 36A, Pier 36B, the Slip Apron, Pier 37C and Pier 37D. These piers are arranged in a U shape, with Piers 36A and 36B on the southern end. The Slip Apron is to the east.

Base Seattle is the largest USCG facility in the Pacific Northwest and provides a full range of support functions for USCG vessels and missions in the Pacific Northwest and polar areas of operation. Base Seattle currently includes shore side buildings and Slip 36, which is located perpendicular to the East Waterway in an east/west orientation. USCG operations at Base Seattle include operation and maintenance of various vessels ranging from rapid response boats (approximately 30 feet long) to large cutters (more than 400 feet long). Maintenance facilities on the docks and surrounding buildings include fueling infrastructure, machine shops, and storage for materials. Hazardous materials, used to support site operations, including operation and maintenance of the vessels and aids to navigation, are stored onsite in accordance with applicable regulations and best management practices (BMP) described in the Base Seattle Integrated Emergency Response Plan. Base Seattle also includes several office and administrative buildings.

¹ Interim Record of Decision Harbor Island Superfund Site East Waterway Operable Unit Seattle, Washington. May 2024. Pages 88-89. <https://semspub.epa.gov/work/10/100551831.pdf>

² Appledore Marine Engineering, LLC. 2020. Waterfront Inspection at United States Coast Guard Base Seattle, Seattle, Washington. October.

The berth of Slip 36 has been dredged several times to accommodate the USCG's operations, including most recently from 2004 to 2005, to lower the sediment elevation in Slip 36 to -40 feet mean lower low water (MLLW) (from a previous elevation of -38 feet MLLW) and to facilitate installation of the current Pier 36A structure (Figure 3) and toe wall. Approximately 50,000 cubic yards of sediment were removed during the most recent maintenance dredging (2004 to 2005). Two environmental investigations were conducted as required by EPA to obtain permits for maintenance of Pier 36B. In 2014, an investigation was conducted, and the report was titled "Sediment Sampling beneath pier 36B Data Report" (AMEC Foster Wheeler, 2015), and in 2020, an investigation was conducted and the report titled "Site Investigation Report" (AECOM, 2020). The investigations focused on sediments adjacent to and under Piers 36A and Pier 36B.

The USCG conducts assessment of waterfront structures on a three-year cycle. These facility assessment reports determine remaining life of structures and recommends repairs and maintenance actions. The report from 2020 determined that Pier 36B had minimal life remaining, that significant use restrictions were already implemented, and that it should be replaced. (Appledore Marine Engineering, LLC, 2020).

A. Site Description

1. Removal Site Evaluation

East Waterway Operable Unit IROD Studies:

An initial RI was completed by EPA for the Harbor Island Site in 1993 (Weston, R.F., 1993). That RI focused primarily on the upland operable units of the Site. In 2006, additional work began to specifically characterize the EWOU. Together, the Port, the City of Seattle, and King County make up the East Waterway Group (EWG), which has been performing or funding investigations and studies of the EWOU. A supplemental remedial investigation (SRI) focusing on the EWOU was completed in 2014 (Windward and Anchor QEA, 2014), and an FS was completed in 2019 (Anchor QEA and Windward., 2019). The SRI and FS were performed by the Port under the supervision of EPA. The nature and extent of contamination in the EWOU and alternatives for remediation of that contamination are detailed in the SRI and FS. These evaluations and studies included Slip 36.

Slip 36 Site-specific Investigations:

In 2014, as part of a pier maintenance project, the USCG conducted sediment sampling at Pier 36B. Results showed concentrations of polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and metals above State of Washington ("State") benthic criteria. In 2019, additional sediment sampling was conducted by the USCG at Piers 36A and 36B (AECOM 2020). Semi-volatile organic compounds (SVOCs) (primarily PAHs), dioxins/furans, and metals (arsenic, lead, and mercury) consistently exceeded State benthic criteria throughout the investigation areas, with the highest concentrations present underneath and immediately adjacent to Pier 36B. Exceedances of State criteria were identified at sediment depths up to 10 feet in subsequent sampling events conducted by the USCG. Pesticides and tributyltin were less frequently detected, and often at concentrations below State benthic criteria. PCBs (as Aroclors) were also less frequently detected; however, this contrasts with the data collected in 2010 (Windward, 2010) to support the SRI within the broader Slip 36 area which showed higher PCB concentrations. As part of the work conducted under an Administrative

Settlement Agreement and Order on Consent (ASAOC) entered into in 2021 between the USCG and EPA, USCG collected additional sediment data to delineate the extent of contamination in Slip 36. The data developed by USCG together with the data in the SRI which supports the IROD, present a thorough understanding of the sediment contamination in the Slip 36. Sediment sample locations are shown on Figure 4. Additionally, the USCG provided information to EPA that Pier 36B is structurally unstable and that there are derelict pilings and debris under Pier 36B that will need to be removed to conduct the removal action.

2. Physical Location

The Site is located in a maritime industrial area of Seattle and is adjacent to Elliot Bay on the Puget Sound. Slip 36 is located at Latitude 47° 35' 25" N and 122° 20' 25" W within the East Waterway of the Duwamish River. Slip 36 is part of USCG Base Seattle, 1519 Alaskan Way S, Seattle, WA 98134. It is within the Usual and Accustom fishing and hunting areas for the Muckleshoot Indian Tribe, Suquamish Tribe, and Yakama Indian Nation. The East Waterway is subject to large tidal swings, up to 12 feet per day, and is subject to king tides in the winter months.

The Puget Sound and East Waterway are home to various species that are protected, including Steelhead (*Oncorhynchus mykiss*), Chinook salmon (*Oncorhynchus tshawytscha*), Bull trout (*Salvelinus confluentus*), Bocaccio rockfish (*Sebastes paucispinis*), Yelloweye rockfish (*Sebastes ruberrimus*), and Killer whale (*Orcinus orca*). Essential fish habitat at the Site is regulated under the Magnuson-Stevens Fishery Conservation Management Act and Fisheries Management Plans published by the Pacific Fishery Management Council for Pacific Coast Salmon, Pacific Groundfish, and Coastal Pelagic species (Pacific Fishery Management Council 2014, 2019, and 2020). There are three Pacific Coast Salmon, 24 Pacific Groundfish, and four Coastal Pelagic species that are known or have the potential to occur in Slip 36, the associated East Waterway, and the southeastern portion of Elliott Bay.

3. Site characteristics

Slip 36 is a part of the USCG Base Seattle, which is the Homeport for the USCG Icebreaker fleet, and is also the home to Station Seattle, which conducts search and rescue operations, environmental response actions, and other law enforcement and national security missions. It is also the home of Sector Puget Sound, whose missions include Vessel Traffic Control and is responsible for all aids to navigation within the Puget Sound. Sector Puget Sound also includes the Marine Safety and Security Team, who perform a variety of missions within their area of responsibility.

Slip 36 as shown in Figure 3, has five pier structures configured in a U shape. Pier 36A and Pier 36B are on the south side, the Slip Apron is on the eastern end, and Piers 37C and 37 D are on the north end. The west side is open to the East Waterway. Pier 36A was reconstructed in 2004, is constructed of concrete piers and decking, and contains an underwater retaining wall. Pier 36B was constructed in the 1940s of creosoted-treated piles. The Slip Apron was reconstructed in 1998 of concrete piles and decking, and Piers 37C and Pier 37D were constructed in 1997 of concrete piles and decking. Slip 36 also contains floating docks and a boathouse, which are home to USCG Station Seattle, and support the Sector Puget Sound Aides to Navigations Team.

The USCG anticipates homeporting new Polar Security Cutters (PSCs) at Base Seattle once they are constructed. These vessels will replace the current heavy Ice Breakers (USCGC Polar Sea and USCGC Polar Star). The new PSCs require a minimum depth of –42 feet MLLW and a new pier structure that support these larger vessels. USCGC Polar Sea has been relocated in anticipation of the arrival of the new Cutters.

Within Slip 36, the USCG occupies the submerged lands and tidelands owned by the State of Washington and owns and operates Piers 36 and 37 running perpendicular to the East Waterway, with an apron between the piers on the easternmost end of the Slip. USCG has asserted navigational servitude over all of Slip 36. This is the first removal or remedial action taken at Slip 36; however, maintenance dredging and deepening of Slip 36 has occurred in the past.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant.

The CERCLA investigation process has documented the release of hazardous substances to the sediment within Slip 36. Multiple investigations have shown contaminants of concern (COCs) in sediments above levels that pose unacceptable risks to human health and the environment. It is likely that the COCs present are from industrial and commercial activities in Slip 36 and throughout the EWOU. The COCs in Slip 36 sediments are arsenic, mercury, SVOCs/PAHs, dioxins, and PCBs. These COCs are “hazardous substances” as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14). Generally, the highest detections of COCs within Slip 36 are in the surface sediments, and in deeper sediments under Pier 36B as shown in Figure 4.

East Waterway Sources

Source control in the EWOU has been ongoing under applicable federal and state regulations, and many historical sources such as municipal and industrial wastewater discharges and spills have been identified and controlled. A source control investigation and evaluation were conducted for the EWOU as part of the SRI (Windward and Anchor QEA 2014) to evaluate the sources of sediment contamination and the potential for recontamination after remedy implementation. The following potential ongoing sources and pathways of contamination are identified in the SRI (Anchor QEA and Windward, 2019):

- Direct discharge into the EWOU (e.g., combined sewer overflows, stormwater, or runoff from adjacent properties);
- Groundwater discharge (including tidally influenced groundwater discharge);
- Bank erosion;
- Atmospheric deposition;
- Spills and/or leaks to the ground, surface water, or directly into the EWOU;
- Abrasion and leaching of treated wood structures; and
- Surface water inputs and sediment transport (from the LDW, Green River, and Elliott Bay).

The EWOU RI/FS identified direct discharges and upstream inputs as the predominant sources of sediment contamination to the EWOU. More specifically, it was estimated that 99% of the sediment

input and associated contamination into the EWOU is from the Green River. The remaining amount is from urban inputs, approximately 0.7% from the LDW and less than 0.3% from discharges within the EWOU itself (e.g., stormwater and combined sewer overflows; Windward and Anchor QEA 2014). The total stormwater drainage basin area for the EWOU is approximately 788 acres (Windward and Anchor QEA, 2014).

Slip 36 Source Evaluation

The applicability of the potential ongoing sources and pathways of sediment contamination identified for the EWOU (Anchor QEA and Windward, 2019) to Base Seattle was evaluated as part of the investigations for the EWOU. Potential sources identified for the EWOU that are applicable to Slip 36 include direct discharges (stormwater), spills/releases, sediment transport from the EWOU into Slip 36, and groundwater discharge. Groundwater monitoring is not being actively conducted at Base Seattle and may need to be evaluated further as part of the source control activities, the remedial design investigations, or future upland source control actions. The SRI evaluated available groundwater data from 2003 to 2004 at the Pier 35³ area. The arsenic concentration at one location out of seven sampled exceeded the groundwater reference value based on protection of sediment quality, other metals did not exceed groundwater reference values, and SVOCs were not detected in the two samples analyzed. Data was collected by USEPA that consisted of eight borings in 1987 and the one upland boring in 1992 (Shannon and Wilson, Inc. 1992).

There is a potential for spill and releases of contamination from upland industrial operations and vessels that navigate through the EWOU. The USCG has not provided any documentation of direct releases into Slip 36 from its upland facility, but it is possible that some have occurred over the years. Additionally, there is no documentation of releases from the Port, the United States Army or the shipyard that were located here. However, based on the operations conducted it is likely that such releases could have occurred. There are multiple outfalls upstream of Slip 36, which are part of ongoing source control actions. It is possible that COCs are discharged or have been discharged in the past, both in the water column and in sediment through on-site sources such as treated wood, from accidental discharges associated with USCG or historical operations, or from upstream sources. Additional detail on these sources is provided in the Slip 36 Supplemental Technical Memorandum, Sections 1.3.2.1 and 1.3.2.2 available in the Administrative Record.

USCG completed an investigation in 2019 that focused on the areas beneath and adjacent to Pier 36A and Pier 36B. The investigation included sediment sampling and source investigation to determine the extent of PAHs and other COCs in sediment and evaluation of stormwater discharge (AECOM, 2020). The study concluded that the creosote-treated pilings were likely a source of PAHs to Slip 36.

In the 2019 study, storm drains were evaluated to determine if they are a potential source of COCs to Slip 36. The USCG Base Seattle has implemented a program where all storm drain catch basins are cleaned at least once a year, and the sediment traps employed in the 2019 study had minimal material collected after a three-month period. One sediment trap collected enough material to sample, and detections for all COCs were below the State Apparent Effects Threshold and the State Sediment Management Standards, which were screening criteria that were used.

³ Note that Pier 35 is outside of Slip 36, and not subject to this removal action.

Nature and Extent

The nature and extent of contamination in Slip 36 has been determined based on data collected for the EWOU RI/FS by the Port, as well as investigations conducted by the USCG. The following reports document the nature and extent of contamination in Slip 36:

1. During the EWOU SRI (Windward, 2010) conducted in 2010, four sediment cores were collected to 12 to 13 feet below sediment surface (bss). Sediment was analyzed at the surface, and at subsequent intervals until an interval without detections exceeding the Washington State Sediment Quality Standard (SQS) and Cleanup Screening Level (CSL) was detected. Sample SC57 had detections to 2 feet below surface, SC58 had detections to 4 feet below the sediment surface, and the 4-to-6-foot interval was skipped. The 6-to-8-foot interval was below the screening levels. Sample SC59 had no detections above the screening levels, and SC60 had screening level exceedance at the surface interval.
2. In 2014 the USCG applied for a Clean Water Act (CWA) permit from the United States Army Corp of Engineers (USACE) to repair Pier 36B, and through a cooperative agreement where USACE requests EPA to review CWA permits within NPL sites prior to approval, EPA required as a condition of the permit that USCG collect additional sediment data. In 2014, the USCG collected additional data under Pier 36B. This data is recorded in a report titled "Sediment Sampling Beneath Pier 36B Data Report" (Amec Foster Wheeler, 2015). Eight samples were collected from the surface interval (0 to 10 centimeters), four in front of the pier line, and four under the pier. Detections exceeding the SQS and the CSL were present in all samples, with very high PAHs levels. This data is presented in Tables 2 through 6.
3. In 2019 the USCG applied for a CWA permit from the USACE to repair Pier 36B, and through a cooperative agreement where the USACE requests EPA to review CWA permits within NPL sites prior to approval, EPA required as a condition of the permit that the USCG collect additional sediment data, from beneath and adjacent to Pier 36A and Pier 36B. In 2019 the USCG collected 24 additional sediment cores and surface samples, in front and under Piers 36B and 36A (AECOM, 2020). Sediment cores were collected to 10 feet in depth at 1 foot or refusal, and surface samples were collected from the 0- to 10-centimeter interval. Samples were analyzed for PAHs, PCBs, Dioxin/Furans, SVOCs, metals, and tributyltin and detections exceeding SQSs, CSLs, and RALs were recorded. This data is presented in Tables 2 through 6.
4. In 2021, the USCG and EPA entered into the ASAOC requiring the USCG to fully delineate the contamination in sediment within Slip 36. The USCG then collected additional sediment data in 2022. The USCG collected cores from 19 locations from 0 to up to 15 feet in depth. The cores were sampled in 1-foot intervals in accordance with the EPA-approved Quality Assurance Project Plan and Field Sampling Plan. Sediment samples were collected in 1-foot increments below -43 feet MLLW. Samples from two intervals (-43 to -44 feet MLLW and -44 to -45 feet MLLW) were analyzed for PCBs, PAHs, SVOCs, metals, and tributyltin. Additional intervals were analyzed based on historical sediment data and the results of initial samples. Surface samples were also collected from sediment cores in locations between Slip 36 and the East Waterway navigational channel and analyzed for PCBs, PAHs, SVOCs, metals, and tributyltin. Sediment above -43 feet MLLW was composited and analyzed for waste characteristics. Mercury and one SVOC (1,4-dichlorobenzene) were detected at concentrations above the RALs in surface sediment. Mercury and PAHs were

detected at concentrations above the RALs in subsurface sediment. This data is presented in Tables 2 through 6.

In accordance with the ASAOC, the USCG collected a significant amount of data as part of an Engineering Evaluation/Cost Analysis (EE/CA) for Slip 36. However, given that EPA recently issued the IROD for the EWOU setting forth an interim remedial action for the contaminated sediments within the EWOU, including Slip 36, completion of the EE/CA is no longer necessary. The information and data gathered during the CERCLA process (RI, FS, and SRI) in support of the IROD and by the USCG under the ASAOC and prior to the ASAOC, are sufficient to delineate the nature and extent of contamination within Slip 36.

The EWOU RI/SRI dataset includes surface sediment samples collected underneath Pier 36B in 2014 (Amec Foster Wheeler 2015) but does not include data from investigations completed in Slip 36 in 2019 and 2022. Sediment samples collected west of Slip 36 in the East Waterway during the 2022 investigation are not included in the Slip 36 dataset. The complete Slip 36 data set is presented in Tables 2 through 6.

EWOU CERCLA Interim Remedy

The interim remedial action selected in the EWOU IROD by EPA in May 2024 identifies the essential components needed to address the risks posed by contaminated sediment within the EWOU, including Slip 36. The selected interim remedy includes:

1. A combination of technologies, including dredging, capping, in-situ treatment, enhanced natural recovery (ENR), monitored natural recovery (MNR), and institutional controls (ICs) to address the entire EWOU.
2. Will actively address contaminated sediment, which will reduce contaminant concentrations in other contaminated media.
3. Final cleanup levels will be selected by EPA in a future decision document based on data collected during and after construction of the interim action.

The primary IROD remedial technologies to be implemented in Slip 36 include dredging and in-situ treatment of contaminated sediments. These remedial technologies are adopted and will be implemented in Slip 36 through this AM, consistent with the EWOU IROD.

1. Contaminated sediments above RALs will be dredged where they are accessible, and will not impact structures.
2. Pier 36B is derelict and will be removed, which will allow dredging of contaminated sediments that were designated for In-situ treatment in the IROD.

The Slip 36 Data Set, presented in Tables 2 through 6, will be used to determine where EWOU IROD RALs are exceeded, and defines the planned vertical and horizontal extent of the removal action. The data set for Slip 36 adjusts the planned extent beyond what was presented in the IROD. This adjustment will increase the overall area and volume of contaminated sediment that will be dredged in Slip 36 and decreases the footprint of the in-situ treatment of contaminated sediments. This will

remove more contamination from within Slip 36, improving the long-term effectiveness and permanence of the action in Slip 36 and the overall EWOU interim remedy.

Figure 4 presents a comparison of sediment COC concentrations to the RALs in Slip 36 below the minimum operational depth required by USCG of -42 feet MLLW. Sediment data shows that concentrations of PCBs, dioxins/furans, and arsenic are vertically bounded except in limited locations under piers. Locations that are not vertically bounded that are to be dredged will be sampled after construction to confirm that concentrations are below the EW RALs (under Pier 36B), or if they are not able to be dredged due to structural restrictions will have in-situ treatment applied. For SVOCs and mercury, the data shows nine locations with concentrations greater than the RALs in intervals below – 43 feet MLLW.

Sample locations with sediment concentrations above the RALs below -43 feet MLLW are summarized below and are shown in Figure 4:

Three sample locations on the southwest corner of Slip 36 (EECA14, BERTH06, and BERTH07) have concentrations of mercury, SVOCs, and/or PAHs greater than the RALs. Mercury concentrations greater than the RAL are vertically delineated to a maximum depth of -47 feet MLLW. SVOC concentrations greater than the RAL are present in the bottommost sample from two of the locations at approximately -49 feet MLLW (BERTH06 and BERTH07).

Four sample locations adjacent to Piers 36A and 36B (BERTH03, -08, -09, and -10) contain single SVOC compounds greater than the RALs below -43 feet MLLW.

One sample location just west of Slip 36 (EECA18) contains mercury greater than the RAL to a depth of -46 feet MLLW.

One sample location underneath Pier 36A (PIER24) contains PCBs greater than the RAL in the shallowest interval (0 to 1 feet bss). Intervals below 2 feet bss contain PAHs, and intervals below 3 feet bss contain PCBs, mercury, and dioxin/furans greater than the RALs, including the deepest interval sampled (6 to 7 feet bss)

5. NPL Status

Slip 36 is part of the EWOU of the Harbor Island Superfund Site, that was listed on the NPL on September 9, 1983.

B. Other Actions to Date

1. Previous Actions

There have been no previous CERCLA removal actions or sediment cleanup activities in Slip 36. However, sediments in Slip 36 have been dredged on occasion by the USCG for berth maintenance and ship docking purposes.

Slip 36 was constructed in 1927 and originally dredged to –35 feet MLLW. The berth has been dredged several times to accommodate USCG’s operations, including most recently from 2004 to 2005, to lower

the sediment elevation in Slip 36 to –40 feet MLLW (from a previous elevation of –38 feet MLLW) and to facilitate installation of the current Pier 36A structure and toe wall. Approximately 50,000 cubic yards of sediment were removed during the most recent maintenance dredging (2004 to 2005).

2. Current actions

EPA anticipates having potentially responsible parties implement remedial design and remedial action for the EWOU.

The USCG under the ASAOC with EPA has conducted Slip 36 characterization activities. The NTCRA will be addressed through a new ASAOC.

C. State and Local Authorities' Roles

1. State and local actions to date

EPA is the lead agency under the NCP for the EWOU. EPA coordinated with the Washington State Department of Ecology (Ecology) during development of the EWOU IROD, which includes Slip 36. Ecology has participated in reviewing and commenting on documents, briefings, and public meetings associated with the EWOU. Ecology concurred on the remedial action selected by EPA in the IROD for the EWOU. EPA has notified Ecology of the early action planned for Slip 36 and received no concerns from Ecology.

During development of the IROD, there was extensive coordination by EPA with local agencies, the community, and community groups. EPA participated in public meetings to discuss the EWOU, including Slip 36, prior to issuance of the IROD. In advance of the IROD, EPA released a Proposed Plan which presented the remedial alternatives that were considered and the preferred alternative for the EWOU and provided a 105-day public comment period. During that public comment period, EPA held two public meetings during which EPA explained the preferred alternative and answered questions about the EWOU. EPA responded to the comments received during the public comment period in a Responsiveness Summary in the EWOU IROD. There were no public comments received by EPA on the EWOU IROD that were specific to Slip 36.

2. Potential for continued State/local response

This NTCRA for Slip 36 is expected to be conducted by the USCG under EPA oversight and in accordance with CERCLA. Coordination efforts with State and local authorities will continue throughout the project.

D. Tribal Interests and Natural Resource Agencies

The Muckleshoot Indian Tribe, the Suquamish Tribe, and the Confederated Tribes of the Yakama Nation all have Usual and Accustomed fishing and hunting rights

within Slip 36. Because the USCG controls Slip 36 and restricts access due to national security concerns, fishing and harvesting are not currently occurring in Slip 36, but should the land use change in the future, these Tribes would again have the right to conduct these activities. All three Tribes have been offered formal consultation on the Slip 36 NTCRA, and the Muckleshoot and Suquamish Tribes have coordinated with the EPA and the USCG during the collection of data for Slip 36.

The National Oceanic and Atmospheric Administration and United States Fish and Wildlife Service are responsible for ensuring the protection of sensitive species, some of which live within the EWOU, or in the adjacent Puget Sound. These agencies administer the Endangered Species Act and Marine Mammal Protection Act, which are identified as applicable or relevant and appropriate requirements (ARARs) in the EWOU IROD. EPA and the USCG will coordinate further with these agencies during the removal process.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A removal action is warranted under the NCP due to the threat to public health or welfare or the environment from the release of hazardous substances in Slip 36 of the EWOU at the Site. 40 C.F.R. § 300.415(b)(1). This threat is based on consideration of NCP factors including the actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, and the actual or potential contamination of sensitive ecosystems. 40 C.F.R. §§ 300.415(b)(2)(i) and (ii). Elevated concentrations of PAHs, dioxins/furans, PCBs, arsenic and mercury have been released to sediments in the Slip 36 area of the EWOU, as described above. These chemicals are “hazardous substances” as defined in the NCP, 40 C.F.R. § 300.5, and Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

A removal action in Slip 36 will expeditiously address cleanup of sediments with some of the highest concentrations of PAHs found in the EWOU and will be consistent with and advance implementation of the remedial action in the IROD.

A. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants (40 C.F.R. § 300.415(b)(2)(i)).

The human health exposure pathways for the EWOU baseline risk assessment included consumption of seafood harvested from the East Waterway, contact with sediments during seafood harvesting (e.g., net fishing and clamming) and habitat restoration work, and direct contact to surface water while swimming. Risks associated with seafood consumption are considered for Slip 36. Direct contact to sediment from net fishing or shellfish harvesting and habitat restoration work is not considered to be a complete pathway for Slip 36 so long as the USCG remains in control of this area.

Ecological risk exposure pathways include the benthic invertebrate community, crabs, fish (English sole, brown rockfish, and juvenile Chinook salmon), and other wildlife species (pigeon guillemot, osprey, river otter, and harbor seal). All of the exposure pathways included in the EWOU ecological risk assessment of the SRI are applicable to Slip 36.

B. Actual or potential contamination of drinking water supplies or sensitive ecosystems (40 C.F.R. § 300.415(b)(2)(ii)).

Slip 36 has sediments contaminated with PAHs, arsenic, mercury, dioxins, and PCBs. The EWOU, including Slip 36, is part of the Duwamish River and immediately adjacent to the Puget Sound, both of which are sensitive ecosystems that support endangered or protected aquatic and avian species. The migration of contamination from Slip 36 to these ecosystems will be controlled by the removal action resulting in the enhanced protection of the ecosystems and associated species.

Where the groundwater and tidally influenced nearshore surface water interact (landward of the slope armoring), mixing results in brackish groundwater (primarily deeper and waterward of the sheet pile wall). The area of tidal mixing is within approximately 50 feet from the shoreline. The effects of tidal mixing on nearshore groundwater prior to discharge into the EWOU indicate that in the nearshore environment, freshwater overlies denser saltwater and, thereby, confines freshwater to the upper portion of the aquifer; and upland groundwater mixes with saline groundwater prior to discharging at the shoreline, meaning there is no direct discharge of fresh water to the EWOU. Rather, it is all tidally mixed, and tidal influx results in dilution and attenuation of groundwater between nearshore wells and the shoreline.

The potential impact of contamination from sediments on drinking water supplies is not identified as a concern for Slip 36. The surrounding area is provided drinking water through a public water supply. There are no known impacts to drinking water, as the Harbor Island Record of Decision made a determination that groundwater is not potable.

C. Other situations or factors that may pose threats to public health or welfare of the United States or the environment.

Several of the structures of Slip 36 are in poor condition. In 2020, the USCG evaluated pier 36B's structural integrity and identified 489 deficiencies (Appledore Marine Engineering, LLC, 2020). Most of the noted defects indicated loss of 50% or more of their surface area, with 34 elements entirely missing or broken. The report states that 14% of the piles have severe damage, and another 6% have major deterioration. Pier 36B is now at risk of potential failure and use restrictions have been put in place by the USCG. If this pier fails or collapses, it would threaten human health and the environment through the additional release of contamination from the structures and creosote debris.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from Slip 36, if not addressed by implementation of the NTCRA, consistent with the IROD, may present an imminent and substantial endangerment to public health, welfare, or the environment due to risks to human health and the environment from human consumption of contaminated seafood and benthic exposure to contaminated sediment.

Excess cancer risks for carcinogenic PAH (cPAH) toxic equivalent (TEQ) from the consumption of East Waterway seafood exceeded the risk threshold of 1×10^{-6} for all reasonable maximum exposure (RME) seafood consumption scenarios and, therefore, cPAH TEQ was identified as a COC (Windward, 2012a).

Most of the risk can be attributed to the consumption of clams. The cPAH TEQ was selected as a risk driver for the seafood consumption RME scenarios based on the excess cancer risk magnitude (1×10^{-5} to 1×10^{-4}), percent contribution to the total excess cancer risk (7 to 27%) and high detection frequency in East Waterway tissue samples (71%).

In addition, cPAH TEQ was identified as a risk driver for the direct sediment exposure RME scenarios based on the magnitude of the excess cancer risk (3×10^{-6} to 2×10^{-6}), percent contribution to the total excess cancer risk (42 to 59%), and high detection frequency in East Waterway sediments (97%) (Windward, 2012a). The highest cPAH TEQ excess cancer risk estimate for an RME sediment exposure scenario was 2×10^{-6} for the tribal clamming RME. Ecological risks were a factor when determining rationale for this removal action. Sediment chemistry and toxicity tests were used in combination to determine that the potential for adverse effects to the benthic community result from COCs in sediment and account for sediment contamination from approximately 61% (96 acres) of the EWOU (Windward 2012b). Approximately 39% of the EWOU (61 acres) was considered unlikely to have adverse effects on the benthic invertebrate community. Of the 96 acres with predicted sediment toxicity, 59 acres (38% of the EWOU) had contaminant concentrations or biological effects that exceeded the lower SQS State Sediment Management Standard criterion. Sediment from approximately 37 acres (23% of the EWOU) had chemical concentrations or sediment toxicity that exceeded the higher CSL criterion of the State SMS indicating a higher likelihood of adverse effects to the benthic community.

V. SELECTED ACTIONS AND ESTIMATED COSTS

A. Proposed Action

1. Proposed Action Description

This NTCRA will implement a removal action that is consistent with the remedy selected in the EWOU IROD and will include consideration of the data and other information collected or developed by the USCG for Slip 36 since 2014. The actions to be implemented are described below:

- **Dredging** – Consistent with the EWOU IROD, all contaminated sediment above RALs in open water areas will be removed by dredging. The only exceptions are in discrete locations where RALs are exceeded below –43 feet MLLW but dredging below that depth would destabilize structures. This approach will result in contaminated sediment removal of an estimated 65,000 cubic yards. A limited RAL exceedance above –43 feet MLLW adjacent to the Slip 36 apron will be treated with an in-situ treatment to be determined in design due to site topography and slope stability. Structural walls, temporary shoring, piles, or supports shall be installed as needed and approved by the EPA, to achieve the dredge prisms required under this NTCRA and to maintain the safety of the work, while taking into account the required mission of the USCG Station Seattle and Sector Puget Sound missions.
- **In-situ treatment due to structural stability** – The East Waterway IROD states that contaminated sediments in under pier or restricted access areas will be addressed by applying in-situ treatment of an activated carbon sequestering agent that will bind to sediment contamination and prevent bioaccumulation. Consistent with the IROD, in areas

where dredging to RALs (adjacent to Pier 36A) has the potential to destabilize a structure, sediments are to be dredged to the maximum extent possible, and in-situ treatment consisting of clean sand amended with a 2% activated carbon, or equivalent as determined by EPA, is to be placed. In locations where RAL exceedances cannot be removed due to structural considerations, in-situ treatment shall be implemented to a depth as determined in removal action design and approved by EPA. The estimated volume of sediments receiving this in-situ treatment is 13,000 cubic yards.

- **In-situ treatment under piers** – Consistent with the EWOU IROD, contaminated sediments that exceed RALs in under pier or restricted access areas will be addressed by applying in-situ treatment of an activated carbon sequestering agent that will bind to sediment contamination and prevent bioaccumulation. All under pier areas with exposed contaminated sediments that exceed RALs are to have in-situ treatment. The under pier in-situ treatment is to consist of activated carbon impregnated materials placed in a 3-inch layer at a minimum, reactive carbon mats near the apron, or an equivalent as approved by EPA. Areas that do not have accessible sediment due to properly graded riprap armoring will not receive in-situ treatment. The estimated volume of sediments receiving this in-situ treatment will be determined in design.
- **Residual management cover (RMC)** – A 9-inch layer of clean sand is to be placed as an RMC across all dredged portions of Slip 36. This RMC is to be designed to ensure that a cleaner surface layer is present after dredging where dredge residuals may have settled. Areas with in-situ treatment do not require an RMC layer. The volume of sand needed for RMC will be determined in removal action design. The RMC layer is not required where in-situ treatment is placed.
- **Pier 36 removal** – As described in the IROD Section 12.2, Key Remedy Elements, piles and piers that are derelict may be removed. The USCG has determined, based on structural inspections, that Pier 36B is no longer structurally sound or usable. Consistent with that determination and the IROD, this pier will be removed as part of the NTCRA. This will allow access for the dredging of contaminated sediments adjacent to and beneath Pier 36B. The removal of Pier 36B therefore improves the effectiveness of the clean up by allowing the removal of more contaminated sediment from Slip 36. Dredging this additional volume of contaminated sediment, rather than applying in-situ treatment beneath the pier, also decreases the risk to workers implementing the cleanup action.

As part of the NTCRA, the USCG will complete a CWA Memorandum that details how substantive requirements of the Clean Water Act (CWA) will be met. This will include all best management practices (BMPs) and mitigation determined to be required under Section 404(b)(1) of the CWA. BMPs and mitigation that may be required include the use of operational or engineering resuspension controls, monitoring for water quality parameters, and temporary pausing work as needed to prevent water quality exceedances, among any other actions determined appropriate.

A Biological Assessment will also be prepared and shared with the resource agencies to allow for meaningful coordination or, if determined to be necessary by EPA, issuance of a Biological Opinion. A schedule will be developed with EPA approval for such coordination. It is expected that any measures or BMPs recommended in the Biological Opinion, or otherwise communicated through a coordination

process will be implemented for Slip 36. Permits will not be required for any work conducted onsite cleanup action but there will be compliance with all ARARs to the extent practicable considering the exigencies of the situation as determined by EPA.

Waste disposal – All sediments shall be disposed of upland in an appropriate landfill, in accordance with the Resource Conservation and Recovery Act, State Dangerous Waste regulations, the CERCLA Offsite rule, and the EWOU IROD.

Post-removal performance monitoring – It is expected that the USCG will implement a monitoring program to ensure that the NTCRA is effective and can be incorporated into the EWOU remedial action. If RAL exceedances are encountered in the biologically active zone, the extent and potential source of RAL exceedances will be evaluated, and additional action may be required.

- **In-situ treatment** – It is expected that the USCG will monitor the in-situ treatment immediately following construction, within two years of construction and at the five and ten years after construction. Monitoring will be identified in a post removal monitoring plan, to be developed by the USCG and subject to EPA approval.
- **Slip-wide monitoring** – Immediately following construction, within two years of completion and every five years after until an EWOU wide performance monitoring program is in place. It is expected that the USCG will develop a post-removal monitoring plan, to be subject to EPA approval. At a minimum, it is expected that the USCG will conduct a hydrographic survey using multi-beam sonar or similar to measure the sediment elevation, and the USCG will collect surface samples to be analyzed at an EPA-approved lab for Slip 36 COCs.

2. Contribution to remedial performance

This NTCRA incorporates the interim remedy selected in the EWOU IROD, with the adjustment to include the removal of derelict Pier 36B and dredging of contaminated sediments, instead of in situ-treatment of contaminated sediments under that pier. This NTCRA allows Slip 36 to achieve the remedial action objectives described in the EWOU IROD in an accelerated time frame.

3. Description of alternative technologies

The EWOU IROD evaluated multiple alternatives and selected an alternative that was determined to best meet the detailed alternative analysis criteria required under CERCLA and the NCP. The alternative technologies that were evaluated in the EWOU IROD are explained below:

- **Monitored natural recovery (MNR)** – MNR relies on natural processes to reduce ecological and human health risks while monitoring natural recovery over time to determine remedy success. Within the EWOU, the primary natural recovery processes are sedimentation and mixing of incoming cleaner sediment.
- **Enhanced nature recovery (ENR)** – ENR refers to the placement of a thin layer of clean sand (or other suitable habitat material) on top of contaminated sediments and may include a sequestering amendment such as activated carbon. Over time, this cleaner

surface material mixes with the underlying contaminated sediment to reduce contaminant concentrations more quickly than would occur with MNR. ENR may be used in conjunction with sediment dredging to maintain appropriate water depths for navigation. The alternatives include two types of ENR defined by location and thickness:

- ENR-sill – a 9-inch layer of clean sand
- ENR-nav – an 18-inch layer of clean sand to mitigate propwash
- **Removal of contaminated sediments (Selected)** – All action alternatives include the removal of contaminated sediment due to the need to maintain the current and future use of the EWOU as a navigable waterway. The following assumptions were made to support cost estimates and the feasibility evaluation that supported the EWOU IROD:
 - Mechanical dredging to remove contaminated sediment is assumed for open water areas, using either articulated fixed-arm or cable-operated dredges situated on a barge or from the shore.
 - Diver assisted hydraulic dredging to remove contaminated sediment would likely be necessary for under pier areas.
- **Engineered capping** – Engineered caps contain contaminants in sediment by placing layers of sand, gravel, or rock to isolate and prevent migration of contamination. Capping may be used in conjunction with dredging to maintain appropriate water depths for navigation or habitat. Caps are expected to have a thickness of about 5 feet, consisting of a nominal 2.5-foot chemical isolation layer, 1-foot filter layer, and 1.5-foot armor layer. Final cap composition and thickness will be determined during design and will consider maintaining habitat.
- **In-situ treatment (Selected)** – In-situ treatment is the placement of a layer of activated carbon (or other sequestering agent) on top of the contaminated sediment or mixed in with clean sand or other clean material. The activated carbon mixes with the underlying contaminated material through bioturbation and propwash to reduce contaminant bioavailability in the surface sediments; in-situ treatment may not significantly change the bulk contaminant concentration. In some cases, it may not be possible to treat all contaminated sediments in limited access areas due to obstructions or difficult to access areas. The impact of these untreated sediments will be evaluated during post-construction monitoring and may require additional treatment or other containment strategies to assure that cleanup objectives are attained.
- **RMC (Selected)** – Dredge residuals are sediments and associated contamination that may be released during dredging and redeposit on the dredged surface. Potential exposure to contaminants in dredge residuals may be mitigated with the placement of a RMC layer, consisting of approximately 9 inches of clean sand that would be applied as soon as possible following the completion of dredging. The final thickness would be determined based on concentrations measured during post-remediation sampling. The residual management cover would be placed in all dredged areas and locations adjacent to dredged areas where residuals may have settled, providing a cleaner surface material that would mix with the underlying contaminated sediment to reduce contaminant concentrations.

The criteria used to select an alternative consisted of the two threshold criteria:

1. Overall protection of human health and the environment; and
2. Compliance with ARARs.

Alternatives that met the threshold criteria were then evaluated under the balancing criteria:

1. Long-term effectiveness and permanence;
2. Reduction in toxicity, mobility, or volume through treatment;
3. Short-term effectiveness;
4. Implementability; and
5. Cost.

A preferred alternative was selected based on the evaluation of the five balancing criteria and presented to the public for comment. Once comments were received, the preferred alternative was then evaluated based on the modifying criteria:

1. State and support agency acceptance; and
2. Community acceptance.

EPA considered the modifying criteria and made changes to the proposed alternative as needed. EPA then selected the interim remedy for the EWOU in the IROD.

The IROD selected an alternative referred to as Alternative 3B(12), which focused on dredging to RALs in the open water areas except where there was limited access or structural limitations. In the under-pier areas, in-situ treatment was the selected remedy. The IROD allows for the removal of piers and pilings in some instances. This NTCRA is consistent with interim remedy selected in the IROD.

4. Engineering Evaluation/Cost Analysis (EE/CA)

An EE/CA was initiated by the USCG in 2021 under the direction of EPA, but issuance of the IROD by EPA in 2024 made it unnecessary for the USCG to complete the EE/CA. The IROD and its supporting Administrative Record, together with the information and data developed by the USCG for Slip 36, provide the equivalent of an EE/CA and form the basis for this AM. Prior to issuance of the IROD, EPA provided a 105-day public comment period on the proposed plan that set forth the preferred remedial action alternative for the EWOU, including Slip 36. EPA received and reviewed 228 public comments on the proposed plan and provided responses to these comments in a Responsiveness Summary which is included in the IROD.

Applicable or relevant and appropriate requirements (ARARs)

The NCP requires that removal actions conducted under CERCLA attain ARARs under federal or state environmental or facility siting laws, to the extent practicable considering the exigencies of the situation (40 C.F.R. § 300.415(j)). In determining whether compliance with ARARs is practicable, EPA may consider the scope of the removal action and the urgency of the situation. In consultation with the state of Washington during the EWOU process, EPA developed ARARs for the EWOU. ARARs identified

for this removal action are the same as the ARARs identified for the IROD. These ARARs are presented as Appendix A to this AM.

5. Project schedule

It is expected that project implementation will begin in February 2025. The project is anticipated to take two construction seasons, due to fish migration windows, and is expected to be completed in 2027. East Waterway source control is ongoing, and EPA will make a source control sufficiency determination prior to remedial action. Remedial action is expected to begin in the EW in 2030.

B. Estimated Cost

Costs were estimated by the USCG, based on the actions that will be taken under CERCLA for the NTCRA. The USCG cost estimate for this Removal Action is \$65,000,000.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the NTCRA should be delayed or not taken, COCs will remain as a potential human health and environmental threat and there will remain a continuing source of sediment contamination, increasing public health and environmental risks.

VII. OUTSTANDING POLICY ISSUES

EPA has relied on the IROD process along with data and other information collected by USCG for Slip 36 to satisfy the EE/CA equivalency requirement of 40 CFR 300.415(b)(4)(i) for this NTCRA.

VIII. ENFORCEMENT

EPA anticipates entering into an administrative settlement with the USCG which commits the USCG to performance of the NCTRA under EPA oversight.

IX. RECOMMENDATION

This decision document represents the selected removal action for Slip 36 of the EWOU of the Harbor Island Superfund Site in Seattle, WA, and was developed in accordance with CERCLA as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the site.

Conditions at the site meet the NCP section 300.415(b) criteria for a removal and I recommend your approval of the proposed removal action. The total project ceiling, if approved, will be \$65,000,000, to be funded by the USCG.

X. APPROVAL / DISAPPROVAL

APPROVAL:

**CALVIN
TERADA**

Digitally signed by
CALVIN TERADA
Date: 2024.11.15
10:30:59 -08'00'

Calvin J. Terada, Director
Superfund Emergency Management Division

Date

DISAPPROVAL:

Calvin J. Terada, Director
Superfund Emergency Management Division

Date

TABLES

Table 1 – Sediment Remedial Action Levels

Table 2 – PCB Concentrations in Sediment

Table 3 – Dioxin/Furan Concentrations in Sediment

Table 4 – Metals and Tributyltin Concentrations in Sediment

Table 5 – SVOC Concentrations in Sediment

Table 6 – PAH Concentrations in Sediment

FIGURES

Figure 1 – Site Vicinity Map

Figure 2 – Site Location Map

Figure 3 – Base Seattle Site Plan

Figure 4 – Overall Subsurface Sediment Delineation (Below -43 feet MLLW) Plan

Figure 5 – Removal Action Plan

APPENDICES

Appendix A – Applicable or Relevant and Appropriate Requirements

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Windward. 2012b. Baseline Ecological Risk Assessment (ERA). Appendix A, East Waterway Operable Unit Supplemental Remedial Investigation/Feasibility Study. Final. August.

Windward and Anchor QEA. 2014. Supplemental Remedial Investigation. East Waterway Operable Unit Supplemental Remedial Investigation/Feasibility Study. Final. January.

Tables

Table 1
Sediment Remedial Action Levels
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Contaminant of Concern	Remedial Action Level ^a		Apparent Effects Threshold ^b	
Total PCBs	12 (site-wide)	mg/kg OC ^c	130	µg/kg dw
Dioxins/Furans	25 (site-wide)	ng TEQ/kg dw	--	--
Arsenic	57 (clamming areas)	mg/kg dw	--	--
	57 (site-wide)	mg/kg dw	--	--
Mercury	0.41	mg/kg dw	--	--
Acenaphthene	16	mg/kg OC	500	µg/kg dw
Fluoranthene	160	mg/kg OC	1,700	µg/kg dw
Fluorene	23	mg/kg OC	540	µg/kg dw
Phenanthrene	100	mg/kg OC	1,500	µg/kg dw
Butyl benzyl phthalate	4.9	mg/kg OC	63	µg/kg dw
1,4-Dichlorobenzene	3.1	mg/kg OC	110	µg/kg dw

Footnotes:

^a RALs are consistent with the USEPA-approved East Waterway Operable Unit Interim Record of Decision (USEPA 2024), Table 7.

^b The lowest AET for marine sediment (dry weight basis) is applied to contaminants that have OC-normalized RALs if a sample contained less than 0.5% and greater than 4% TOC.

^c 12 mg/kg OC is equivalent to 192 µg/kg dw based on the average East Waterway Operable Unit OC content of 1.6 percent.

Symbols, Acronyms, and Abbreviations:

- = not established
- AET = apparent effects threshold
- EW = East Waterway
- µg/kg dw = microgram per kilogram dry weight
- mg/kg dw = milligrams per kilogram dry weight
- mg/kg OC = milligrams per kilogram organic carbon-normalized
- ng/kg dw = nanogram per kilogram dry weight
- OC = organic carbon
- PCBs = polychlorinated biphenyls
- RAL = remedial action level
- TEQ = toxic equivalent
- TOC = total organic carbon
- USEPA = United States Environmental Protection Agency

References:

USEPA. 2024. Interim Record of Decision, Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington. EPA Site ID: WAD980722839. Region 10. May.

Table 2
PCB Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Total PCBs		Aroclor 1016 mg/kg dw	Aroclor 1221 mg/kg dw	Aroclor 1232 mg/kg dw	Aroclor 1242 mg/kg dw	Aroclor 1248 mg/kg dw	Aroclor 1254 mg/kg dw	Aroclor 1260 mg/kg dw	Aroclor 1262 mg/kg dw	Aroclor 1268 mg/kg dw	
				Top	Bottom	Top of Core	Sample Top	Sample Bottom		mg/kg dw	mg/kg OC										
Remedial Action Level									--	--	12	--	--	--	--	--	--	--	--	--	
Apparent Effects Thresholds									--	0.13	--	--	--	--	--	--	--	--	--	--	--
EECA01	EECA01-SS-011222	1/12/2022	N	0.0	0.4	-39.7	-39.7	-40.1	1.1	0.024	2.2	< 0.0031 U	< 0.0031 U	< 0.0031 U	0.018 J	< 0.0031 U	< 0.0031 U	0.0093 J	< 0.0031 U	< 0.0031 U	
EECA01	EECA01-43T044-011222	1/12/2022	N	3.3	4.3	-39.7	-43.0	-44.0	0.31	0.0099	--	< 0.0027 U	< 0.0027 U	< 0.0027 U	0.0068	< 0.0027 U	< 0.0027 U	0.0054 J	< 0.0027 U	< 0.0027 U	
EECA02	EECA02-43T044-010722	1/7/2022	N	1.2	2.2	-41.8	-43.0	-44.0	0.66	0.0013 J	0.20	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	0.0013 J	< 0.0027 U	< 0.0027 U	
EECA02	EECA02-44T045-010722	1/7/2022	N	2.2	3.2	-41.8	-44.0	-45.0	0.74	< 0.0025 U	< 0.34	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	
EECA03	EECA03-43T044-010822	1/8/2022	N	2.1	3.1	-40.9	-43.0	-44.0	< 0.20 UB	< 0.0021 U	--	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	
EECA03	EECA03-44T045-010822	1/8/2022	N	3.1	4.1	-40.9	-44.0	-45.0	0.26	< 0.0024 U	--	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	
EECA04	EECA04-43T044-010922	1/9/2022	N	1.8	2.8	-41.2	-43.0	-44.0	0.67	< 0.0026 U	< 0.39	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	
EECA04	EECA04-44T045-010922	1/9/2022	N	2.8	3.8	-41.2	-44.0	-45.0	0.80	< 0.0029 U	< 0.36	< 0.0029 U	< 0.0029 U	< 0.0029 U	< 0.0029 U	< 0.0029 U	< 0.0029 U	< 0.0029 U	< 0.0029 U	< 0.0029 U	
EECA05	EECA05-43T044-011222	1/12/2022	N	2.2	3.2	-40.8	-43.0	-44.0	0.68	0.0016 J	0.24	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	0.0014 J	< 0.0027 U	< 0.0027 U	
EECA05	EECA05-44T045-011222	1/12/2022	N	3.2	4.2	-40.8	-44.0	-45.0	0.84	< 0.0028 U	< 0.33	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	
EECA06	EECA06-43T044-011222	1/12/2022	N	12.3	13.3	-30.7	-43.0	-44.0	0.43	< 0.0025 U	--	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	
EECA06	EECA06-44T045-011222	1/12/2022	N	13.3	14.3	-30.7	-44.0	-45.0	0.45	< 0.0026 U	--	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	
EECA07	EECA07-43T044-010822	1/8/2022	N	1.4	2.4	-41.6	-43.0	-44.0	0.28	< 0.0024 U	--	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	
EECA07	EECA07-44T045-010822	1/8/2022	N	2.4	3.4	-41.6	-44.0	-45.0	0.47	< 0.0025 U	--	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	
EECA08	EECA08-43T044-010822	1/8/2022	N	1.1	2.1	-41.9	-43.0	-44.0	0.37	< 0.0026 U	--	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	
EECA08	EECA08-44T045-010822	1/8/2022	N	2.1	3.1	-41.9	-44.0	-45.0	0.26	< 0.0026 U	--	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	
EECA09	EECA09-43T044-010922	1/9/2022	N	2.5	3.5	-40.5	-43.0	-44.0	0.39	< 0.0026 U	--	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	
EECA09	EECA09-44T045-010922	1/9/2022	N	3.5	4.5	-40.5	-44.0	-45.0	0.57	< 0.0026 U	< 0.46	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	
EECA10	EECA10-43T044-011122	1/11/2022	N	2.4	3.4	-40.6	-43.0	-44.0	1.2	< 0.0027 U	< 0.23	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	
EECA10	EECA10-44T045-011122	1/11/2022	N	3.4	4.4	-40.6	-44.0	-45.0	1.2	< 0.0025 U	< 0.21	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	
EECA11	EECA11-43T044-011122	1/11/2022	N	8.5	9.5	-34.5	-43.0	-44.0	0.39	< 0.0023 U	--	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	
EECA11	EECA11-44T045-011122	1/11/2022	N	9.5	10.5	-34.5	-44.0	-45.0	0.33	0.0015 J	--	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	0.0015 J	< 0.0024 U	< 0.0024 U	
EECA12	EECA12-SS-011022	1/10/2022	N	0.0	0.4	-36.7	-36.7	-37.1	1.8	0.024	1.3	< 0.0028 U	< 0.0028 U	< 0.0028 U	0.014	< 0.0028 U	< 0.0028 U	0.010	J	< 0.0028 U	
EECA12	EECA12-43T044-011022	1/10/2022	N	6.3	7.3	-36.7	-43.0	-44.0	0.037 J	< 0.0023 U	--	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	
EECA13	EECA13-43T044-010622	1/6/2022	N	1.6	2.6	-41.4	-43.0	-44.0	0.56	< 0.0028 U	< 0.50	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	
EECA13	EECA13-44T045-010622	1/6/2022	N	2.6	3.6	-41.4	-44.0	-45.0	0.59	< 0.0027 U	< 0.46	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	
EECA14	EECA14-43T044-010622	1/6/2022	N	1.3	2.3	-41.7	-43.0	-44.0	0.47	< 0.0027 U	--	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	
EECA14	EECA14-44T045-010622	1/6/2022	N	2.3	3.3	-41.7	-44.0	-45.0	0.21	< 0.0026 U	--	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	
EECA14	EECA14-45T046-010622	1/6/2022	N	3.3	4.3	-41.7	-45.0	-46.0	0.055 J	< 0.0025 U	--	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	
EECA14	EECA14-46T047-010622	1/6/2022	N	4.3	5.3	-41.7	-46.0	-47.0	0.56	< 0.0026 U	< 0.46	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	
EECA14	EECA14-47T048-010622	1/6/2022	N	5.3	6.3	-41.7	-47.0	-48.0	0.57	< 0.0025 U	< 0.44	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	
EECA14	EECA14-48T049-010622	1/6/2022	N	6.3	7.3	-41.7	-48.0	-49.0	0.44	< 0.0023 U	--	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	
EECA14	EECA14-49T050-010622	1/6/2022	N	7.3	8.3	-41.7	-49.0	-50.0	0.51	< 0.0025 U	< 0.49	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	
EECA15	EECA15-43T044-010522	1/5/2022	N	2.8	3.8	-40.2	-43.0	-44.0	0.47	< 0.0027 U	--	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	
EECA15	DUP01-010522 (EECA15-43T044-010522)	1/5/2022	FD	2.8	3.8	-40.2	-43.0	-44.0	0.19	J	< 0.0027 U	--	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	< 0.0027 U	
EECA15	EECA15-48T049-010522	1/5/2022	N	7.8	8.8	-40.2	-48.0	-49.0	0.52	< 0.0028 U	< 0.54	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	< 0.0028 U	
EECA15	EECA15-49T050-010522	1/5/2022	N	8.8	9.8	-40.2	-49.0	-50.0	0.13	J	< 0.0024 U	--	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	
EECA16	EECA16-43T044-011122	1/11/2022	N	4.2	5.2	-38.8	-43.0	-44.0	0.70	< 0.0024 U	< 0.34	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	< 0.0024 U	
EECA16	DUP12-011122 (EECA16-43T044-011122)	1/11/2022	FD	4.2	5.2	-38.8	-43.0	-44.0	0.69	< 0.0025 U	< 0.36	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	< 0.0025 U	
EECA16	EECA16-44T045-011122	1/11/2022	N	5.2	6.2	-38.8	-44.0	-45.0	0.58	< 0.0026 U	< 0.45	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	< 0.0026 U	
EECA17	EECA17-43T044-010722	1/7/2022	N	5.2	6.2	-37.8	-43.0	-44.0	0.54	< 0.0025 U	< 0.46	< 0.0025 U	< 0.0025 U	< 0.0025 U</							

Table 2
PCB Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Total PCBs		Aroclor 1016 mg/kg dw	Aroclor 1221 mg/kg dw	Aroclor 1232 mg/kg dw	Aroclor 1242 mg/kg dw	Aroclor 1248 mg/kg dw	Aroclor 1254 mg/kg dw	Aroclor 1260 mg/kg dw	Aroclor 1262 mg/kg dw	Aroclor 1268 mg/kg dw					
				Top	Bottom	Top of Core	Sample Top	Sample Bottom		mg/kg dw	mg/kg OC														
Remedial Action Level									--	--	12	--	--	--	--	--	--	--	--	--	--				
Apparent Effects Thresholds									--	0.13	--	--	--	--	--	--	--	--	--	--	--	--			
EECA19	EECA19-43T044-010922	1/9/2022	N	2.9	3.9	-40.1	-43.0	-44.0	0.89	0.015	1.7	< 0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U		
BERTH01-SS	BERTH01-SS-190423	4/23/2019	N	0.0	0.3	-34.9	-34.9	-35.3	5.2	0.036	0.69	< 0.0037	UJ	< 0.0037	UJ	< 0.0037	UJ	< 0.0037	UJ	< 0.0037	UJ	< 0.0037	UJ		
BERTH01-SB	BERTH01-SB-0T01-190426	4/26/2019	N	0.0	1.0	-34.9	-34.9	-35.9	9.3	0.0044	--	0.0039	U	< 0.0039	U	< 0.0039	U	< 0.0039	U	0.0044	J	< 0.0039	U		
BERTH01-SB	BERTH01-SB-1T02-190426	4/26/2019	N	1.0	2.0	-34.9	-35.9	-36.9	9.0	0.0013	J	--	0.0032	UJ	< 0.0032	UJ	< 0.0032	UJ	< 0.0032	UJ	0.0013	J	< 0.0032	UJ	
BERTH01-SB	SBDUP-01-190426 (BERTH01-SB-1T02-190426)	4/26/2019	FD	1.0	2.0	-34.9	-35.9	-36.9	9.0	0.19	J	--	0.04	J	< 0.018	U	< 0.018	U	< 0.018	U	0.15	J	< 0.018	U	
BERTH01-SB	BERTH01-SB-2T03-190426	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	8.2	0.084	--	0.0087	UJ	< 0.0087	UJ	< 0.0087	UJ	< 0.0087	UJ	0.084	J	< 0.0087	UJ		
BERTH01-SB	BERTH01-SB-4T05-190426	4/26/2019	N	4.0	5.0	-34.9	-38.9	-39.9	6.4	0.015	--	0.015	J	< 0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U		
BERTH01-SB	BERTH01-SB-6T07-190426	4/26/2019	N	6.0	7.0	-34.9	-40.9	-41.9	3.3	< 0.0079	U	< 0.24	0.0079	UJ	< 0.0079	UJ	< 0.0079	UJ	< 0.0079	UJ	< 0.0079	UJ	< 0.0079	UJ	
BERTH01-SB	BERTH01-SB-9T010-190426	4/26/2019	N	9.0	10.0	-34.9	-43.9	-44.9	3.1	< 0.013	U	< 0.42	0.013	U	< 0.013	U	< 0.013	U	< 0.013	U	< 0.013	UJ	< 0.013	U	
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0.0	0.3	-42.2	-42.2	-42.5	7.5	0.038	0.51	< 0.004	UJ	< 0.004	UJ	< 0.004	UJ	< 0.004	UJ	0.038	J	< 0.004	UJ	< 0.004	UJ
BERTH02-SB	BERTH02-SB-0T01-190426	4/26/2019	N	0.0	1.0	-42.2	-42.2	-43.2	1.1	0.0020	J	0.18	0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	0.002	J	< 0.0025	U	
BERTH02-SB	BERTH02-SB-1T02-190426	4/26/2019	N	1.0	2.0	-42.2	-43.2	-44.2	0.62	< 0.0026	U	< 0.42	0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	UJ	< 0.0026	U	
BERTH02-SB	BERTH02-SB-2T03-190426	4/26/2019	N	2.0	3.0	-42.2	-44.2	-45.2	0.63	< 0.0025	U	< 0.40	0.0025	UJ	< 0.0025	UJ	< 0.0025	UJ	< 0.0025	UJ	< 0.0025	UJ	< 0.0025	UJ	
BERTH02-SB	BERTH02-SB-4T05-190426	4/26/2019	N	4.0	5.0	-42.2	-46.2	-47.2	1.6	< 0.013	U	< 0.81	0.013	U	< 0.013	U	< 0.013	U	< 0.013	U	< 0.013	U	< 0.013	U	
BERTH02-SB	BERTH02-SB-6T07-190426	4/26/2019	N	6.0	7.0	-42.2	-48.2	-49.2	1.5	< 0.0027	U	< 0.18	0.0027	UJ	< 0.0027	UJ	< 0.0027	UJ	< 0.0027	UJ	< 0.0027	UJ	< 0.0027	UJ	
BERTH02-SB	BERTH02-SB-9T010-190426	4/26/2019	N	9.0	10.0	-42.2	-51.2	-52.2	0.96	< 0.0027	U	< 0.27	0.0027	UJ	< 0.0027	UJ	< 0.0027	UJ	< 0.0027	UJ	< 0.0027	UJ	< 0.0027	UJ	
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0.0	0.3	-39.6	-39.6	-39.9	2.7	0.057	2.1	< 0.0033	U	< 0.0033	U	< 0.0033	U	< 0.0033	U	0.057	J	< 0.0033	U	< 0.0033	U
BERTH03-SB	BERTH03-SB-0T01-190429	4/29/2019	N	0.0	1.0	-39.6	-39.6	-40.6	0.67	0.0025	J	0.37	0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	0.0025	J	< 0.0026	U	
BERTH03-SB	BERTH03-SB-1T02-190429	4/29/2019	N	1.0	2.0	-39.6	-40.6	-41.6	1.0	< 0.0077	U	< 0.77	0.0077	U	< 0.0077	U	< 0.0077	U	< 0.0077	U	< 0.0077	U	< 0.0077	U	
BERTH03-SB	BERTH03-SB-2T03-190429	4/29/2019	N	2.0	3.0	-39.6	-41.6	-42.6	2.3	0.0020	J	0.087	0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	0.002	J	< 0.0025	U	
BERTH03-SB	BERTH03-SB-4T05-190429	4/29/2019	N	4.0	5.0	-39.6	-43.6	-44.6	1.3	< 0.0026	U	< 0.20	0.0026	UJ	< 0.0026	UJ	< 0.0026	UJ	< 0.0026	UJ	< 0.0026	UJ	< 0.0026	UJ	
BERTH03-SB	BERTH03-SB-6T07-190429	4/29/2019	N	6.0	7.0	-39.6	-45.6	-46.6	0.59	< 0.0022	U	< 0.37	0.0022	UJ	< 0.0022	UJ	< 0.0022	UJ	< 0.0022	UJ	< 0.0022	UJ	< 0.0022	UJ	
BERTH03-SB	BERTH03-SB-8T09-190429	4/29/2019	N	8.0	9.0	-39.6	-47.6	-48.6	1.4	< 0.0027	U	< 0.19	0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0.0	0.3	-42.2	-42.2	-42.5	2.1	J	0.024	1.1	< 0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U	0.024	J	< 0.0028	U	
BERTH04-SS	SSDUP03-190508 (BERTH04-SS-190508)	5/8/2019	FD	0.0	0.3	-42.2	-42.2	-42.5	1.3	J	0.0081	0.62	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	0.0081	J	< 0.0026	U	
BERTH04-SB	BERTH04-SB-0T01-190509	5/9/2019	N	0.0	1.0	-42.2	-42.2	-43.2	1.3	0.0033	0.25	0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	0.0033	J	< 0.0026	U	< 0.0026	U
BERTH04-SB	BERTH04-SB-1T02-190509	5/9/2019	N	1.0	2.0	-42.2	-43.2	-44.2	0.81	0.0019	J	0.23	0.0023	U	< 0.0023	U	< 0.0023	U	< 0.0023	U	0.0019	J	< 0.0023	U	
BERTH04-SB	BERTH04-SB-2T03-190509	5/9/2019	N	2.0	3.0	-42.2	-44.2	-45.2	0.48	< 0.0024	U	--	0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	
BERTH04-SB	BERTH04-SB-3T04-190509	5/9/2019	N	3.0	4.0	-42.2	-45.2	-46.2	0.39	< 0.0024	U	--	0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	
BERTH04-SB	SBDUP02-190509 (BERTH04-SB-3T04-190509)	5/9/2019	FD	3.0	4.0	-42.2	-45.2	-46.2	0.39	< 0.0024	U	--	0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	
BERTH04-SB	BERTH04-SB-4T05-190509	5/9/2019	N	4.0	5.0	-42.2	-46.2	-47.2	0.37	< 0.0026	U	--	0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	
BERTH04-SB	BERTH04-SB-6T07.5-190509	5/9/2019	N	6.0	7.5	-42.2	-48.2	-49.7	0.49	< 0.0024	U	--	0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	
BERTH04-SB	BERTH04-SB-8.5T09.5-190509	5/9/2019	N	8.5	9.5	-42.2	-50.7	-51.7	0.82	< 0.0025	U	< 0.30	0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	
BERTH05-SS	BERTH05-SS-190508	5/8/2019	N	0.0	0.3	-39.7	-39.7	-40.0	2.0	0.015	0.75	< 0.0029	U	< 0.0029	U	< 0.0029	U	< 0.0029	U	0.015	J	< 0.0029	U	< 0.0029	U
BERTH05-SB	BERTH05-SB-0T01-190510	5/10/2019	N	0.0	1.0	-39.7	-39.7	-40.7	1.9	0.016	0.84	0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U	0.016	J	< 0.0028	U	< 0.0028	U
BERTH05-SB	BERTH05-SB-1T02-190510	5/10/2019	N	1.0	2.0	-39.7	-40.7	-41.7	0.95	0.0014	J	0.15	0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	0.0014	J	< 0.0027	U	
BERTH05-SB	BERTH05-SB-2T03-190510	5/10/2019	N	2.0	3.0	-39.7	-41.7	-42.7	0.58	< 0.0027	U	< 0.47	0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	
BERTH05-SB	BERTH05-SB-4T05-190510	5/10/2019	N	4.0	5.0	-39.7	-43.7	-44.7	0.11	< 0.0024	U	--	0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	
BERTH05-SB	BERTH05-SB-6T07-190510	5/10/2019	N	6.0	7.0	-39.7	-45.7	-46.7	0.12	< 0.0024	U	--	0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	
BERTH05-SB	BERTH05-SB-8T09-190510	5/10/2019	N	8.0	9.0	-39.7	-47.7	-48.7	0.19	< 0.0024	U	--	0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	

Table 2
PCB Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Total PCBs		Aroclor 1016 mg/kg dw	Aroclor 1221 mg/kg dw	Aroclor 1232 mg/kg dw	Aroclor 1242 mg/kg dw	Aroclor 1248 mg/kg dw	Aroclor 1254 mg/kg dw	Aroclor 1260 mg/kg dw	Aroclor 1262 mg/kg dw	Aroclor 1268 mg/kg dw																			
				Top	Bottom	Top of Core	Sample Top	Sample Bottom		mg/kg dw	mg/kg OC																												
				Remedial Action Level																																			
Apparent Effects Thresholds																			12	0.13																			
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0.0	0.3	-40.6	-40.6	-40.9	4.5	0.070	--	< 0.003	U	< 0.003	U	< 0.003	U	< 0.003	U	< 0.003	U	0.07	J	< 0.003	U	< 0.003	U												
BERTH06-SB	BERTH06-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-40.6	-40.6	-41.6	4.4	0.0084	--	0.0018	J	< 0.0029	U	< 0.0029	U	< 0.0029	U	< 0.0029	U	0.0065	J	< 0.0029	U	< 0.0029	U												
BERTH06-SB	BERTH06-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-40.6	-41.6	-42.6	3.2	0.037	1.2	0.0072	J	< 0.0034	UJ	< 0.0034	UJ	< 0.0034	UJ	< 0.0034	UJ	0.03	J	< 0.0034	UJ	< 0.0034	UJ												
BERTH06-SB	BERTH06-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-40.6	-42.6	-43.6	1.8	0.081	4.5	0.027	J	< 0.003	U	< 0.003	U	< 0.003	U	< 0.003	U	0.054	J	< 0.003	U	< 0.003	U												
BERTH06-SB	BERTH06-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-40.6	-44.6	-45.6	0.52	< 0.0026	U	< 0.50	0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U											
BERTH06-SB	BERTH06-SB-7TO8-190510	5/10/2019	N	7.0	8.0	-40.6	-47.6	-48.6	0.60	< 0.0026	U	< 0.43	0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U											
BERTH06-SB	BERTH06-SB-8TO8.5-190510	5/10/2019	N	8.0	8.5	-40.6	-48.6	-49.1	0.90	< 0.0025	U	< 0.28	0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U											
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0.0	0.33	-43.5	-43.5	-43.8	1.6	0.024	1.5	< 0.0022	U	< 0.0022	U	< 0.0022	U	< 0.0022	U	< 0.0022	U	0.024	J	< 0.0022	U	< 0.0022	U												
BERTH07-SB	BERTH07-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-43.5	-43.5	-44.5	6.9	0.032	--	0.0042	U	< 0.0042	U	< 0.0042	U	< 0.0042	U	< 0.0042	U	0.032	J	< 0.0042	U	< 0.0042	U												
BERTH07-SB	BERTH07-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-43.5	-44.5	-45.5	4.5	0.045	--	0.0033	U	< 0.0033	U	< 0.0033	U	< 0.0033	U	< 0.0033	U	0.045	J	< 0.0033	U	< 0.0033	U												
BERTH07-SB	BERTH07-SB-2TO3.5-190429	4/29/2019	N	2.0	3.5	-43.5	-45.5	-47.0	9.7	0.048	--	0.013	J	< 0.0032	U	< 0.0032	U	< 0.0032	U	< 0.0032	U	0.035	J	< 0.0032	U	< 0.0032	U												
BERTH07-SB	BERTH07-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-43.5	-47.5	-48.5	1.8	0.0020	J	0.11	0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	0.002	J	< 0.0025	U	< 0.0025	U											
BERTH08-SS	BERTH08-SS-190508	5/8/2019	N	0.0	0.3	-39.9	-39.9	-40.2	1.7	0.027	1.6	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	0.027	J	< 0.0027	U	< 0.0027	U												
BERTH08-SB	BERTH08-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-39.9	-39.9	-40.9	0.59	0.0052	0.88	0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	0.0052	J	< 0.0026	U	< 0.0026	U												
BERTH08-SB	BERTH08-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	0.64	0.0043	0.67	0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	0.0043	J	< 0.0025	U	< 0.0025	U												
BERTH08-SB	BERTH08-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	0.22	0.0021	J	--	0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	0.0021	J	< 0.0027	U	< 0.0027	U											
BERTH08-SB	BERTH08-SB-4.5TO6-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	0.85	< 0.0025	U	< 0.29	0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U											
BERTH08-SB	BERTH08-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	0.51	< 0.0024	U	< 0.47	0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U	< 0.0024	U											
BERTH09-SS	BERTH09-SS-190508	5/8/2019	N	0.0	0.3	-41.0	-41.0	-41.4	3.7	0.013	0.35	< 0.003	U	< 0.003	U	< 0.003	U	< 0.003	U	< 0.003	U	0.013	J	< 0.003	U	< 0.003	U												
BERTH09-SB	BERTH09-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-41.0	-41.0	-42.0	1.8	0.074	4.1	0.032	J	< 0.0022	U	< 0.0022	U	< 0.0022	U	< 0.0022	U	0.042	J	< 0.0022	U	< 0.0022	U												
BERTH09-SB	BERTH09-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-41.0	-42.0	-43.0	0.91	0.046	5.0	0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U	0.046	J	< 0.0028	U	< 0.0028	U												
BERTH09-SB	BERTH09-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-41.0	-43.0	-44.0	0.63	0.020	3.2	0.0038	J	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	0.016	J	< 0.0025	U	< 0.0025	U												
BERTH09-SB	BERTH09-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-41.0	-45.0	-46.0	1.2	0.0013	J	0.11	0.0025	UJ	< 0.0025	UJ	< 0.0025	UJ	< 0.0025	UJ	< 0.0025	UJ	0.0013	J	< 0.0025	UJ	< 0.0025	UJ											
BERTH09-SB	BERTH09-SB-6TO7-190509	5/9/2019	N	6.0	7.0	-41.0	-47.0	-48.0	0.54	< 0.0025	U	< 0.46	0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U											
BERTH09-SB	BERTH09-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-41.0	-49.0	-50.0	0.91	< 0.0025	U	< 0.27	0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U											
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0.0	0.3	-41.0	-41.0	-41.3	1.7	0.031	1.8	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	0.031	J	< 0.0027	U	< 0.0027	U												
BERTH10-SB	BERTH10-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-41.0	-41.0	-42.0	1.1	< 0.0027	U	< 0.25	0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U											
BERTH10-SB	BERTH10-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-41.0	-42.0	-43.0	0.87	< 0.0026	U	< 0.30	0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U											
BERTH10-SB	BERTH10-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-41.0	-43.0	-44.0	1.3	< 0.0026	U	< 0.20	0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U											
BERTH10-SB	BERTH10-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-41.0	-45.0	-46.0	1.2	< 0.0027	U	< 0.22	0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U											
BERTH10-SB	BERTH10-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-41.0	-47.0	-48.0	0.60	< 0.0027	U	< 0.45	0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U	< 0.0027	U											
BERTH10-SB	BERTH10-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-41.0	-49.0	-50.0	0.49	< 0.0030	U	--	0.003	U	< 0.003	U	< 0.003	U	< 0.003	U	< 0.003	U	< 0.003	U	< 0.003	U	< 0.003	U											
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0.0	0.3	-41.4	-41.4	-41.7	2.9	0.070	2.4	< 0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U	0.07	J	< 0.0028	U	< 0.0028	U												
BERTH11-SS	SSDUP01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0.0	0.3	-41.4	-41.4	-41.7	3.0	0.023	0.77	< 0.0034	U	< 0.0034	U	< 0.0034	U	< 0.0034	U	< 0.0034	U	0.023	J	< 0.0034	U	< 0.0034	U												
BERTH11-SB	BERTH11-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-41.4	-41.4	-42.4	0.87	0.0034	0.39	0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	< 0.0025	U	0.0034	J	< 0.0025	U	< 0.0025	U												
BERTH11-SB	BERTH11-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-41.4	-42.4	-43.4	0.57	< 0.0024	U	< 0.42	0.0024	UJ	< 0.0024	UJ	< 0.0024	UJ	< 0.0024	UJ	< 0.0024	UJ	< 0.0024	UJ	< 0.0024	UJ	< 0.0024	UJ											
BERTH11-SB	BERTH11-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-41.4	-43.4	-44.4	0.7	0.0011	J	0.16	0.0022	U	< 0.0022	U	< 0.0022	U	< 0.0022	U	< 0.0022	U	0.0011	J	< 0.0022	U	< 0.0022	U											
BERTH11-SB	BERTH11-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-41.4	-45.4	-46																															

Table 2
PCB Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Total PCBs		Aroclor 1016 mg/kg dw	Aroclor 1221 mg/kg dw	Aroclor 1232 mg/kg dw	Aroclor 1242 mg/kg dw	Aroclor 1248 mg/kg dw	Aroclor 1254 mg/kg dw	Aroclor 1260 mg/kg dw	Aroclor 1262 mg/kg dw	Aroclor 1268 mg/kg dw																		
				Top	Bottom	Top of Core	Sample Top	Sample Bottom		mg/kg dw	mg/kg OC																											
				Remedial Action Level																																		
Apparent Effects Thresholds																			12	0.13																		
BERTH12-SS	BERTH12-SS-190423	4/23/2019	N	0.0	0.3	-34.5	-34.5	-34.8	4.3	0.060		1.4	< 0.0036 UJ	< 0.0036 UJ	< 0.0036 UJ	< 0.0036 UJ	< 0.0036 UJ	0.06	J	< 0.0036 UJ	< 0.0036 UJ																	
BERTH12-SB	BERTH12-SB-0T01-190510	5/10/2019	N	0.0	1.0	-34.5	-34.5	-35.5	4.6	0.072		0.02	J	< 0.0037 U	< 0.0037 U	< 0.0037 U	< 0.0037 U	0.053	J	< 0.0037 U	< 0.0037 U																	
BERTH12-SB	BERTH12-SB-1T02-190510	5/10/2019	N	1.0	2.0	-34.5	-35.5	-36.5	3.1	0.081		2.6	0.024	J	< 0.003 U	< 0.003 U	< 0.003 U	0.058	J	< 0.003 U	< 0.003 U																	
BERTH12-SB	BERTH12-SB-2T04-190425	4/25/2019	N	2.0	4.0	-34.5	-36.5	-38.5	1.7	0.029		1.7	0.014	U	< 0.014 U	< 0.014 U	< 0.014 U	0.029	J	< 0.014 U	< 0.014 U																	
BERTH12-SB	BERTH12-SB-4T05-190425	4/25/2019	N	4.0	5.0	-34.5	-38.5	-39.5	5.6	0.10			0.016	U	< 0.016 U	< 0.016 U	< 0.016 U	0.1	J	< 0.016 U	< 0.016 U																	
BERTH12-SB	BERTH12-SB-7T07.9-190425	4/25/2019	N	7.0	7.9	-34.5	-41.5	-42.4	4.2	0.062			0.0069	UJ	< 0.0069 UJ	< 0.0069 UJ	< 0.0069 UJ	0.062	J	< 0.0069 UJ	< 0.0069 UJ																	
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0.0	0.3	-31.7	-31.7	-32.1	9.4	0.017			< 0.004 U	< 0.004 U	< 0.004 U	< 0.004 U	< 0.004 U	0.017	J	< 0.004 U	< 0.004 U																	
PIER13-SB	PIER13-SB-0T01-190509	5/9/2019	N	0.0	1.0	-31.7	-31.7	-32.7	6.3	0.066			0.004	U	< 0.004 U	< 0.004 U	< 0.004 U	0.066	J	< 0.004 U	< 0.004 U																	
PIER13-SB	PIER13-SB-1T02-190509	5/9/2019	N	1.0	2.0	-31.7	-32.7	-33.7	6.3	0.015			0.0043	U	< 0.0043 U	< 0.0043 U	< 0.0043 U	0.015	J	< 0.0043 U	< 0.0043 U																	
PIER13-SB	PIER13-SB-2T03-190425	4/25/2019	N	2.0	3.0	-31.7	-33.7	-34.7	11	0.032			0.011	U	< 0.011 U	< 0.011 U	< 0.011 U	0.032	J	< 0.011 U	< 0.011 U																	
PIER13-SB	PIER13-SB-4T05-190425	4/25/2019	N	4.0	5.0	-31.7	-35.7	-36.7	9.9	0.040			0.024	UJ	< 0.024 UJ	< 0.024 UJ	< 0.024 UJ	0.04	J	< 0.024 UJ	< 0.024 UJ																	
PIER13-SB	PIER13-SB-7T07.8-190425	4/25/2019	N	7.0	7.8	-31.7	-38.7	-39.5	14	0.24			0.066	J	< 0.0042 U	< 0.0042 U	< 0.0042 U	0.18	J	< 0.0042 U	< 0.0042 U																	
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0.0	0.3	-21.7	-21.7	-22.1	15	0.052			< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	0.052	J	< 0.0053 U	< 0.0053 U																	
PIER14-SB	PIER14-SB-0T01-190425	4/25/2019	N	0.0	1.0	-21.7	-21.7	-22.7	9.4	0.11			0.025	U	< 0.018 U	< 0.018 U	< 0.018 U	0.083	J	< 0.018 U	< 0.018 U																	
PIER14-SB	PIER14-SB-1T02-190425	4/25/2019	N	1.0	2.0	-21.7	-22.7	-23.7	11	0.13			0.054	U	< 0.022 U	< 0.022 U	< 0.022 U	0.073	J	< 0.022 U	< 0.022 U																	
PIER14-SB	PIER14-SB-2T03-190425	4/25/2019	N	2.0	3.0	-21.7	-23.7	-24.7	12	0.092			0.092	J	< 0.0038 UJ	< 0.0038 UJ	< 0.0038 UJ	0.092	J	< 0.0038 UJ	< 0.0038 UJ																	
PIER14-SB	PIER14-SB-4T05-190425	4/25/2019	N	4.0	5.0	-21.7	-25.7	-26.7	11	< 0.0030 U			0.003	U	< 0.003 U	< 0.003 U	< 0.003 U	0.003	J	< 0.003 U	< 0.003 U																	
PIER14-SB	PIER14-SB-6T07-190425	4/25/2019	N	6.0	7.0	-21.7	-27.7	-28.7	25	< 0.0043 U			0.0043	UJ	< 0.0043 UJ	< 0.0043 UJ	< 0.0043 UJ	0.0043	J	< 0.0043 UJ	< 0.0043 UJ																	
PIER14-SB	PIER14-SB-9T10-190425	4/25/2019	N	9.0	10.0	-21.7	-30.7	-31.7	9.8	0.097			0.036	U	< 0.031 U	< 0.031 U	< 0.031 U	0.061	J	< 0.031 U	< 0.031 U																	
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0.0	0.3	-32.9	-32.9	-33.2	8.8	0.019			< 0.0042 UJ	< 0.0042 UJ	< 0.0042 UJ	< 0.0042 UJ	< 0.0042 UJ	0.019	J	< 0.0042 UJ	< 0.0042 UJ																	
PIER15-SB	PIER15-SB-0T01-190426	4/26/2019	N	0.0	1.0	-32.9	-32.9	-33.9	5.9	0.024			0.003	U	< 0.003 U	< 0.003 U	< 0.003 U	0.024	J	< 0.003 U	< 0.003 U																	
PIER15-SB	PIER15-SB-1T02-190426	4/26/2019	N	1.0	2.0	-32.9	-33.9	-34.9	2.7	0.0053			0.0031	U	< 0.0031 U	< 0.0031 U	< 0.0031 U	0.0053	J	< 0.0031 U	< 0.0031 U																	
PIER15-SB	PIER15-SB-2T03-190426	4/26/2019	N	2.0	3.0	-32.9	-34.9	-35.9	2.8	0.013			0.013	U	< 0.013 U	< 0.013 U	< 0.013 U	0.013	J	< 0.013 U	< 0.013 U																	
PIER15-SB	PIER15-SB-4T05-190426	4/26/2019	N	4.0	5.0	-32.9	-36.9	-37.9	9.3	< 0.016 U			0.016	U	< 0.016 U	< 0.016 U	< 0.016 U	0.016	J	< 0.016 U	< 0.016 U																	
PIER15-SB	PIER15-SB-6T07-190426	4/26/2019	N	6.0	7.0	-32.9	-38.9	-39.9	2.2	< 0.013 U			0.013	U	< 0.013 U	< 0.013 U	< 0.013 U	0.013	J	< 0.013 U	< 0.013 U																	
PIER15-SB	PIER15-SB-9T10-190426	4/26/2019	N	9.0	10.0	-32.9	-41.9	-42.9	1.3	< 0.013 U			0.013	U	< 0.013 U	< 0.013 U	< 0.013 U	0.013	J	< 0.013 U	< 0.013 U																	
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0.0	0.3	-22.9	-22.9	-23.3	13	0.066			< 0.0047 UJ	< 0.0047 UJ	< 0.0047 UJ	< 0.0047 UJ	< 0.0047 UJ	0.066	J	< 0.0047 UJ	< 0.0047 UJ																	
PIER16-SB	PIER16-SB-0T01-190509	5/9/2019	N	0.0	1.0	-22.9	-22.9	-23.9	9.9	0.039			0.0053	U	< 0.0053 U	< 0.0053 U	< 0.0053 U	0.039	J	< 0.0053 U	< 0.0053 U																	
PIER16-SB	PIER16-SB-1T02-190509	5/9/2019	N	1.0	2.0	-22.9	-23.9	-24.9	12	0.079			0.0048	U	< 0.0048 U	< 0.0048 U	< 0.0048 U	0.079	J	< 0.0048 U	< 0.0048 U																	
PIER16-SB	PIER16-SB-2T03-190425	4/25/2019	N	2.0	3.0	-22.9	-24.9	-25.9	17	0.051			0.029	UJ	< 0.029 UJ	< 0.029 UJ	< 0.029 UJ	0.051	J	< 0.029 UJ	< 0.029 UJ																	
PIER16-SB	PIER16-SB-4T05-190425	4/25/2019	N	4.0	5.0	-22.9	-26.9	-27.9	8.4	0.14			0.047	J	< 0.0043 U	< 0.0043 U	< 0.0043 U	0.088	J	< 0.0043 U	< 0.0043 U																	
PIER16-SB	PIER16-SB-6T07-190425	4/25/2019	N	6.0	7.0	-22.9	-28.9	-29.9	9.7	< 0.0031 U			0.0031	U	< 0.0031 U	< 0.0031 U	< 0.0031 U	0.0031	J	< 0.0031 U	< 0.0031 U																	
PIER16-SB	PIER16-SB-9T10-190425	4/25/2019	N	9.0	10.0	-22.9	-31.9	-32.9	2.9	< 0.013 U			0.013	U	< 0.013 U	< 0.013 U	< 0.013 U	0.013	J	< 0.013 U	< 0.013 U																	
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0.0	0.3	-22.3	-22.3	-22.6	6.1	0.014			< 0.0045 U	< 0.0045 U	< 0.0045 U	< 0.0045 U	< 0.0045 U	0.014	J	< 0.0045 U	< 0.0045 U																	
PIER17-SB	PIER17-SB-0T02-190426	4/26/2019	N	0.0	2.0	-22.3	-22.3	-24.3	23	0.19			0.003	UJ	< 0.003 UJ	< 0.003 UJ	< 0.003 UJ	0.19	J	< 0.003 UJ	< 0.003 UJ																	
PIER17-SB	PIER17-SB-2T03-190426	4/26/2019	N	2.0	3.0	-22.3	-24.3	-25.3	10	0.017			0.015	UJ	< 0.015 UJ	< 0.015 UJ	< 0.015 UJ	0.017	J	< 0.015 UJ	< 0.015 UJ																	
PIER17-SB	PIER17-SB-4T05-190426	4/26/2019	N	4.0	5.0	-22.3	-26.3	-27.3	5.8	0.0080	J		0.013	U	< 0.013 U	< 0.013 U	< 0.013 U	0.008	J	< 0.013 U	< 0.013 U																	
PIER17-SB	PIER17-SB-6T07-190426	4/26/2019	N	6.0	7.0	-22.3	-28.3	-29.3	3.3	0.014			0.0073	J	< 0.0086 U	< 0.0086 U	< 0.0086 U	0.0063	J	< 0.0086 U	< 0.0086 U																	
PIER17-SB	PIER17-SB-9T10-190426	4/26/2019	N	9.0	10.0	-22.3	-31.3	-32.3	2.6	< 0.013 U			0.013	U	< 0.013 U	< 0.013 U	< 0.013 U	0.013	J	< 0.013 U	< 0.013 U																	

Table 2
PCB Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Total PCBs		Aroclor 1016 mg/kg dw	Aroclor 1221 mg/kg dw	Aroclor 1232 mg/kg dw	Aroclor 1242 mg/kg dw	Aroclor 1248 mg/kg dw	Aroclor 1254 mg/kg dw	Aroclor 1260 mg/kg dw	Aroclor 1262 mg/kg dw	Aroclor 1268 mg/kg dw							
				Top	Bottom	Top of Core	Sample Top	Sample Bottom		mg/kg dw	mg/kg OC																
Remedial Action Level									--	--	12	--	--	--	--	--	--	--	--	--	--						
Apparent Effects Thresholds									--	0.13	--	--	--	--	--	--	--	--	--	--	--	--					
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0.0	0.3	-25.3	-25.3	-25.6	8.7	0.022	--	< 0.0039	UJ	< 0.0039	UJ	< 0.0039	UJ	< 0.0039	UJ	0.022	J	< 0.0039	UJ	< 0.0039	UJ		
PIER18-SS	SSDUP02-190424 (PIER18-SS-190424)	4/24/2019	FD	0.0	0.3	-25.3	-25.3	-25.6	7.5	0.025	--	< 0.004	UJ	< 0.004	UJ	< 0.004	UJ	< 0.004	UJ	0.025	J	< 0.004	UJ	< 0.004	UJ		
PIER18-SB	PIER18-SB-0T01-190510	5/10/2019	N	0.0	1.0	-25.3	-25.3	-26.3	7.7	0.042	--	0.0071	U	< 0.0045	U	< 0.0045	U	< 0.0045	U	0.035	J	< 0.0045	U	< 0.0045	U		
PIER18-SB	PIER18-SB-1T02-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	13	0.091	--	0.017	U	< 0.0048	U	< 0.0048	U	< 0.0048	U	0.074	J	< 0.0048	U	< 0.0048	U		
PIER18-SB	PIER18-SB-4T05.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	15	0.16	--	0.017	UJ	< 0.017	UJ	< 0.017	UJ	< 0.017	UJ	0.16	J	< 0.017	UJ	< 0.017	UJ		
PIER18-SB	PIER18-SB-6.5T08-190425	4/25/2019	N	6.5	8.0	-25.3	-31.8	-33.3	0.29	0.011	--	0.0071	UJ	< 0.0071	UJ	< 0.0071	UJ	< 0.0071	UJ	0.011	J	< 0.0071	UJ	< 0.0071	UJ		
PIER18-SB	PIER18-SB-9T10-190425	4/25/2019	N	9.0	10.0	-25.3	-34.3	-35.3	1.3	< 0.0025	U	< 0.19	0.0025	U	< 0.0025	UJ	< 0.0025	UJ	< 0.0025	UJ	< 0.0025	UJ	< 0.0025	UJ			
PIER19-SS	PIER19-SS-190423	4/23/2019	N	0.0	0.3	-34.8	-34.8	-35.1	5.1	0.035	--	< 0.0017	UJ	< 0.0017	UJ	< 0.0017	UJ	< 0.0017	UJ	0.035	J	< 0.0017	UJ	< 0.0017	UJ		
PIER19-SB	PIER19-SB-0T02-190426	4/26/2019	N	0.0	2.0	-34.8	-34.8	-36.8	5.9	0.13	--	0.032	U	< 0.0032	U	< 0.0032	U	< 0.0032	U	0.13	J	< 0.0032	U	< 0.0032	U		
PIER19-SB	PIER19-SB-2T03-190426	4/26/2019	N	2.0	3.0	-34.8	-36.8	-37.8	6.0	0.16	--	0.044	J	< 0.016	U	< 0.016	U	< 0.016	U	0.12	J	< 0.016	U	< 0.016	U		
PIER19-SB	PIER19-SB-4T05-190426	4/26/2019	N	4.0	5.0	-34.8	-38.8	-39.8	2.8	0.0052	J	0.19	0.013	U	< 0.013	U	< 0.013	U	< 0.013	U	0.0052	J	< 0.013	U	< 0.013	U	
PIER19-SB	PIER19-SB-6T07-190426	4/26/2019	N	6.0	7.0	-34.8	-40.8	-41.8	1.9	< 0.014	U	< 0.74	0.014	U	< 0.014	U	< 0.014	U	< 0.014	U	< 0.014	U	< 0.014	U	< 0.014	U	
PIER19-SB	PIER19-SB-9T10-190426	4/26/2019	N	9.0	10.0	-34.8	-43.8	-44.8	1.0	< 0.011	U	< 1.1	0.011	U	< 0.011	U	< 0.011	U	< 0.011	U	< 0.011	U	< 0.011	U	< 0.011	U	
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0.0	0.3	-19.4	-19.4	-19.7	6.0	0.024	--	< 0.0038	UJ	< 0.0038	UJ	< 0.0038	UJ	< 0.0038	UJ	0.024	J	< 0.0038	UJ	< 0.0038	UJ		
PIER20-SB	PIER20-SB-0T01-190510	5/10/2019	N	0.0	1.0	-19.4	-19.4	-20.4	5.9	0.059	--	0.016	J	< 0.0031	U	< 0.0031	U	< 0.0031	U	0.043	J	< 0.0031	U	< 0.0031	U		
PIER20-SB	SSDUP03-190510 (PIER20-SB-0T01-190510)	5/10/2019	FD	0.0	1.0	-19.4	-19.4	-20.4	5.9	0.057	--	0.015	J	< 0.0033	U	< 0.0033	U	< 0.0033	U	0.042	J	< 0.0033	U	< 0.0033	U		
PIER20-SB	PIER20-SB-1T02-190510	5/10/2019	N	1.0	2.0	-19.4	-20.4	-21.4	19	0.19	--	0.0043	U	< 0.0043	U	< 0.0043	U	< 0.0043	U	0.19	J	< 0.0043	U	< 0.0043	U		
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0.0	0.3	-37.7	-37.7	-38.2	1.3	0.013	1.0	< 0.0028	U	< 0.0028	U	< 0.0028	U	< 0.0028	U	0.013	J	< 0.0028	U	< 0.0028	U		
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0.0	0.3	-39.8	-39.8	-40.2	2.2	0.022	1.0	< 0.0032	U	< 0.0032	U	< 0.0032	U	< 0.0032	U	0.022	J	< 0.0032	U	< 0.0032	U		
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0.0	0.3	-33.2	-33.2	-33.9	2.1	0.014	0.67	< 0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	0.014	J	< 0.0026	U	< 0.0026	U		
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0.0	0.3	-19.7	-19.7	-20.0	2.0	0.013	0.65	< 0.0029	U	< 0.0029	U	< 0.0029	U	< 0.0029	U	0.013	J	< 0.0029	U	< 0.0029	U		
PIER24-SB	PIER24-SB-0T01-190510	5/10/2019	N	0.0	1.0	-19.7	-19.7	-20.7	1.7	0.34	20	0.0026	U	< 0.0026	U	< 0.0026	U	< 0.0026	U	0.34	J	< 0.0026	U	< 0.0026	U		
PIER24-SB	PIER24-SB-1T02-190510	5/10/2019	N	1.0	2.0	-19.7	-20.7	-21.7	2.0	0.13	6.5	0.0029	U	< 0.0029	U	< 0.0029	U	< 0.0029	U	0.13	J	< 0.0029	U	< 0.0029	U		
PIER24-SB	PIER24-SB-2T03-190510	5/10/2019	N	2.0	3.0	-19.7	-21.7	-22.7	3.7	0.081	2.2	0.013	J	< 0.0029	U	< 0.0029	U	< 0.0029	U	0.068	J	< 0.0029	U	< 0.0029	U		
PIER24-SB	PIER24-SB-4T05-190510	5/10/2019	N	4.0	5.0	-19.7	-23.7	-24.7	9.0	0.87	--	0.11	J	< 0.0038	U	< 0.0038	U	< 0.0038	U	0.77	J	< 0.0038	U	< 0.0038	U		
PIER24-SB	PIER24-SB-6T07-190510	5/10/2019	N	6.0	7.0	-19.7	-25.7	-26.7	7.7	0.083	--	0.016	J	< 0.0039	U	< 0.0039	U	< 0.0039	U	0.067	J	< 0.0039	U	< 0.0039	U		
EW10-SC57	EW10-SC57-0-2	3/2/2010	N	0.0	2.0	-40.8	-40.8	-42.8	0.65	0.31	48	0.053	U	< 0.053	U	< 0.053	U	< 0.053	U	0.12	0.19	< 0.053	U	< 0.053	U		
EW10-SC57	EW10-SC57-2-4	3/2/2010	N	2.0	4.0	-40.8	-42.8	-44.8	0.26	0.0039	--	0.0039	U	< 0.0039	U	< 0.0039	U	< 0.0039	U	< 0.0039	U	< 0.0039	U	< 0.0039	U		
EW10-SC58	EW10-SC58-0-1.8	3/2/2010	N	0.0	1.8	-34.7	-35.7	-36.5	1.3	1.56	J	120	0.079	U	< 0.079	U	0.16	< 0.079	U	0.78	J	0.62	< 0.079	U	< 0.079	U	
EW10-SC58	EW10-SC58-1.8-4	3/2/2010	N	1.8	4.0	-34.7	-36.5	-38.7	1.3	< 0.0060	U	< 0.47	0.004	U	< 0.004	U	< 0.004	U	< 0.004	U	< 0.004	U	< 0.004	U	< 0.004	U	
EW10-SC59	EW10-SC59-0-2	3/2/2010	N	0.0	2.0	-41.0	-41.0	-43.0	0.95	< 0.0040	U	< 0.42	0.004	U	< 0.004	U	< 0.004	U	< 0.004	U	< 0.004	U	< 0.004	U	< 0.004	U	
EW10-SC59	EW10-SC59-2-4	3/2/2010	N	2.0	4.0	-41.0	-43.0	-45.0	0.47	0.0039	--	0.0039	U	< 0.0039	U	< 0.0039	U	< 0.0039	U	< 0.0039	U	< 0.0039	U	< 0.0039	U		
EW10-SC60	EW10-SC60-0-8	3/2/2010	N	0.0	0.8	-42.3	-42.3	-43.1	0.88	0.28	16	0.038	U	< 0.038	U	< 0.038	U	< 0.038	U	0.12	0.16	< 0.038	U	< 0.038	U		
EW10-SC60	EW10-SC60-8-3	3/2/2010	N	0.8	3.0	-42.3	-43.1	-45.3	1.7	0.027	J	3.1	0.0039	U	< 0.0039	U	0.0047	< 0.0039	U	0.013	J	0.0097	< 0.0039	U	< 0.0039	U	
EW10-SC61	EW10-SC61-0-1	3/2/2010	N	0.0	1.0	-42.3	-42.3	-43.3	0.924	0.28	JN	30	< 0.039	U	< 0.039	U	< 0.039	U	< 0.039	U	0.076	J	0.11	JN	0.094	< 0.039	U
EW10-SC61	EW10-SC61-1-3	3/2/2010	N	1.0	3.0	-42.3	-43.3	-45.3	1.2	0.027	J	2.3	< 0.038	U	< 0.038	U	< 0.038	U	0.0064	J	0.011	0.010	< 0.038	U	< 0.038	U	
EW09-SS-213	EW09-SS-213-010	6/22/2009	N	0.0	0.5	-34.7	-34.7	-35.2	1.74	0.17	9.8	< 0.013	U	< 0.013	U	< 0.013	U	0.021	< 0.013	U	0.15	< 0.013	U	< 0.013	U		
EW09-SS-214	EW09-SS-214-010	6/22/2009	N	0.0	0.5	-41.5	-41.5	-42.1	1.09	0.29	27	< 0.012	U	< 0.012	U	< 0.012	U	0.023	< 0.012	U	0.27	< 0.012	U	< 0.012	U		
EW09-SS-215	EW09-SS-215-010	6/22/2009	N	0.0	0.4	-40.9	-40.9	-41.3	3.37	0.34	10	< 0.018	U	< 0.018	U	< 0.018	U	0.034	0.11	0.2	< 0.018	U	< 0.018	U	< 0.018	U	
36B-01	36B-01	11/17/2014	N	0.0	0.3	-37.0	-37.0	-37.3	2.12	0.15	7.1	< 0.0098	U	< 0.0098	U	< 0.0098	U	< 0.0098	U	< 0.061	U	< 0.15	U	0.15	--		
36B-02	36B-02	11/17/2014	N	0.0	0.3	-25.0	-25.0	-25.3	3.61	0.21	5.8	< 0.0098	U	< 0.0098	U	< 0.0098	U	< 0.0098	U								

Table 2
PCB Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Total PCBs		Aroclor 1016 mg/kg dw	Aroclor 1221 mg/kg dw	Aroclor 1232 mg/kg dw	Aroclor 1242 mg/kg dw	Aroclor 1248 mg/kg dw	Aroclor 1254 mg/kg dw	Aroclor 1260 mg/kg dw	Aroclor 1262 mg/kg dw	Aroclor 1268 mg/kg dw		
				Top	Bottom	Top of Core	Sample Top	Sample Bottom		mg/kg dw	mg/kg OC											
Remedial Action Level									--	--	12	--	--	--	--	--	--	--	--	--	--	
Apparent Effects Thresholds									--	0.13	--	--	--	--	--	--	--	--	--	--	--	--
36B-06	36B-06	11/17/2014	N	0.0	0.3	-28.0	-28.0	-28.3	2.47	0.16	6.5	< 0.0097 U	< 0.0097 U	< 0.0097 U	< 0.0097 U	< 0.073 U	< 0.19 U	0.16	--	--	--	
36B-07	36B-07	11/17/2014	N	0.0	0.3	-38.0	-38.0	-38.3	2.80	0.56	20	< 0.0094 U	< 0.0094 U	< 0.0094 U	< 0.0094 U	< 0.07 U	0.28	0.28	--	--	--	
36B-08	36B-08	11/17/2014	N	0.0	0.3	-28.0	-28.0	-28.3	6.15	0.12	--	< 0.0098 U	< 0.0098 U	< 0.0098 U	< 0.0098 U	< 0.049 U	< 0.15 U	0.12	--	--	--	

- Notes:**
- Chemical parameters listed on a mg/kg OC basis represent concentrations normalized, or expressed, on a TOC basis. To normalize to TOC, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent TOC content of the sediment. OC-normalized concentrations from samples collected during the 2019 Site Investigation are based on the TOC results, adjusted using total solids measured at 110 degrees Celsius (AECOM 2020).
 - Total PCBs values represent the sum of all Aroclors and was calculated by the laboratory.
 - Yellow shading indicates result is above the remedial action limit. For samples with TOC less than 0.5 percent or above 4 percent and remedial action levels that are on an OC-normalized basis, the dry weight concentrations were compared to the apparent effects threshold.
 - Gray shading means sample is shallower than -43 feet MLLW and will be removed as part of the Slip 36 berth expansion and deepening (-43 feet MLLW) to accommodate operational needs.
 - Bold values indicate the analyte was detected at a concentration greater than the method detection limit.
 - The sediment elevation of surface samples from 2019 are assumed to be the same as subsurface samples collected at the same location. The surface elevation of locations without subsurface samples (PIER21, PIER22, and PIER23) was estimated from the tide and water levels recorded at the time of sampling.

Symbols, Acronyms, and Abbreviations:

- % = percent
- < = compound was not detected, value presented is the reporting limit
- = not analyzed/not applicable
- FD = field duplicate
- mg/kg dw = milligrams per kilogram dry weight
- mg/kg OC = milligrams per kilogram organic carbon normalized
- MLLW = mean lower low water
- N = parent sample
- OC = organic carbon
- PCBs = polychlorinated biphenyls
- RAL = remedial action level
- TOC = total organic carbon

Qualifiers:

- J = Estimated value.
- JN = The analyte was tentatively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- U = Analyte not detected above reporting limit.
- UB = The analyte was found in an associated blank as well as in the sample.
- UJ = Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.

Reference:

AECOM. 2020. Site Investigation Report, Pier 36, United States Coast Guard Base Seattle, Washington. October 20.

Table 3
Dioxin/Furan Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			TEQ pg/g dw	1,2,3,4,6,7,8- HPCDD pg/g dw	1,2,3,4,6,7,8- HPCDF pg/g dw	1,2,3,4,7,8,9- HPCDF pg/g dw	1,2,3,4,7,8- HxCDD pg/g dw	1,2,3,4,7,8- HxCDF pg/g dw	1,2,3,6,7,8- HxCDD pg/g dw	1,2,3,6,7,8- HxCDF pg/g dw	1,2,3,7,8,9- HxCDD pg/g dw								
				Top	Bottom	Top of Core	Sample Top	Sample Bottom																	
Remedial Action Level									25	—	—	—	—	—	—	—	—								
EECA01	EECA01-SS-011222	1/12/2022	N	0.0	0.4	-39.7	-39.7	-40.1	5.6	50	14	< 4.9	UB	< 4.9	UB	2.3	J	< 4.9	UB	0.94	J	< 4.9	UB		
EECA01	EECA01-43TO44-011222	1/12/2022	N	3.3	4.3	-39.7	-43.0	-44.0	4.6	14	< 4.9	UB	< 4.9	UB	< 4.9	UB	0.5	J	< 4.9	UBJ	0.21	J	< 4.9	UB	
EECA02	EECA02-43TO44-010722	1/7/2022	N	1.2	2.2	-41.8	-43.0	-44.0	5.7	10	< 5.0	UB	< 5.0	UBJ	< 5.0	UB	< 5.0	UB	< 5.0	UB	< 5.0	U	< 5.0	UBJ	
EECA02	EECA02-44TO45-010722	1/7/2022	N	2.2	3.2	-41.8	-44.0	-45.0	5.2	< 4.8	UB	< 4.8	UB	< 4.8	UB	< 4.8	UB	< 4.8	UBJ	< 4.8	U	< 4.8	UB		
EECA03	EECA03-43TO44-010822	1/8/2022	N	2.1	3.1	-40.9	-43.0	-44.0	5.5	< 4.9	UBJ	< 4.9	UB	< 4.9	U	< 4.9	UB	< 4.9	U	< 4.9	UB	< 4.9	UB		
EECA03	EECA03-44TO45-010822	1/8/2022	N	3.1	4.1	-40.9	-44.0	-45.0	5.6	< 4.9	UB	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	UBJ	< 4.9	UBJ	< 4.9	UB		
EECA04	EECA04-43TO44-010922	1/9/2022	N	1.8	2.8	-41.2	-43.0	-44.0	5.6	< 4.9	UB	< 4.9	UBJ	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U		
EECA04	EECA04-44TO45-010922	1/9/2022	N	2.8	3.8	-41.2	-44.0	-45.0	5.5	< 4.9	UB	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	UBJ		
EECA05	EECA05-43TO44-011222	1/12/2022	N	2.2	3.2	-40.8	-43.0	-44.0	5.4	< 4.9	UB	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	0.12	J	< 4.9	UB	< 4.9	U	< 4.9	UB
EECA05	EECA05-44TO45-011222	1/12/2022	N	3.2	4.2	-40.8	-44.0	-45.0	5.6	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	UB		
EECA06	EECA06-43TO44-011222	1/12/2022	N	12.3	13.3	-30.7	-43.0	-44.0	5.5	< 4.8	UB	< 4.8	UB	< 4.8	U	< 4.8	U	< 4.8	U	< 4.8	U	< 4.8	U		
EECA06	EECA06-44TO45-011222	1/12/2022	N	13.3	14.3	-30.7	-44.0	-45.0	5.4	< 4.9	UB	< 4.9	UBJ	< 4.9	U	0.16	J	< 4.9	U	< 4.9	U	< 4.9	UB		
EECA07	EECA07-43TO44-010822	1/8/2022	N	1.4	2.4	-41.6	-43.0	-44.0	5.6	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	UBJ	< 4.9	U	< 4.9	U	< 4.9	U		
EECA07	EECA07-44TO45-010822	1/8/2022	N	2.4	3.4	-41.6	-44.0	-45.0	5.6	< 4.9	UB	< 4.9	UB	< 4.9	U	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	UB		
EECA08	EECA08-43TO44-010822	1/8/2022	N	1.1	2.1	-41.9	-43.0	-44.0	5.6	< 4.9	UB	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	U	< 4.9	UB	< 4.9	U		
EECA08	EECA08-44TO45-010822	1/8/2022	N	2.1	3.1	-41.9	-44.0	-45.0	5.6	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	UBJ	< 4.9	UB	< 4.9	UBJ	< 4.9	UBJ		
EECA09	EECA09-43TO44-010922	1/9/2022	N	2.5	3.5	-40.5	-43.0	-44.0	5.6	< 5.0	UB	< 5.0	UB	< 5.0	UBJ	< 5.0	UBJ	< 5.0	UB	< 5.0	UB	< 5.0	UB		
EECA09	EECA09-44TO45-010922	1/9/2022	N	3.5	4.5	-40.5	-44.0	-45.0	5.6	< 5.0	UB	< 5.0	UBJ	< 5.0	UBJ	< 5.0	UBJ	< 5.0	UBJ	< 5.0	UBJ	< 5.0	UBJ		
EECA10	EECA10-43TO44-011122	1/11/2022	N	2.4	3.4	-40.6	-43.0	-44.0	4.0	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	UB	0.098	J	0.12	J	< 4.9	UBJ	0.25	J
EECA10	EECA10-44TO45-011122	1/11/2022	N	3.4	4.4	-40.6	-44.0	-45.0	4.6	< 4.8	UB	< 4.8	UBJ	< 4.8	UB	0.076	J	0.15	J	< 4.8	UB	0.21	J		
EECA11	EECA11-43TO44-011122	1/11/2022	N	8.5	9.5	-34.5	-43.0	-44.0	4.7	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	UBJ	0.086	J	0.12	J	< 4.9	UB	0.19	J
EECA11	EECA11-44TO45-011122	1/11/2022	N	9.5	10.5	-34.5	-44.0	-45.0	5.1	< 4.9	UBJ	< 4.9	UB	< 4.9	U	< 4.9	UBJ	< 4.9	U	< 4.9	U	< 4.9	UB	0.18	J
EECA12	EECA12-SS-011022	1/10/2022	N	0.0	0.4	-36.7	-36.7	-37.1	5.0	53	24	< 5.0	UB	< 5.0	UB	< 5.0	UB	< 5.0	UB	< 5.0	UB	< 5.0	UB		
EECA12	EECA12-43TO44-011022	1/10/2022	N	6.3	7.3	-36.7	-43.0	-44.0	5.6	< 4.9	U	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	UB	< 4.9	UBJ	< 4.9	U		
EECA13	EECA13-43TO44-010622	1/6/2022	N	1.6	2.6	-41.4	-43.0	-44.0	5.6	6.1	< 4.9	UB	< 4.9	UB	< 4.9	UB	< 4.9	U	< 4.9	UB	< 4.9	U	< 4.9	UB	
EECA13	EECA13-44TO45-010622	1/6/2022	N	2.6	3.6	-41.4	-44.0	-45.0	5.6	< 5.0	UB	< 5.0	UB	< 5.0	UBJ	< 5.0	UB	< 5.0	UBJ	< 5.0	U	< 5.0	UBJ		
EECA14	EECA14-43TO44-010622	1/6/2022	N	1.3	2.3	-41.7	-43.0	-44.0	1.9	2.5	J	< 4.9	UB	0.26	J	< 4.9	UBJ	0.38	J	< 4.9	UB	0.32	J	0.46	J
EECA14	EECA14-44TO45-010622	1/6/2022	N	2.3	3.3	-41.7	-44.0	-45.0	4.9	< 4.9	UB	< 4.9	UBJ	0.12	J	< 4.9	U	0.092	J	< 4.9	U	0.11	J	0.19	J
EECA14	EECA14-45TO46-010622	1/6/2022	N	3.3	4.3	-41.7	-45.0	-46.0	5.2	< 4.8	UB	< 4.8	UB	0.11	J	< 4.8	UB	< 4.8	U	< 4.8	UBJ	< 4.8	U	0.13	J
EECA14	EECA14-46TO47-010622	1/6/2022	N	4.3	5.3	-41.7	-46.0	-47.0	5.6	< 4.9	UB	< 4.9	UBJ	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U		
EECA14	EECA14-47TO48-010622	1/6/2022	N	5.3	6.3	-41.7	-47.0	-48.0	5.4	< 4.9	UB	< 4.9	UB	< 4.9	U	< 4.9	UBJ	< 4.9	U	< 4.9	UB	< 4.9	U	0.18	J
EECA14	EECA14-48TO49-010622	1/6/2022	N	6.3	7.3	-41.7	-48.0	-49.0	5.5	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U		
EECA14	EECA14-49TO50-010622	1/6/2022	N	7.3	8.3	-41.7	-49.0	-50.0	5.4	< 4.8	UB	< 4.8	UB	< 4.8	UB	< 4.8	UB	< 4.8	U	< 4.8	U	< 4.8	U		
EECA15	EECA15-43TO44-010522	1/5/2022	N	2.8	3.8	-40.2	-43.0	-44.0	7.3	< 6.7	UB	< 6.7	UBJ	< 6.7	U	< 6.7	UB	< 6.7	UB	< 6.7	U	< 6.7	U	0.09	J
EECA15	DUP01-010522 (EECA15-43TO44-010522)	1/5/2022	FD	2.8	3.8	-40.2	-43.0	-44.0	7.4	< 6.5	UB	< 6.5	UBJ	< 6.5	U	< 6.5	UBJ	< 6.5	U	< 6.5	U	< 6.5	U		
EECA15	EECA15-48TO49-010522	1/5/2022	N	7.8	8.8	-40.2	-48.0	-49.0	7.3	< 6.8	UB	< 6.8	UB	< 6.8	UBJ	< 6.8	UBJ	< 6.8	U	< 6.8	U	< 6.8	UBJ	< 6.8	U
EECA15	EECA15-49TO50-010522	1/5/2022	N	8.8	9.8	-40.2	-49.0	-50.0	6.7	< 6.2	UB	< 6.2	UB	< 6.2	U	< 6.2	UB	< 6.2	UB	< 6.2	UB	< 6.2	UBJ	< 6.2	UB
EECA16	EECA16-43TO44-011122	1/11/2022	N	4.2	5.2	-38.8	-43.0	-44.0	5.4	< 4.9	UB	< 4.9	UBJ	< 4.9	UBJ	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	U	0.19	J
EECA16	DUP12-011122 (EECA16-43TO44-011122)	1/11/2022	FD	4.2	5.2	-38.8	-43.0	-44.0	5.0	< 5.0	UB	< 5.0	UBJ	< 5.0	UBJ	< 5.0	UBJ	0.11	J	0.13	J	< 5.0	UBJ	0.15	J
EECA16	EECA16-44TO45-011122	1/11/2022	N	5.2	6.2	-38.8	-44.0	-45.0	4.7	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	UBJ	0.078	J	0.1	J	< 4.9	U	0.2	J

Table 3
Dioxin/Furan Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			TEQ pg/g dw	1,2,3,4,6,7,8- HPCDD pg/g dw	1,2,3,4,6,7,8- HPCDF pg/g dw	1,2,3,4,7,8,9- HPCDF pg/g dw	1,2,3,4,7,8- HxCDD pg/g dw	1,2,3,4,7,8- HxCDF pg/g dw	1,2,3,6,7,8- HxCDD pg/g dw	1,2,3,6,7,8- HxCDF pg/g dw	1,2,3,7,8,9- HxCDD pg/g dw								
				Top	Bottom	Top of Core	Sample Top	Sample Bottom																	
Remedial Action Level									25	--	--	--	--	--	--	--	--								
EECA17	EECA17-43TO44-010722	1/7/2022	N	5.2	6.2	-37.8	-43.0	-44.0	5.4	< 4.9	UB	< 4.9	UBJ	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	UBJ		
EECA17	EECA17-44TO45-010722	1/7/2022	N	6.2	7.2	-37.8	-44.0	-45.0	5.6	< 4.9	UB	< 4.9	UB	< 4.9	UBJ	< 4.9	U	< 4.9	UBJ	< 4.9	U	< 4.9	U		
EECA18	EECA18-SS-011322	1/13/2022	N	0.0	0.4	-41.5	-41.5	-41.9	5.0	100		24		< 4.9	UB	< 4.9	UB	3.1	J	< 4.9	UB	1.2	J	< 4.9	UB
EECA18	EECA18-43TO44-011322	1/13/2022	N	1.5	2.5	-41.5	-43.0	-44.0	5.4	80		21		< 4.9	UB	< 4.9	UB	3.8	J	< 4.9	UB	1.6	J	< 4.9	UB
EECA18	EECA18-44TO45-011322	1/13/2022	N	2.5	3.5	-41.5	-44.0	-45.0	3.5	44		15		1.2	J	< 4.9	UB	2.4	J	2.4	J	1	J	1.5	J
EECA18	EECA18-45TO46-011322	1/13/2022	N	3.5	4.5	-41.5	-45.0	-46.0	4.8	18		5.3		0.47	J	< 5.0	UB	1.2	J	1.9	J	0.57	J	1	J
EECA19	EECA19-SS-010922	1/9/2022	N	0.0	0.4	-40.1	-40.1	-40.5	6.3	83		18		< 4.9	UB	< 4.9	UBJ	< 4.9	UB	< 4.9	UB	< 4.9	UB	< 4.9	UB
EECA19	EECA19-43TO44-010922	1/9/2022	N	2.9	3.9	-40.1	-43.0	-44.0	6.7	99		29		< 4.9	UB	< 4.9	UB	< 4.9	UB	< 4.9	UB	< 4.9	UB	< 4.9	UB
EECA19	EECA19-44TO45-010922	1/9/2022	N	3.9	4.9	-40.1	-44.0	-45.0	3.3	49		15		1.1	J	< 4.9	UB	1.7	J	2.3	J	0.7	J	1.2	J
EECA19	EECA19-45TO46-010922	1/9/2022	N	4.9	5.9	-40.1	-45.0	-46.0	5.4	< 4.9	UB	< 4.9	UBJ	< 4.9	U	< 4.9	UB	< 4.9	U	< 4.9	UB	< 4.9	U	0.32	J
BERTH01-SS	BERTH01-SS-190423	4/23/2019	N	0.0	0.3	-34.9	-34.9	-35.3	25.2	1,000	J	110		5.7	J	5	J	10	J	17		3.9	J	13	
BERTH01-SB	BERTH01-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-34.9	-35.9	-36.9	61.8	1500	J	850	J	38	J	12		57		65		48		19	
BERTH01-SB	SBDUP-01-190426 (BERTH01-SB-1TO2-190426)	4/26/2019	FD	1.0	2.0	-34.9	-35.9	-36.9	63.1	1300		740		40		12		75		59		26		18	
BERTH01-SB	BERTH01-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	12.4	130		140		2.9	J	1.6	J	5.6	J	6.5	J	4.4	J	4.3	J
BERTH01-SB	BERTH01-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.9	-38.9	-39.9	8.9	69		35		< 7.1	U	1.3	J	3.8	J	4.2	J	1.5	JN	3.7	J
BERTH01-SB	BERTH01-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.9	-40.9	-41.9	7.7	7.9		4	J	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U
BERTH01-SB	BERTH01-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.9	-43.9	-44.9	1.4	3.3	J	0.67	J	< 6.5	U	0.32	J+	0.24	J	0.24	JN	< 6.5	U	0.32	J+
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0.0	0.3	-42.2	-42.2	-42.5	25.6	1,100	J	88		5.4	J	5.1	JN	11	J	18		2.8	JN	15	
BERTH02-SB	BERTH02-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-42.2	-43.2	-44.2	0.9	13		2.2	J	0.35	J+	0.3	JN	0.42	J+	0.31	J	0.25	J+	0.39	J
BERTH02-SB	BERTH02-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-42.2	-44.2	-45.2	5.1	12		1.1	J	< 6.2	U	< 6.2	U	0.23	JN	< 6.2	U	0.15	J	0.23	JN
BERTH02-SB	BERTH02-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-42.2	-46.2	-47.2	5.1	5.6	J	0.61	J	0.2	J+	0.3	J+	< 6.4	U	0.23	J+	< 6.4	U	0.25	JN
BERTH02-SB	BERTH02-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-42.2	-48.2	-49.2	5.4	2.2	J	0.25	JN	0.16	JN	0.32	JN	< 6.5	U	0.21	JN	0.13	J	0.33	J+
BERTH02-SB	BERTH02-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-42.2	-51.2	-52.2	6.4	1.2	JN	0.22	J+	0.17	JN	< 6.8	U	< 6.8	U	0.23	J+	< 6.8	U	0.2	J+
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0.0	0.3	-39.6	-39.6	-39.9	12.3	280		34		< 8.3	U	1.6	J	3.6	J	6.1	JN	1.2	JN	6.4	J
BERTH03-SB	BERTH03-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-39.6	-40.6	-41.6	7.5	11		3.2	J	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U
BERTH03-SB	BERTH03-SB-2TO3-190429	4/29/2019	N	2.0	3.0	-39.6	-41.6	-42.6	1.1	8.6		2.5	J	0.41	JN	0.35	J+	0.69	J	0.48	J	0.4	J	0.58	J
BERTH03-SB	BERTH03-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-39.6	-43.6	-44.6	6.8	1.2	J	0.12	JN	0.24	JN	0.16	JN	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U
BERTH03-SB	BERTH03-SB-6TO7-190429	4/29/2019	N	6.0	7.0	-39.6	-45.6	-46.6	6.1	1.3	J	0.091	JN	0.3	J+	< 6.4	U	< 6.4	U	< 6.4	U	< 6.4	U	0.14	J
BERTH03-SB	BERTH03-SB-8TO9-190429	4/29/2019	N	8.0	9.0	-39.6	-47.6	-48.6	7.6	1.6	JN	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0.0	0.3	-42.2	-42.2	-42.5	9.2	190		24		< 7.8	U	1.2	JN	2.8	J	4.4	J	1	J	4.2	J
BERTH04-SS	SBDUP03-190508 (BERTH04-SS-190508)	5/8/2019	FD	0.0	0.3	-42.2	-42.2	-42.5	10.1	200		24		1.6	JN	1.2	J	2.7	J	4.4	J	0.98	J	3.9	J
BERTH04-SB	BERTH04-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-42.2	-43.2	-44.2	7.4	14		1.2	J	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U
BERTH04-SB	BERTH04-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-42.2	-44.2	-45.2	7.6	4.1	J	0.55	JN	< 6.9	U	0.28	JN	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U
BERTH04-SB	BERTH04-SB-3TO4-190509	5/9/2019	N	3.0	4.0	-42.2	-45.2	-46.2	7.4	1.7	J	< 6.8	U	< 6.8	U	< 6.8	U	< 6.8	U	< 6.8	U	< 6.8	U	< 6.8	U
BERTH04-SB	SBDUP02-190509 (BERTH04-SB-3TO4-190509)	5/9/2019	FD	3.0	4.0	-42.2	-45.2	-46.2	7.1	1.7	J	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U
BERTH04-SB	BERTH04-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-42.2	-46.2	-47.2	7.1	0.86	J	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U
BERTH04-SB	BERTH04-SB-6TO7.5-190509	5/9/2019	N	6.0	7.5	-42.2	-48.2	-49.7	7.4	0.96	J	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U
BERTH04-SB	BERTH04-SB-8.5TO9.5-190509	5/9/2019	N	8.5	9.5	-42.2	-50.7	-51.7	7.2	1.1	JN	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U

Table 3
Dioxin/Furan Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			TEQ pg/g dw	1,2,3,4,6,7,8- HPCDD pg/g dw	1,2,3,4,6,7,8- HPCDF pg/g dw	1,2,3,4,7,8,9- HPCDF pg/g dw	1,2,3,4,7,8- HxCDD pg/g dw	1,2,3,4,7,8- HxCDF pg/g dw	1,2,3,6,7,8- HxCDD pg/g dw	1,2,3,6,7,8- HxCDF pg/g dw	1,2,3,7,8,9- HxCDD pg/g dw								
				Top	Bottom	Top of Core	Sample Top	Sample Bottom																	
Remedial Action Level									25	--	--	--	--	--	--	--	--								
BERTH05-SS	BERTH05-SS-190508	5/8/2019	N	0.0	0.3	-39.7	-39.7	-40.0	6.0	110		1	JN	1.1	J	2	J	3.1	J	0.63	JN	2.9	J		
BERTH05-SB	BERTH05-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-39.7	-40.7	-41.7	7.6	3.2	JN	< 6.8	U	< 6.8	U	< 6.8	U	< 6.8	U	< 6.8	U	< 6.8	U		
BERTH05-SB	BERTH05-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-39.7	-41.7	-42.7	5.9	1.5	J	0.61	J	< 6.7	U	< 6.7	U	0.32	J	< 6.7	U	< 6.7	U		
BERTH05-SB	BERTH05-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-39.7	-43.7	-44.7	6.0	0.77	J	0.16	J	0.099	JN	0.2	JN	< 6.1	U	< 6.1	U	0.06	JN	< 6.1	U
BERTH05-SB	BERTH05-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-39.7	-45.7	-46.7	6.2	0.6	J	0.083	JN	0.16	J+	0.28	JN	< 6	U	< 6	U	< 6	U	< 6	U
BERTH05-SB	BERTH05-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-39.7	-47.7	-48.7	6.3	0.79	J	0.19	JN	0.15	JN	< 6.1	U	< 6.1	U	< 6.1	U	< 6.1	U	< 6.1	U
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0.0	0.3	-40.6	-40.6	-40.9	10.6	120		20		1.5	JN	1.2	JN	2.9	J	3.9	J	0.87	JN	3.1	J
BERTH06-SB	BERTH06-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-40.6	-42.6	-43.6	7.7	180		46		2.3	J	1.5	J	4.9	JN	5.8	J	< 7.7	U	4	J
BERTH06-SB	BERTH06-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-40.6	-44.6	-45.6	5.2	2.9	JN	0.52	J	0.17	J+	0.25	J+	0.14	JN	0.19	JN	< 6.5	U	0.21	JN
BERTH06-SB	BERTH06-SB-7TO8-190510	5/10/2019	N	7.0	8.0	-40.6	-47.6	-48.6	5.4	1	J	0.23	J+	0.11	J+	0.2	JN	0.17	J	0.079	J	< 6.6	U	0.15	JN
BERTH06-SB	BERTH06-SB-8TO8.5-190510	5/10/2019	N	8.0	8.5	-40.6	-48.6	-49.1	4.2	120		16		0.49	J	0.25	JN	0.27	J	2.1	J	< 6.4	U	0.32	JN
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0.0	0.33	-43.5	-43.5	-43.8	4.9	110		22		1.6	J	1.1	J	2.9	J	3.8	J	2.3	J	2.5	J
BERTH07-SB	BERTH07-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-43.5	-44.5	-45.5	10.4	210		110		4.2	J	1.8	J	7	J	7.9	J	2.6	J	4	J
BERTH07-SB	BERTH07-SB-2TO3.5-190429	4/29/2019	N	2.0	3.5	-43.5	-45.5	-47.0	14.1	290		87		5.1	J	1.7	JN	12		23		3.2	J	9.4	
BERTH07-SB	BERTH07-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-43.5	-47.5	-48.5	2.2	33		23		0.74	J+	0.31	J	0.88	JN	0.86	J	0.32	J	0.64	J
BERTH08-SS	BERTH08-SS-190508	5/8/2019	N	0.0	0.3	-39.9	-39.9	-40.2	9.3	110		19		1.7	J	0.93	JN	2.1	J	3.3	J	2.4	J	2.9	J
BERTH08-SB	BERTH08-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	2.4	19		2.4	J	< 6.7	U	0.31	JN	0.3	JN	0.35	JN	0.16	J	0.43	J
BERTH08-SB	BERTH08-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	7.6	6.1	J	0.86	J	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U
BERTH08-SB	BERTH08-SB-4.5TO6-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	7.2	0.99	JN	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U
BERTH08-SB	BERTH08-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	4.9	0.86	J	0.16	J	0.19	JN	0.21	JN	< 6.3	U	0.11	JN	< 6.3	U	0.21	J
BERTH09-SS	BERTH09-SS-190508	5/8/2019	N	0.0	0.33	-41.0	-41.0	-41.4	12.0	190		47		2.1	JN	1.6	J	4.3	J	5.6	J	3.3	J	4.1	J
BERTH09-SB	BERTH09-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-41.0	-42.0	-43.0	11.3	260		48		< 7	U	1.6	J	5.5	J	6.9	J	1.8	J	5.1	J
BERTH09-SB	BERTH09-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-41.0	-43.0	-44.0	6.9	78		21		1.2	J	0.67	JN	2.2	J	2.5	J	0.91	J	1.5	J
BERTH09-SB	BERTH09-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-41.0	-45.0	-46.0	7.5	6	J	0.95	J	< 6.9	U	0.33	JN	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U
BERTH09-SB	BERTH09-SB-6TO7-190509	5/9/2019	N	6.0	7.0	-41.0	-47.0	-48.0	7.3	2.8	JN	0.28	JN	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U
BERTH09-SB	BERTH09-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-41.0	-49.0	-50.0	7.5	4.9	J	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0.0	0.3	-41.0	-41.0	-41.3	5.6	170		25		1.6	J	1.4	J	3	J	4.4	J	1.8	J	3.8	J
BERTH10-SB	BERTH10-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-41.0	-42.0	-43.0	8.0	1.9	J	< 7	U	< 7	U	< 7	U	< 7	U	< 7	U	< 7	U	< 7	U
BERTH10-SB	BERTH10-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-41.0	-43.0	-44.0	7.0	5.2	J	0.58	J	< 6.4	U	< 6.4	U	< 6.4	U	< 6.4	U	< 6.4	U	< 6.4	U
BERTH10-SB	BERTH10-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-41.0	-45.0	-46.0	7.6	1.6	J	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U
BERTH10-SB	BERTH10-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-41.0	-47.0	-48.0	7.5	1.2	J	0.1	JN	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U
BERTH10-SB	BERTH10-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-41.0	-49.0	-50.0	8.0	0.86	JN	< 7.3	U	< 7.3	U	< 7.3	U	< 7.3	U	< 7.3	U	< 7.3	U	< 7.3	U
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0.0	0.3	-41.4	-41.4	-41.7	10.4	350		49		2.9	J	2.4	J	5.8	J	8.5	J	3.1	J	8.3	J
BERTH11-SS	SSDUP01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0.0	0.3	-41.4	-41.4	-41.7	12.7	390		58		4.2	J	2.9	J	7.5	J	9.9		5.3	J	8.1	J
BERTH11-SB	BERTH11-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-41.4	-42.4	-43.4	7.4	6.6		1.5	J	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U
BERTH11-SB	BERTH11-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-41.4	-43.4	-44.4	5.5	3.6	J	0.49	J+	0.3	J+	0.27	J+	0.14	J+	< 6.5	U	0.075	JN	< 6.5	U
BERTH11-SB	BERTH11-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-41.4	-45.4	-46.4	0.9	17		4.6	J	0.39	JN	0.34	JN	0.34	J+	0.47	J	0.19	J+	0.48	JN
BERTH11-SB	BERTH11-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-41.4	-47.4	-48.4	4.8	4.8	J	0.73	J+	0.42	J+	0.23	JN	0.31	J+	0.21	J	0.17	JN	0.24	J+
BERTH11-SB	BERTH11-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-41.4	-50.4	-51.4	6.5	1.6	J	0.16	JN	0.31	J+	0.29	JN	< 7	U	0.13	JN	< 7	U	0.2	JN

Table 3
Dioxin/Furan Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			TEQ pg/g dw	1,2,3,4,6,7,8- HPCDD pg/g dw	1,2,3,4,6,7,8- HPCDF pg/g dw	1,2,3,4,7,8,9- HPCDF pg/g dw	1,2,3,4,7,8- HxCDD pg/g dw	1,2,3,4,7,8- HxCDF pg/g dw	1,2,3,6,7,8- HxCDD pg/g dw	1,2,3,6,7,8- HxCDF pg/g dw	1,2,3,7,8,9- HxCDD pg/g dw								
				Top	Bottom	Top of Core	Sample Top	Sample Bottom																	
				Remedial Action Level								25	--	--	--	--	--	--	--	--					
BERTH12-SS	BERTH12-SS-190423	4/23/2019	N	0.0	0.3	-34.5	-34.5	-34.8	18.4	610	87	5.3	J	4.4	J	7.1	J	16	12	8.1	J				
BERTH12-SB	BERTH12-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-34.5	-35.5	-36.5	28.9	730	220	< 8.1	U	6.3	J	13	28	7.1	J	12					
BERTH12-SB	BERTH12-SB-2TO4-190425	4/25/2019	N	2.0	4.0	-34.5	-36.5	-38.5	10.7	240	53	2.4	JN	1.4	JN	4.5	J	7	J	2.2	J	2	J		
BERTH12-SB	BERTH12-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-34.5	-38.5	-39.5	23.5	690	170	7.7	JN	4.9	J	14	21	11		10					
BERTH12-SB	BERTH12-SB-7TO7.9-190425	4/25/2019	N	7.0	7.9	-34.5	-41.5	-42.4	16.8	300	240	10		2.3	J	9.3	13	17		5.3	J				
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0.0	0.3	-31.7	-31.7	-32.1	20.6	1,000	59	4	JN	4.5	J	6.2	J	13	3.3	J	7.7	J			
PIER13-SB	PIER13-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-31.7	-32.7	-33.7	36.4	1900	JN	90	6.2	J	7.9	J	6.7	J	22	3.3	J	7.8	J		
PIER13-SB	PIER13-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-31.7	-33.7	-34.7	22.5	1100	J	70	4.4	JN	4.9	J	5.5	JN	15	3.8	J	8.1	J		
PIER13-SB	PIER13-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-31.7	-35.7	-36.7	38.2	1600	J	150	8.3	JN	8.8	J	11	J	28	8.9	J	16			
PIER13-SB	PIER13-SB-7TO7.8-190425	4/25/2019	N	7.0	7.8	-31.7	-38.7	-39.5	64.4	2300	J	360	17		13	28	59	25	23						
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0.0	0.3	-21.7	-21.7	-22.1	59.9	2,800	J	140	10	J	9.9	J	12	J	39	5.8	J	24			
PIER14-SB	PIER14-SB-1TO2-190425	4/25/2019	N	1.0	2.0	-21.7	-22.7	-23.7	62.9	1800		450	18	JN	17	58	72	13	JN	13	JN	35			
PIER14-SB	PIER14-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-21.7	-23.7	-24.7	60.1	1300	J	620	39	J	11	63	58	20		20					
PIER14-SB	PIER14-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-21.7	-25.7	-26.7	10.9	52	60	2.5	J	1.6	J	7.4	J	6.1	J	7.5	J	3.9	J		
PIER14-SB	PIER14-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-21.7	-27.7	-28.7	25.0	190	98	< 54	U	4.3	JN	17	JN	11	J	31	JN	8.2	J		
PIER14-SB	PIER14-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-21.7	-30.7	-31.7	12.8	290	93	5.7	J	2.7	J	13	10	4.9	J	7.1	J				
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0.0	0.3	-32.9	-32.9	-33.2	72.9	4,300	120	9.7	J	17	9.7	J	35	11	23						
PIER15-SB	PIER15-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-32.9	-33.9	-34.9	6.5	82	45	< 7.9	U	1.1	JN	5.8	J	4	JN	2.5	J	3	J		
PIER15-SB	PIER15-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-32.9	-34.9	-35.9	5.0	95	34	< 7.6	U	1.1	J	5.5	J	3	J	2.1	J	2.8	J		
PIER15-SB	PIER15-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-32.9	-36.9	-37.9	6.2	17	7.7	J	0.66	JN	0.6	JN	2.2	J	1.2	JN	0.99	JN	1.3	J	
PIER15-SB	PIER15-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-32.9	-38.9	-39.9	1.3	2.8	J	1.2	J	0.34	JN	0.31	J	0.57	J	0.24	J	0.23	JN	0.3	J
PIER15-SB	PIER15-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-32.9	-41.9	-42.9	6.4	1.4	JN	0.16	JN	0.33	J+	0.26	JN	< 6.5	U	< 6.5	U	< 6.5	U	0.23	J
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0.0	0.3	-22.9	-22.9	-23.3	54.5	2,700	J	140	10	JN	8.8	J	12	J	37	4.6	JN	27			
PIER16-SB	PIER16-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-22.9	-23.9	-24.9	74.3	3100	J	330	17		13	JN	30	62	13		27	JN			
PIER16-SB	PIER16-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-22.9	-24.9	-25.9	83.2	4400	J	260	16		15		60	13	J	21					
PIER16-SB	PIER16-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-22.9	-26.9	-27.9	51.3	2000	J	280	15		10	J	43	12		20					
PIER16-SB	PIER16-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-22.9	-28.9	-29.9	15.9	230	140	< 8.6	U	2.8	J	9.7	14		7.8	J	7.1	J			
PIER16-SB	PIER16-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-22.9	-31.9	-32.9	5.4	7.3	4.1	J	4	J+	< 6.7	U	1.7	J	0.64	JN	0.94	J+	0.6	JN	
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0.0	0.3	-22.3	-22.3	-22.6	53.6	3,000	110	9	J	12	9.8	J	29	9.8	J	14					
PIER17-SB	PIER17-SB-0TO2-190426	4/26/2019	N	0.0	2.0	-22.3	-22.3	-24.3	28.8	510	440	11	J	5.7	J	16	J	19	J	10	JN	10	J		
PIER17-SB	PIER17-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-22.3	-24.3	-25.3	10.4	120	88	2.5	J	1.9	J	5.1	J	8.4	4.7	J	4.1	J			
PIER17-SB	PIER17-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-22.3	-26.3	-27.3	7.4	100	78	1.7	J	1.3	J	7	J	6	J	3.1	J	2.7	J		
PIER17-SB	PIER17-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-22.3	-28.3	-29.3	1.8	9	11	0.6	J+	0.45	J	1.9	J	0.75	J	1	J	0.71	J		
PIER17-SB	PIER17-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-22.3	-31.3	-32.3	6.1	1.5	J	0.53	J	0.27	J+	0.27	JN	< 6.5	U	0.11	JN	< 6.5	U	0.18	JN
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0.0	0.3	-25.3	-25.3	-25.6	30.8	1,500	J	85	6.2	J	5.6	J	8	J	22	3	JN	14			
PIER18-SS	SSDUP02-190424 (PIER18-SS-190424)	4/24/2019	FD	0.0	0.3	-25.3	-25.3	-25.6	32.5	1,400	J	84	5.8	J	5.3	J	7.2	J	21	3	J	12			
PIER18-SB	PIER18-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	135.6	6700	J	440	30		16	JN	38	89	9.4	J	26	JN			
PIER18-SB	PIER18-SB-4TO5.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	41.7	890	480	24		6.7	J	42	41	16		14					
PIER18-SB	PIER18-SB-6.5TO8-190425	4/25/2019	N	6.5	8.0	-25.3	-31.8	-33.3	4.7	14	6.6	3.3	J+	0.4	J+	1.4	J+	0.75	J	0.58	J+	0.38	JN		
PIER18-SB	PIER18-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-25.3	-34.3	-35.3	6.2	2.4	J	0.56	JN	< 6.4	U	0.33	J	< 6.4	U	< 6.4	U	< 6.4	U	0.37	J

Table 3
Dioxin/Furan Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			TEQ pg/g dw	1,2,3,4,6,7,8- HPCDD pg/g dw	1,2,3,4,6,7,8- HPCDF pg/g dw	1,2,3,4,7,8,9- HPCDF pg/g dw	1,2,3,4,7,8- HxCDD pg/g dw	1,2,3,4,7,8- HxCDF pg/g dw	1,2,3,6,7,8- HxCDD pg/g dw	1,2,3,6,7,8- HxCDF pg/g dw	1,2,3,7,8,9- HxCDD pg/g dw								
				Top	Bottom	Top of Core	Sample Top	Sample Bottom																	
				Remedial Action Level									25	—	—	—	—	—	—	—					
PIER19-SS	PIER19-SS-190423	4/23/2019	N	0.0	0.3	-34.8	-34.8	-35.1	27.3	1,200	J	51	3.4	J	4.7	J	3.7	J	12		1.4	J	12		
PIER19-SB	PIER19-SB-0T02-190426	4/26/2019	N	0.0	2.0	-34.8	-34.8	-36.8	49.0	1300		570	32		11		65		53		18		13		
PIER19-SB	PIER19-SB-2T03-190426	4/26/2019	N	2.0	3.0	-34.8	-36.8	-37.8	43.8	1400	J	250	13		9.4		25		41		9.6		19		
PIER19-SB	PIER19-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.8	-38.8	-39.8	4.4	110		23	1.5	JN	0.91	JN	3.1	J	3.2	J	1.3	J	2.7	J	
PIER19-SB	PIER19-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.8	-40.8	-41.8	2.5	12		1.9	J	< 6.7	U	0.33	J+	< 6.7	U	0.39	J	< 6.7	U	0.43	J
PIER19-SB	PIER19-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.8	-43.8	-44.8	5.4	3.2	J	0.64	JN	0.57	JN	0.26	J	0.21	J	0.12	JN	< 6.2	U	< 6.2	U
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0.0	0.3	-19.4	-19.4	-19.7	14.7	600		56	3.6	J	2.6	J	5.2	J	11		4.4	J	9.2	J	
PIER20-SB	PIER20-SB-1T02-190510	5/10/2019	N	1.0	2.0	-19.4	-20.4	-21.4	124.0	4100	J	1500	J	< 13	UJ	20		58	J	150		29	J	25	
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0.0	0.5	-37.7	-37.7	-38.2	11.7	230		29	2.3	J	1.2	J	2.9	J	4.3	J	2.6	J	4	J	
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0.0	0.5	-39.8	-39.8	-40.2	9.3	150		21	1.5	J	1.2	JN	2.4	J	4.5	J	0.84	JN	4.8	J	
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0.0	0.7	-33.2	-33.2	-33.9	5.8	130		23	1.7	J	1.4	JN	3.8	J	4.3	J	1.4	JN	3.6	J	
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0.0	0.3	-19.7	-19.7	-20.0	7.2	71		11	0.74	JN	< 7.3	U	1.7	J	2.2	J	0.63	J	1.5	JN	
PIER24-SB	PIER24-SB-1T02-190510	5/10/2019	N	1.0	2.0	-19.7	-20.7	-21.7	9.0	150		23	1.7	JN	0.91	JN	2.7	J	4.1	J	1	J	3.3	J	
PIER24-SB	PIER24-SB-2T03-190510	5/10/2019	N	2.0	3.0	-19.7	-21.7	-22.7	14.9	630	J	47	2.8	JN	3	J	5.3	J	11		1.8	JN	4.6	J	
PIER24-SB	PIER24-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-19.7	-23.7	-24.7	156.3	4100	J	1600	J	100	J	29		220	J	150		48	J	50	
PIER24-SB	PIER24-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-19.7	-25.7	-26.7	52.9	360		170	< 48	U	< 48	U	18	J	29	J	8.3	J	13	J	
36B-01	36B-01	11/17/2014	N	0.0	0.3	-37.0	-37.0	-37.3	38.6	1,800		105	8.33	U	8.84	U	9.96	J	24.7		4.92	J	11.4	U	
36B-02	36B-02	11/17/2014	N	0.0	0.3	-25.0	-25.0	-25.3	43.6	1,720		143	9.85	U	9.23	J	12.3		32.5		5.49	J	17.2		
36B-03	36B-03	11/17/2014	N	0.0	0.3	-34.0	-34.0	-34.3	38.2	1,830		121	9.39	J	6.96	U	10.7		24.3		4.32	U	10.4		
36B-04	36B-04	11/17/2014	N	0.0	0.3	-24.0	-24.0	-24.3	42.3	2,000		127	9.24	J	8.14	U	10.6		28.1		4.33	U	11		
36B-04	36B-24 (36B-04)	11/17/2014	FD	0.0	0.3	-24.0	-24.0	-24.3	39.9	1830		123	8.16		9.17	J	9.75	J	30.2		4.26	J	11.1		
36B-05	36B-05	11/17/2014	N	0.0	0.3	-36.0	-36.0	-36.3	71.2	3,400		202	15.6		14.9	U	17.3		52.2		8.21	J	22.6		
36B-06	36B-06	11/17/2014	N	0.0	0.3	-28.0	-28.0	-28.3	48.5	2,370		136	10.1		10.8		11.1		32.4		4.83	J	12		
36B-07	36B-07	11/17/2014	N	0.0	0.3	-38.0	-38.0	-38.3	50.0	2,800		122	9.39	U	8.44	J	8.23	J	29.1		3.52	U	10.6		
36B-08	36B-08	11/17/2014	N	0.0	0.3	-28.0	-28.0	-28.3	41.3	1,940		128	13.9		7.54	J	9.91	U	26.5		3.06	U	11.4		

Table 3
Dioxin/Furan Concentrations in Sediment
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Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF									
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw								
Remedial Action Level																										
EECA01	EECA01-SS-011222	1/12/2022	N	0.0	0.4	-39.7	-39.7	-40.1	< 4.9	U	< 4.9	U	< 4.9	U	< 0.97	U	< 0.97	UB	380	46						
EECA01	EECA01-43TO44-011222	1/12/2022	N	3.3	4.3	-39.7	-43.0	-44.0	< 4.9	U	< 4.9	U	< 4.9	U	0.17	J	< 0.98	U	< 0.98	U	120	< 9.8	UB			
EECA02	EECA02-43TO44-010722	1/7/2022	N	1.2	2.2	-41.8	-43.0	-44.0	< 5.0	U	< 5.0	U	0.21	J	< 5.0	U	< 0.99	U	< 0.99	U	110	< 16	UB			
EECA02	EECA02-44TO45-010722	1/7/2022	N	2.2	3.2	-41.8	-44.0	-45.0	< 4.8	UBJ	< 4.8	U	0.25	J	0.082	J	< 4.8	U	< 0.96	U	< 0.96	U	36	< 9.6	UB	
EECA03	EECA03-43TO44-010822	1/8/2022	N	2.1	3.1	-40.9	-43.0	-44.0	< 4.9	UB	< 4.9	U	0.22	J	< 4.9	UBJ	< 4.9	U	< 0.99	U	< 0.99	U	< 9.9	UB	< 9.9	UB
EECA03	EECA03-44TO45-010822	1/8/2022	N	3.1	4.1	-40.9	-44.0	-45.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	UBJ	< 4.9	U	< 0.97	U	< 0.97	U	< 9.7	UB	< 9.7	UB
EECA04	EECA04-43TO44-010922	1/9/2022	N	1.8	2.8	-41.2	-43.0	-44.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	U	< 0.99	U	< 0.99	U	< 9.9	UB	< 9.9	UBJ		
EECA04	EECA04-44TO45-010922	1/9/2022	N	2.8	3.8	-41.2	-44.0	-45.0	< 4.9	UB	< 4.9	U	0.25	J	< 4.9	U	< 4.9	U	< 0.98	U	< 0.98	U	< 9.9	UB	< 9.8	UB
EECA05	EECA05-43TO44-011222	1/12/2022	N	2.2	3.2	-40.8	-43.0	-44.0	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	UBJ	< 4.9	U	< 0.99	U	< 0.99	U	< 25	UB	< 9.9	UB
EECA05	EECA05-44TO45-011222	1/12/2022	N	3.2	4.2	-40.8	-44.0	-45.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	U	< 0.97	U	< 0.97	U	< 16	UB	< 9.7	UB		
EECA06	EECA06-43TO44-011222	1/12/2022	N	12.3	13.3	-30.7	-43.0	-44.0	< 4.8	UBJ	< 4.8	U	< 4.8	U	< 4.8	U	< 0.97	U	< 0.97	U	< 20	UB	< 9.7	UB		
EECA06	EECA06-44TO45-011222	1/12/2022	N	13.3	14.3	-30.7	-44.0	-45.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	UBJ	< 4.9	U	< 0.98	U	< 0.98	U	< 9.8	UB	< 9.8	UB
EECA07	EECA07-43TO44-010822	1/8/2022	N	1.4	2.4	-41.6	-43.0	-44.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	UBJ	< 4.9	U	< 0.98	U	< 0.98	U	< 10	UB	< 9.8	UB
EECA07	EECA07-44TO45-010822	1/8/2022	N	2.4	3.4	-41.6	-44.0	-45.0	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U	< 0.97	U	< 0.97	U	< 11	UB	< 9.7	UB		
EECA08	EECA08-43TO44-010822	1/8/2022	N	1.1	2.1	-41.9	-43.0	-44.0	< 4.9	UBJ	< 4.9	U	< 4.9	U	< 4.9	U	< 0.99	U	< 0.99	U	< 21	UB	< 9.9	UB		
EECA08	EECA08-44TO45-010822	1/8/2022	N	2.1	3.1	-41.9	-44.0	-45.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	UBJ	< 4.9	U	< 0.98	U	< 0.98	U	< 15	UBJ	12	
EECA09	EECA09-43TO44-010922	1/9/2022	N	2.5	3.5	-40.5	-43.0	-44.0	< 5.0	UBJ	< 5.0	U	0.3	J	< 5.0	U	< 0.99	U	< 0.99	UBJ	< 11	UB	< 9.9	UB		
EECA09	EECA09-44TO45-010922	1/9/2022	N	3.5	4.5	-40.5	-44.0	-45.0	< 5.0	UBJ	< 5.0	U	0.26	J	< 5.0	UBJ	< 5.0	U	< 0.99	U	< 0.99	U	< 11	UB	< 9.9	UB
EECA10	EECA10-43TO44-011122	1/11/2022	N	2.4	3.4	-40.6	-43.0	-44.0	< 4.9	UBJ	< 4.9	U	< 4.9	UB	0.097	J	0.068	J	< 0.99	U	< 0.99	U	< 9.9	UB	< 9.9	UB
EECA10	EECA10-44TO45-011122	1/11/2022	N	3.4	4.4	-40.6	-44.0	-45.0	< 4.8	UB	< 4.8	U	< 4.8	UB	0.091	J	< 4.8	U	< 0.97	U	< 0.97	U	< 16	UB	< 9.7	UB
EECA11	EECA11-43TO44-011122	1/11/2022	N	8.5	9.5	-34.5	-43.0	-44.0	< 4.9	UB	< 4.9	U	< 4.9	UBJ	0.085	J	< 4.9	U	< 0.98	U	< 0.98	U	< 9.8	UB	< 9.8	UB
EECA11	EECA11-44TO45-011122	1/11/2022	N	9.5	10.5	-34.5	-44.0	-45.0	< 4.9	UBJ	< 4.9	U	< 4.9	U	0.097	J	< 4.9	U	< 0.98	U	< 0.98	U	< 12	UB	< 9.8	UBJ
EECA12	EECA12-SS-011022	1/10/2022	N	0.0	0.4	-36.7	-36.7	-37.1	< 5.0	U	0.84	J	1.2	J	< 5.0	UB	1.3	J	< 0.99	U	5.3	J	360	67		
EECA12	EECA12-43TO44-011022	1/10/2022	N	6.3	7.3	-36.7	-43.0	-44.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U	< 0.98	U	< 0.98	U	< 9.8	UB	< 9.8	UB
EECA13	EECA13-43TO44-010622	1/6/2022	N	1.6	2.6	-41.4	-43.0	-44.0	< 4.9	UB	< 4.9	U	0.3	J	< 4.9	U	< 4.9	U	< 0.98	U	< 0.98	U	51	< 9.8	UB	
EECA13	EECA13-44TO45-010622	1/6/2022	N	2.6	3.6	-41.4	-44.0	-45.0	< 5.0	U	< 5.0	U	0.21	J	< 5.0	U	< 5.0	U	< 1.0	U	< 1.0	U	< 16	UB	< 10	UBJ
EECA14	EECA14-43TO44-010622	1/6/2022	N	1.3	2.3	-41.7	-43.0	-44.0	< 4.9	UB	0.19	J	0.28	J	< 4.9	U	0.24	J	< 0.97	U	0.28	J	20	< 9.7	UB	
EECA14	EECA14-44TO45-010622	1/6/2022	N	2.3	3.3	-41.7	-44.0	-45.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U	< 0.98	U	< 0.98	U	13	< 9.8	UB	
EECA14	EECA14-45TO46-010622	1/6/2022	N	3.3	4.3	-41.7	-45.0	-46.0	< 4.8	UB	< 4.8	U	< 4.8	U	< 4.8	U	< 4.8	U	< 0.97	U	< 0.97	U	< 9.7	UB	< 9.7	UBJ
EECA14	EECA14-46TO47-010622	1/6/2022	N	4.3	5.3	-41.7	-46.0	-47.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U	< 0.97	U	< 0.97	U	8.8	J	< 9.7	U
EECA14	EECA14-47TO48-010622	1/6/2022	N	5.3	6.3	-41.7	-47.0	-48.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	U	< 4.9	U	< 0.97	U	< 0.97	U	9.6	J	< 9.7	UB
EECA14	EECA14-48TO49-010622	1/6/2022	N	6.3	7.3	-41.7	-48.0	-49.0	< 4.9	U	< 4.9	U	0.26	J	< 4.9	U	< 4.9	U	< 0.98	U	< 0.98	U	< 9.8	UB	< 9.8	UB
EECA14	EECA14-49TO50-010622	1/6/2022	N	7.3	8.3	-41.7	-49.0	-50.0	< 4.8	UB	< 4.8	U	0.31	J	< 4.8	U	< 4.8	U	< 0.97	U	< 0.97	U	< 9.7	UB	< 9.7	UBJ
EECA15	EECA15-43TO44-010522	1/5/2022	N	2.8	3.8	-40.2	-43.0	-44.0	< 6.7	UB	< 6.7	U	< 6.7	UB	< 6.7	U	< 1.3	U	< 1.3	UBJ	< 13	UB	< 13	UB		
EECA15	DUP01-010522 (EECA15-43TO44-010522)	1/5/2022	FD	2.8	3.8	-40.2	-43.0	-44.0	< 6.5	UB	< 6.5	U	< 6.5	U	< 6.5	U	< 1.3	U	< 1.3	U	< 13	UB	< 13	UBJ		
EECA15	EECA15-48TO49-010522	1/5/2022	N	7.8	8.8	-40.2	-48.0	-49.0	< 6.8	UBJ	< 6.8	U	< 6.8	U	< 6.8	U	0.24	J	< 1.4	U	< 1.4	U	< 14	UB	< 14	UBJ
EECA15	EECA15-49TO50-010522	1/5/2022	N	8.8	9.8	-40.2	-49.0	-50.0	< 6.2	UB	< 6.2	U	< 6.2	UB	< 6.2	U	0.21	J	< 1.2	UBJ	< 12	UB	< 12	UBJ		
EECA16	EECA16-43TO44-011122	1/11/2022	N	4.2	5.2	-38.8	-43.0	-44.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 4.9	U	< 0.99	U	< 0.99	U	< 9.9	UB	< 9.9	UB		
EECA16	DUP12-011122 (EECA16-43TO44-011122)	1/11/2022	FD	4.2	5.2	-38.8	-43.0	-44.0	< 5.0	UB	< 5.0	U	< 5.0	UB	< 5.0	U	< 0.99	U	< 0.99	U	< 9.9	UB	< 9.9	UB		
EECA16	EECA16-44TO45-011122	1/11/2022	N	5.2	6.2	-38.8	-44.0	-45.0	< 4.9	UB	< 4.9	U	< 4.9	UBJ	0.064	J	< 4.9	U	< 0.99	U	< 0.99	U	< 9.9	UB	< 9.9	UB

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Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF									
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw							
Remedial Action Level																										
EECA17	EECA17-43TO44-010722	1/7/2022	N	5.2	6.2	-37.8	-43.0	-44.0	< 4.9	UBJ	< 4.9	U	< 4.9	U	< 0.99	U	< 0.99	UBJ	< 11	UB	< 9.9	UB				
EECA17	EECA17-44TO45-010722	1/7/2022	N	6.2	7.2	-37.8	-44.0	-45.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 0.97	U	< 0.97	U	< 9.7	UB	< 9.7	UB				
EECA18	EECA18-SS-011322	1/13/2022	N	0.0	0.4	-41.5	-41.5	-41.9	< 4.9	UB	0.76	J	0.9	J	< 0.98	U	1.4		820		81					
EECA18	EECA18-43TO44-011322	1/13/2022	N	1.5	2.5	-41.5	-43.0	-44.0	< 4.9	UBJ	0.99	J	0.97	J	< 0.99	U	2.1		550		70					
EECA18	EECA18-44TO45-011322	1/13/2022	N	2.5	3.5	-41.5	-44.0	-45.0	< 4.9	UB	0.59	J	0.66	J	< 0.99	U	1.1		330		44					
EECA18	EECA18-45TO46-011322	1/13/2022	N	3.5	4.5	-41.5	-45.0	-46.0	< 5.0	U	< 5.0	U	0.7	J	< 0.99	U	0.91	J	150		13					
EECA19	EECA19-SS-010922	1/9/2022	N	0.0	0.4	-40.1	-40.1	-40.5	< 4.9	U	< 4.9	U	0.58	J	< 0.97	U	1.2		820		59					
EECA19	EECA19-43TO44-010922	1/9/2022	N	2.9	3.9	-40.1	-43.0	-44.0	< 4.9	U	< 4.9	U	0.79	J	< 0.98	U	1.3		820		110					
EECA19	EECA19-44TO45-010922	1/9/2022	N	3.9	4.9	-40.1	-44.0	-45.0	< 4.9	UB	0.57	J	0.48	J	< 0.99	U	0.6	J	420		62					
EECA19	EECA19-45TO46-010922	1/9/2022	N	4.9	5.9	-40.1	-45.0	-46.0	< 4.9	UB	< 4.9	U	< 4.9	U	< 0.97	U	< 0.97	U	22		< 9.7	UB				
BERTH01-SS	BERTH01-SS-190423	4/23/2019	N	0.0	0.3	-34.9	-34.9	-35.3	< 11	U	2.2	J	< 11	U	2.8	J	4.4	J	< 2.1	U	4.9		10,000	J	400	
BERTH01-SB	BERTH01-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-34.9	-35.9	-36.9	< 8.7	U	< 8.7	U	< 8.7	U	14		17		< 2.2	UU	12	J	11,000	J	2,700	
BERTH01-SB	SBDUP-01-190426 (BERTH01-SB-1TO2-190426)	4/26/2019	FD	1.0	2.0	-34.9	-35.9	-36.9	< 9	U	7.9	J	8	J	16		19		2.7		12		9,700	J	2,100	
BERTH01-SB	BERTH01-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	< 7.8	U	< 7.8	U	< 7.8	U	4.2	J	< 7.8	U	< 1.6	U	2.5		1,000		220	
BERTH01-SB	BERTH01-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.9	-38.9	-39.9	3.1	J	< 7.1	U	< 7.1	U	1.2	J	< 7.1	U	< 1.4	U	3.2		510		77	
BERTH01-SB	BERTH01-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.9	-40.9	-41.9	1.2	J+	< 6.9	U	< 6.9	U	< 6.9	U	< 1.4	U	< 1.4	U	80		8.6	J		
BERTH01-SB	BERTH01-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.9	-43.9	-44.9	0.38	J+	0.11	JN	0.19	J	0.15	J+	0.11	JN	< 1.3	U	0.18	J	31		2.5	J
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0.0	0.3	-42.2	-42.2	-42.5	< 12	U	2.1	JN	2.6	J	< 12	U	3.9	J	0.81	JN	4.8		9,000		410	
BERTH02-SB	BERTH02-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-42.2	-43.2	-44.2	0.88	J+	0.069	JN	0.28	J	0.16	J+	0.13	J	0.28	JN	0.32	J	160		6.5	J
BERTH02-SB	BERTH02-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-42.2	-44.2	-45.2	0.36	J+	< 6.2	U	< 6.2	U	< 6.2	U	0.098	JN	< 1.2	U	0.19	JN	120		4.8	J
BERTH02-SB	BERTH02-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-42.2	-46.2	-47.2	0.33	J+	< 6.4	U	0.17	J	< 6.4	U	0.15	JN	< 1.3	U	0.17	JN	56		1.7	J
BERTH02-SB	BERTH02-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-42.2	-48.2	-49.2	0.32	J+	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	0.21	JN	< 1.3	U	22		0.72	J+
BERTH02-SB	BERTH02-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-42.2	-51.2	-52.2	0.35	J+	< 6.8	U	< 6.8	U	< 6.8	U	< 6.8	U	0.33	JN	< 1.4	U	12	J	0.68	J+
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0.0	0.3	-39.6	-39.6	-39.9	< 8.3	U	< 8.3	U	< 8.3	U	0.95	J	1.8	J	< 1.7	U	1.8		2,900		120	
BERTH03-SB	BERTH03-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-39.6	-40.6	-41.6	1.3	J+	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 1.3	U	0.89	J	110		6.1	J
BERTH03-SB	BERTH03-SB-2TO3-190429	4/29/2019	N	2.0	3.0	-39.6	-41.6	-42.6	1.1	J+	0.19	JN	0.51	J	0.19	JN	0.33	J	0.17	JN	1.3	J	73		4.3	J
BERTH03-SB	BERTH03-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-39.6	-43.6	-44.6	0.78	J+	< 6.6	U	0.13	J	< 6.6	U	< 6.6	U	< 1.3	U	< 1.3	U	11	J	0.65	J
BERTH03-SB	BERTH03-SB-6TO7-190429	4/29/2019	N	6.0	7.0	-39.6	-45.6	-46.6	0.73	J+	< 6.4	U	0.11	JN	< 6.4	U	< 6.4	U	0.2	JN	< 1.3	U	13		0.17	JN
BERTH03-SB	BERTH03-SB-8TO9-190429	4/29/2019	N	8.0	9.0	-39.6	-47.6	-48.6	1.1	JN	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 1.4	U	< 1.4	U	18		0.98	JN
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0.0	0.3	-42.2	-42.2	-42.5	< 7.8	U	< 7.8	U	0.62	JN	0.65	J	1.1	JN	0.34	JN	1.3	J	1,700		87	
BERTH04-SS	SSDUP03-190508 (BERTH04-SS-190508)	5/8/2019	FD	0.0	0.3	-42.2	-42.2	-42.5	< 8.3	U	< 8.3	U	0.54	JN	0.62	J	1.1	J	< 1.7	U	1.2	J	2,000		90	
BERTH04-SB	BERTH04-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-42.2	-43.2	-44.2	0.8	J+	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 1.3	U	< 1.3	U	240		4.1	J
BERTH04-SB	BERTH04-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-42.2	-44.2	-45.2	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 1.4	U	< 1.4	U	53		1.9	J
BERTH04-SB	BERTH04-SB-3TO4-190509	5/9/2019	N	3.0	4.0	-42.2	-45.2	-46.2	0.13	JN	< 6.8	U	< 6.8	U	< 6.8	U	< 6.8	U	< 1.4	U	< 1.4	U	16		< 14	U
BERTH04-SB	SBDUP02-190509 (BERTH04-SB-3TO4-190509)	5/9/2019	FD	3.0	4.0	-42.2	-45.2	-46.2	0.15	J	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 1.3	U	< 1.3	U	22		0.71	J
BERTH04-SB	BERTH04-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-42.2	-46.2	-47.2	0.14	J	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 1.3	U	< 1.3	U	11	J	< 13	U
BERTH04-SB	BERTH04-SB-6TO7.5-190509	5/9/2019	N	6.0	7.5	-42.2	-48.2	-49.7	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 1.3	U	< 1.3	U	7.4	J	< 13	U
BERTH04-SB	BERTH04-SB-8.5TO9.5-190509	5/9/2019	N	8.5	9.5	-42.2	-50.7	-51.7	0.2	J	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 1.3	U	< 1.3	U	13		< 13	U

Table 3
Dioxin/Furan Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			1,2,3,7,8,9-HxCDF	1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	2,3,4,6,7,8-HxCDF	2,3,4,7,8-PeCDF	2,3,7,8-TCDD	2,3,7,8-TCDF	OCDD	OCDF									
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw	pg/g dw								
Remedial Action Level																										
BERTH05-SS	BERTH05-SS-190508	5/8/2019	N	0.0	0.3	-39.7	-39.7	-40.0	< 8.3	U	—	JN	< 8.3	U	0.62	J	< 8.3	U	< 1.7	U	1.2	J	1,100		72	
BERTH05-SB	BERTH05-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-39.7	-40.7	-41.7	1.5	J	< 6.8	U	< 6.8	U	< 6.8	U	< 6.8	U	< 1.4	U	< 1.4	U	41		< 14	U
BERTH05-SB	BERTH05-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-39.7	-41.7	-42.7	0.32	J+	< 6.7	U	< 6.7	U	< 6.7	U	0.11	JN	< 1.3	U	0.086	JN	13		0.99	J
BERTH05-SB	BERTH05-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-39.7	-43.7	-44.7	0.17	J+	< 6.1	U	< 6.1	U	< 6.1	U	< 6.1	U	< 1.2	U	< 1.2	U	7	J	0.43	J
BERTH05-SB	BERTH05-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-39.7	-45.7	-46.7	0.13	JN	< 6	U	< 6	U	< 6	U	< 6	U	< 1.2	U	< 1.2	U	3.8	J	< 12	U
BERTH05-SB	BERTH05-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-39.7	-47.7	-48.7	0.17	JN	< 6.1	U	< 6.1	U	< 6.1	U	< 6.1	U	0.38	J	0.16	JN	5.1	J	0.21	JN
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0.0	0.3	-40.6	-40.6	-40.9	1.4	J+	< 8.9	U	< 8.9	U	< 8.9	U	< 8.9	U	< 1.8	U	2.2	J	1,200		70	
BERTH06-SB	BERTH06-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-40.6	-42.6	-43.6	< 7.7	U	1	J	1.1	J	1.3	J	1.9	JN	0.54	J	2	J	1,700		130	
BERTH06-SB	BERTH06-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-40.6	-44.6	-45.6	0.39	JN	< 6.5	U	0.11	JN	< 6.5	U	< 6.5	U	0.15	JN	0.084	J	31		1.8	J
BERTH06-SB	BERTH06-SB-7TO8-190510	5/10/2019	N	7.0	8.0	-40.6	-47.6	-48.6	0.18	J+	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	0.25	JN	0.062	JN	8.8	J	0.31	JN
BERTH06-SB	BERTH06-SB-8TO8.5-190510	5/10/2019	N	8.0	8.5	-40.6	-48.6	-49.1	0.19	J+	0.061	JN	0.059	JN	< 6.4	U	< 6.4	U	0.099	JN	0.067	JN	2,400		35	
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0.0	0.33	-43.5	-43.5	-43.8	0.5	J+	0.50	J	1.2	J	0.86	J	1.0	J	< 1.6	U	1.5	J	1,300		69	
BERTH07-SB	BERTH07-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-43.5	-44.5	-45.5	< 8.7	U	1.7	J	1.2	JN	2.2	J	2.3	JN	0.77	J	2.9	J	2,200		250	
BERTH07-SB	BERTH07-SB-2TO3.5-190429	4/29/2019	N	2.0	3.5	-43.5	-45.5	-47.0	1.3	J+	2.1	J	1.5	J	2.4	J	3.4	J	0.5	JN	5.1	J	2,300		280	
BERTH07-SB	BERTH07-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-43.5	-47.5	-48.5	1	J+	0.25	J	0.3	J	0.13	JN	0.28	J	< 1.3	U	0.73	J	280		110	
BERTH08-SS	BERTH08-SS-190508	5/8/2019	N	0.0	0.3	-39.9	-39.9	-40.2	0.88	JN	< 8.0	U	< 8.0	U	0.35	J	< 8.0	U	< 1.6	U	1.8	J	1,200		62	
BERTH08-SB	BERTH08-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	0.15	J	0.11	JN	< 6.7	U	0.11	JN	< 6.7	U	< 1.3	U	0.22	J	250		7.6	J
BERTH08-SB	BERTH08-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	0.26	JN	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 1.4	U	< 1.4	U	99		2.7	JN
BERTH08-SB	BERTH08-SB-4.5TO6-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	0.3	JN	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 1.3	U	< 1.3	U	10	J	< 13	U
BERTH08-SB	BERTH08-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	0.39	J+	< 6.3	U	0.093	JN	< 6.3	U	0.078	JN	< 1.3	U	< 1.3	U	6.4	J	0.44	JN
BERTH09-SS	BERTH09-SS-190508	5/8/2019	N	0.0	0.33	-41.0	-41.0	-41.4	1.3	J+	< 8.5	U	< 8.5	U	1.8	JN	< 8.5	U	< 1.7	U	2.4	J	2,100		93	
BERTH09-SB	BERTH09-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-41.0	-42.0	-43.0	< 7	U	< 7	U	< 7	U	1.1	J	1.6	J	< 1.4	U	0.41	J	2,500		170	
BERTH09-SB	BERTH09-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-41.0	-43.0	-44.0	< 6.8	U	< 6.8	U	< 6.8	U	0.59	J	0.62	JN	< 1.4	U	1	JN	830		62	
BERTH09-SB	BERTH09-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-41.0	-45.0	-46.0	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 1.4	U	0.25	JN	78		3.4	J
BERTH09-SB	BERTH09-SB-6TO7-190509	5/9/2019	N	6.0	7.0	-41.0	-47.0	-48.0	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 1.3	U	< 1.3	U	41		0.65	JN
BERTH09-SB	BERTH09-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-41.0	-49.0	-50.0	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 6.6	U	< 1.3	U	< 1.3	U	59		< 13	U
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0.0	0.3	-41.0	-41.0	-41.3	1.5	J+	0.65	J	0.81	J	0.92	J	1.1	J	0.28	JN	1.7	J	1,600		80	
BERTH10-SB	BERTH10-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-41.0	-42.0	-43.0	< 7	U	< 7	U	< 7	U	< 7	U	< 7	U	< 1.4	U	< 1.4	U	20		0.8	J
BERTH10-SB	BERTH10-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-41.0	-43.0	-44.0	0.24	J+	< 6.4	U	< 6.4	U	< 6.4	U	< 6.4	U	< 1.3	U	0.19	JN	48		3.1	J
BERTH10-SB	BERTH10-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-41.0	-45.0	-46.0	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 6.7	U	< 1.3	U	< 1.3	U	17		< 13	U
BERTH10-SB	BERTH10-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-41.0	-47.0	-48.0	0.19	JN	< 6.9	U	< 6.9	U	< 6.9	U	< 6.9	U	< 1.4	U	< 1.4	U	11	J	< 14	U
BERTH10-SB	BERTH10-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-41.0	-49.0	-50.0	0.21	JN	< 7.3	U	< 7.3	U	< 7.3	U	< 7.3	U	< 1.5	U	< 1.5	U	9	J	< 15	U
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0.0	0.3	-41.4	-41.4	-41.7	1.1	J+	1.0	JN	2.3	J	1.7	J	2.2	J	0.24	J	3.0	J	3,300		150	
BERTH11-SS	SSDUP01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0.0	0.3	-41.4	-41.4	-41.7	1.1	J+	1.4	J	3.1	J	2.1	J	2.7	J	0.66	JN	3.6	J	3,600		200	
BERTH11-SB	BERTH11-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-41.4	-42.4	-43.4	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 6.5	U	< 1.3	U	< 1.3	U	70		4.1	J
BERTH11-SB	BERTH11-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-41.4	-43.4	-44.4	0.75	J+	< 6.5	U	0.14	JN	< 6.5	U	< 6.5	U	0.13	JN	0.14	J	50		1.9	J+
BERTH11-SB	BERTH11-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-41.4	-45.4	-46.4	0.85	J+	0.085	JN	0.22	J+	0.19	J+	0.092	JN	0.15	JN	0.3	J	200		13	
BERTH11-SB	BERTH11-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-41.4	-47.4	-48.4	1.1	J+	< 6.8	U	0.24	J+	< 6.8	U	0.14	J	< 1.4	U	0.32	J	49		2.6	J+
BERTH11-SB	BERTH11-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-41.4	-50.4	-51.4	0.75	JN	< 7	U	0.15	JN	< 7	U	< 7	U	< 1.4	U	< 1.4	U	12	J	0.55	JN

Table 3
Dioxin/Furan Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			1,2,3,7,8,9-HxCDF		1,2,3,7,8-PeCDD		1,2,3,7,8-PeCDF		2,3,4,6,7,8-HxCDF		2,3,4,7,8-PeCDD		2,3,7,8-TCDF		OCDD		OCDF			
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	pg/g dw	U	pg/g dw	J	pg/g dw	J	pg/g dw	J	pg/g dw	J	pg/g dw	J	pg/g dw	J	pg/g dw	J	pg/g dw	J
Remedial Action Level																										
BERTH12-SS	BERTH12-SS-190423	4/23/2019	N	0.0	0.3	-34.5	-34.5	-34.8	< 9.6	U	1.6	JN	2.1	JN	2.6	J	4.2	J	0.8	JN	5.0		5,300		270	
BERTH12-SB	BERTH12-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-34.5	-35.5	-36.5	< 8.1	U	4.4	J	3.4	J	5.1	J	8.7		1.9		7.8		6,100		670	
BERTH12-SB	BERTH12-SB-2TO4-190425	4/25/2019	N	2.0	4.0	-34.5	-36.5	-38.5	< 7.2	U	< 7.2	U	2	J	1.1	J	1.3	JN	0.44	JN	0.75	JN	3,100		140	
BERTH12-SB	BERTH12-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-34.5	-38.5	-39.5	< 7.9	U	2.7	JN	< 7.9	U	4	J	5.3	J	0.98	JN	5.2		6,200		520	
BERTH12-SB	BERTH12-SB-7TO7.9-190425	4/25/2019	N	7.0	7.9	-34.5	-41.5	-42.4	< 6.8	U	1.7	J	< 6.8	U	4	J	3.5	JN	0.93	J	10	J	2,200		1,300	
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0.0	0.3	-31.7	-31.7	-32.1	2.4	J	1.3	JN	1.5	J	1.9	J	2.2	J	0.4	JN	3.0		11,000	J	250	
PIER13-SB	PIER13-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-31.7	-32.7	-33.7	< 12	U	2.3	J	2.4	J	2.2	JN	3.8	J	1	J	4.7		19,000	J	450	
PIER13-SB	PIER13-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-31.7	-33.7	-34.7	0.51	JN	1.6	J	2.2	J	2	J	2.5	J	0.65	JN	3.6		11,000	J	290	
PIER13-SB	PIER13-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-31.7	-35.7	-36.7	< 12	U	3	JN	6.1	J	4.3	J	5.7	J	1.6	J	9		16,000	J	550	
PIER13-SB	PIER13-SB-7TO7.8-190425	4/25/2019	N	7.0	7.8	-31.7	-38.7	-39.5	< 10	U	5.8	JN	6.2	JN	9.1	J	13		3	JN	10		24,000	J	1,200	
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0.0	0.3	-21.7	-21.7	-22.1	3.3	J+	< 14	U	4.6	JN	4.6	J	7.2	J	< 2.9	UJ	9.1		29,000	J	720	
PIER14-SB	PIER14-SB-1TO2-190425	4/25/2019	N	1.0	2.0	-21.7	-22.7	-23.7	< 12	U	< 12	U	< 12	U	< 12	U	< 12	U	4.2	J	25	J	15,000	J	1,000	
PIER14-SB	PIER14-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-21.7	-23.7	-24.7	< 9.5	U	7.8	J	< 12	UJ	13		18	J	2.8		18	J	10,000	J	1,700	
PIER14-SB	PIER14-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-21.7	-25.7	-26.7	< 8.8	U	2.9	J	2.3	J	5.4	J	5.7	J	0.89	JN	3.4		600		55	
PIER14-SB	PIER14-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-21.7	-27.7	-28.7	< 54	U	3.3	JN	< 54	U	< 54	U	6.8	J	1.8	JN	7.2	J	1,800		190	
PIER14-SB	PIER14-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-21.7	-30.7	-31.7	0.86	JN	1.8	JN	2.2	J	3.2	J	3.8	J	0.57	JN	3.6		2,500		240	
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0.0	0.3	-32.9	-32.9	-33.2	2.3	JN	2.8	J	2.8	J	3.4	J	3.7	J	0.93	JN	4.2		43,000	J	790	
PIER15-SB	PIER15-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-32.9	-33.9	-34.9	< 7.9	U	1.2	J	< 7.9	U	1.7	J	2.2	J	0.55	JN	2.1		740		87	
PIER15-SB	PIER15-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-32.9	-34.9	-35.9	0.63	JN	0.75	J	0.99	JN	0.96	JN	1.6	J	0.4	JN	1.7		870		71	
PIER15-SB	PIER15-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-32.9	-36.9	-37.9	1.5	J+	< 7.9	U	1.1	J	0.74	J	1.2	JN	0.45	JN	2.3		130		11	J
PIER15-SB	PIER15-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-32.9	-38.9	-39.9	0.75	J+	0.15	J	0.37	J	0.23	J	0.35	J	< 1.3	U	1.1	J	22		1.4	JN
PIER15-SB	PIER15-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-32.9	-41.9	-42.9	0.89	J+	< 6.5	U	0.15	JN	< 6.5	U	< 6.5	U	< 1.3	U	< 1.3	U	11	J	< 13	U
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0.0	0.3	-22.9	-22.9	-23.3	2.7	J+	3.3	J	3	J	3.5	J	4.8	J	< 2.6	U	7.2		31,000	J	920	
PIER16-SB	PIER16-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-22.9	-23.9	-24.9	< 13	U	7.3	JN	7	JN	8.3	JN	< 13	U	3		21		30,000	J	960	
PIER16-SB	PIER16-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-22.9	-24.9	-25.9	< 15	U	4.4	J	5.7	JN	6.3	J	9.4	J	1.2	JN	15		40,000	J	1,100	
PIER16-SB	PIER16-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-22.9	-26.9	-27.9	< 11	U	4.5	JN	4.6	J	7	J	9.9	J	2.3		7.3		18,000	J	1,200	
PIER16-SB	PIER16-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-22.9	-28.9	-29.9	0.58	JN	2.9	J	4	J	5.3	J	6.6	J	1.3	JN	2.9		2,600		190	
PIER16-SB	PIER16-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-22.9	-31.9	-32.9	5.9	J	< 6.7	U	1.4	J	0.47	J	0.72	JN	0.21	JN	0.83	J	73		5.1	J
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0.0	0.3	-22.3	-22.3	-22.6	< 11	U	2.5	J	3.7	J	2.6	J	4.0	J	0.75	JN	6.8		29,000	J	740	
PIER17-SB	PIER17-SB-0TO2-190426	4/26/2019	N	0.0	2.0	-22.3	-22.3	-24.3	13	J	3	J	4.6	J	7.8	J	6.7	J	3.3	JN	9.2	J	4,900		710	
PIER17-SB	PIER17-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-22.3	-24.3	-25.3	1	J+	2.3	J	3.4	J	3.2	J	4.8	J	0.68	JN	4.3		1,600		130	
PIER17-SB	PIER17-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-22.3	-26.3	-27.3	0.64	JN	1.1	J	1.7	J	1.6	JN	2.6	J	0.67	J	2.6		1,500		100	
PIER17-SB	PIER17-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-22.3	-28.3	-29.3	1.1	J+	0.38	J	0.78	J	0.77	J	0.93	J	0.16	JN	1.1	J	66		12	J
PIER17-SB	PIER17-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-22.3	-31.3	-32.3	0.75	JN	< 6.5	U	0.23	J	< 6.5	U	< 6.5	U	< 1.3	U	0.38	J	13		0.64	JN
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0.0	0.3	-25.3	-25.3	-25.6	1.9	J+	1.8	JN	2.5	J	1.9	JN	3.0	J	< 2.3	U	4.2		16,000	J	460	
PIER18-SS	SSDUP02-190424 (PIER18-SS-190424)	4/24/2019	FD	0.0	0.3	-25.3	-25.3	-25.6	1.8	J+	< 11	U	2	JN	1.9	J	2.9	JN	< 2.2	U	4.8		14,000	J	420	
PIER18-SB	PIER18-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	< 13	U	< 13	U	< 13	U	9.1	J	13		< 3	UJ	20	J	99,000	J	2,200	
PIER18-SB	PIER18-SB-4TO5.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	5.5	J	4.8	J	4.6	J	11		12		2.1		9.3	J	7,600	J	1,000	
PIER18-SB	PIER18-SB-6.5TO8-190425	4/25/2019	N	6.5	8.0	-25.3	-31.8	-33.3	4.3	J	< 6.3	U	0.8	JN	0.24	J	0.37	J+	0.32	JN	0.4	J+	130		19	
PIER18-SB	PIER18-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-25.3	-34.3	-35.3	0.69	J+	< 6.4	U	< 6.4	U	0.12	J	< 6.4	U	< 1.3	U	< 1.3	U	27		2.4	J

Table 3
Dioxin/Furan Concentrations in Sediment
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Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			1,2,3,7,8,9-HxCDF		1,2,3,7,8-PeCDD		1,2,3,7,8-PeCDF		2,3,4,6,7,8-HxCDF		2,3,4,7,8-PeCDF		2,3,7,8-TCDD		2,3,7,8-TCDF		OCDD		OCDF			
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	pg/g dw	U	pg/g dw	U	pg/g dw	U	pg/g dw	U	pg/g dw	U	pg/g dw	U	pg/g dw	U	pg/g dw	U	pg/g dw	U	pg/g dw	U
Remedial Action Level																												
PIER19-SS	PIER19-SS-190423	4/23/2019	N	0.0	0.3	-34.8	-34.8	-35.1	< 9.5	U	≤ 9.5	U	< 9.5	U	1	JN	1.5	J	≤ 1.9	U	2.3			14,000	J	310		
PIER19-SB	PIER19-SB-0T02-190426	4/26/2019	N	0.0	2.0	-34.8	-34.8	-36.8	< 8.1	U	≤ 8.1	U	< 8.1	U	8.6		9.5		1.6		5.9	J	9,500	J	2,100			
PIER19-SB	PIER19-SB-2T03-190426	4/26/2019	N	2.0	3.0	-34.8	-36.8	-37.8	< 8.3	U	5.9	J	4.6	J	6.1	J	9.5		2.4		8.9		11,000	J	830			
PIER19-SB	PIER19-SB-4T05-190426	4/26/2019	N	4.0	5.0	-34.8	-38.8	-39.8	0.71	J+	0.47	JN	0.78	J	0.56	JN	1.2	J	0.45	JN	1.4		980		66			
PIER19-SB	PIER19-SB-6T07-190426	4/26/2019	N	6.0	7.0	-34.8	-40.8	-41.8	0.88	J+	0.15	J	0.19	JN	0.14	J	≤ 6.7	U	0.16	JN	0.57	J	170		4.8		J	
PIER19-SB	PIER19-SB-9T010-190426	4/26/2019	N	9.0	10.0	-34.8	-43.8	-44.8	0.75	J+	≤ 6.2	U	0.24	J	< 6.2	U	≤ 6.2	U	0.2	JN	0.44	JN	31		2.1		J	
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0.0	0.3	-19.4	-19.4	-19.7	1.3	J+	1.1	J	1.4	J	1.5	J	2.0	J	0.34	JN	3.0		7,200		200			
PIER20-SB	PIER20-SB-1T02-190510	5/10/2019	N	1.0	2.0	-19.4	-20.4	-21.4	< 11	U	9.5	J	7.5	J	21		22		2.9	JN	16		51,000	J	3,200			
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0.0	0.5	-37.7	-37.7	-38.2	1.6	J+	≤ 8.3	U	< 8.3	U	0.61	JN	≤ 8.3	U	≤ 1.7	U	1.8		2,500		98			
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0.0	0.5	-39.8	-39.8	-40.2	< 8.1	U	≤ 8.1	U	0.8	J	0.58	JN	1.1	J	≤ 1.6	U	1.3	J	1,300		85			
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0.0	0.7	-33.2	-33.2	-33.9	0.75	JN	1	JN	1.4	J	1.6	J	1.7	J	0.49	J	1.6		1,300		73			
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0.0	0.3	-19.7	-19.7	-20.0	< 7.3	U	≤ 7.3	U	< 7.3	U	0.56	J	0.68	J	≤ 1.5	U	0.92	J	700		36			
PIER24-SB	PIER24-SB-1T02-190510	5/10/2019	N	1.0	2.0	-19.7	-20.7	-21.7	1.7	J	≤ 7.6	U	< 7.6	U	0.92	J	1.2	J	≤ 1.5	U	2.6		1,600		76			
PIER24-SB	PIER24-SB-2T03-190510	5/10/2019	N	2.0	3.0	-19.7	-21.7	-22.7	0.46	JN	1.6	J	1.7	J	1.5	J	2.3	J	0.81	JN	5		5,400		150			
PIER24-SB	PIER24-SB-4T05-190510	5/10/2019	N	4.0	5.0	-19.7	-23.7	-24.7	< 11	UJ	15		< 10	U	28		39		5.4	JN	26	J	29,000	J	5,600			
PIER24-SB	PIER24-SB-6T07-190510	5/10/2019	N	6.0	7.0	-19.7	-25.7	-26.7	< 48	U	≤ 48	U	< 48	U	7.6	JN	8.6	JN	≤ 9.7	U	14	J	4,400		380			
36B-01	36B-01	11/17/2014	N	0.0	0.3	-37.0	-37.0	-37.3	3	U	3.99	J	3.33	U	4.58	U	4.21	J	1.2	U	6.82	J	17,700		453			
36B-02	36B-02	11/17/2014	N	0.0	0.3	-25.0	-25.0	-25.3	2.88	U	6.00	J	4.37	U	7.5	U	5.85	J	1.72	U	8.81	J	18,200		567			
36B-03	36B-03	11/17/2014	N	0.0	0.3	-34.0	-34.0	-34.3	2.75	J	3.75	J	2.96	U	7.09	J	4.24	J	1.02	U	5.03	J	17,200		492			
36B-04	36B-04	11/17/2014	N	0.0	0.3	-24.0	-24.0	-24.3	3.11	J	4.25	J	3.24	J	7.69	J	4.37	J	1.03	U	8.09	U	20,000		552			
36B-04	36B-24 (36B-04)	11/17/2014	FD	0.0	0.3	-24.0	-24.0	-24.3	2.34	U	4.02	J	3.24	J	4.84	U	4.6	J	1.33	UJ	5.2	UJ	18,600		564			
36B-05	36B-05	11/17/2014	N	0.0	0.3	-36.0	-36.0	-36.3	4.1	J	6.94	J	4.6	J	11.8		6.6	J	1.88	J	8.91	J	32,700		907			
36B-06	36B-06	11/17/2014	N	0.0	0.3	-28.0	-28.0	-28.3	2.43	U	4.56	J	3.28	J	6.47	J	4.46	J	0.926	U	6.28	J	25,300		652			
36B-07	36B-07	11/17/2014	N	0.0	0.3	-38.0	-38.0	-38.3	2.12	J	2.89	U	2.59	J	5.05	J	3.29	J	0.686	U	4.89	J	29,000		579			
36B-08	36B-08	11/17/2014	N	0.0	0.3	-28.0	-28.0	-28.3	2.37	U	3.97	U	3.53	U	2.67	U	3.77	J	0.745	U	5.88	U	24,600		657			

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Notes:

1. TEQ is calculated by summing the product of individual congener concentrations and the toxic equivalence factors presented in Van Der Berg et al. (2006). For congeners that were not detected, half of the reporting limit was used in the calculation.
2. Yellow shading indicates the result is above the remedial action level.
3. Underlined values indicate the analyte was not detected with a reporting limit that is above the associated screening level.
4. Gray shading means sample is shallower than -43 feet MLLW and will be removed as part of the Slip 36 berth expansion and deepening (-43 feet MLLW) to accommodate operational needs.
5. Bold values indicate the analyte was detected at a concentration greater than the method detection limit.
6. The sediment elevation of surface samples from 2019 are assumed to be the same as subsurface samples collected at the same location. The surface elevation of locations without subsurface samples (PIER21, PIER22, and PIER23) was estimated from the tide and water levels recorded at the time of sampling.

Symbols, Acronyms, and Abbreviations:

bss = below sediment surface
FD = field duplicate
HPCDD = heptachlorodibenzo-p-dioxin
HPCDF = heptachlorodibenzofuran
HxCDD = hexachlorodibenzo-p-dioxin
HxCDF = hexachlorodibenzofuran
MLLW = mean lower low water
N = parent sample
OCDD = octachlorodibenzodioxin
OCDF = octachlorodibenzofuran
PeCDD = pentachlorodibenzo-p-dioxin
PeCDF = pentachlorodibenzofuran
pg/g dw = picogram per gram dry weight
TCDD = tetrachlorodibenzodioxin
TCDF = tetrachlorodibenzofuran
TEQ = toxic equivalent

Qualifiers:

J = Estimated value.
J+ = Estimated value, biased high.
JN = The analyte was tentatively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U = Analyte not detected above value shown.
UB = The analyte was found in an associated blank as well as in the sample.
UJ = Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.

Reference:

Van Den Berg, M., L.S. Birnbaum, M. Denison, M. De Vito, W. Farland, M. Feeley, H. Fiedler, H. Hakansson, A. Hanberg, L. Haws, M. Rose, S. Safe, D. Schrenk, C. Tohyama, A. Tritscher, J. Tuomisto, M. Tysklind, N. Walker, and R.E. Peterson. 2006. The 2005 World Health Organization reevaluation of human and Mammalian toxic equivalency factors for dioxins and dioxin-like compounds. *Toxicol Sci.* 93(2):223-41

Table 4
Metals and Tributyltin Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Arsenic mg/kg dw	Antimony mg/kg dw	Cadmium mg/kg dw	Chromium mg/kg dw	Cobalt mg/kg dw	Copper mg/kg dw	Lead mg/kg dw	Mercury mg/kg dw	Molybdenum mg/kg dw	Nickel mg/kg dw	
				Top	Bottom	Top of Core	Sample Top	Sample Bottom												
				Remedial Action Level																
									57							0.41				
EECA01	EECA01-SS-011222	1/12/2022	N	0.0	0.4	-39.7	-39.7	-40.1	1.1	6.5		0.38	J			34	J	0.54	J	
EECA01	EECA01-SC-011222	1/12/2022	N	0.4	3.3	-39.7	-40.1	-43.0		3.8		0.17	J	16	J	20	J	0.17	J	
EECA01	EECA01-43TO44-011222	1/12/2022	N	3.3	4.3	-39.7	-43.0	-44.0	0.31	0.46		0.011	J			1.3	J	0.051	J	
EECA01	EECA01-44TO45-011222	1/12/2022	N	4.3	5.3	-39.7	-44.0	-45.0	< 0.20	UB								0.016	J	
EECA02	EECA02-SC-010722	1/7/2022	N	0.0	1.2	-41.8	-41.8	-43.0		1.7	J	0.072	J	7.4		2.3	J	0.045		
EECA02	EECA02-43TO44-010722	1/7/2022	N	1.2	2.2	-41.8	-43.0	-44.0	0.66	1.8	J	0.059	J			2.8	J	0.049		
EECA02	EECA02-44TO45-010722	1/7/2022	N	2.2	3.2	-41.8	-44.0	-45.0	0.74	2.2	J	0.059	J			2.5	J	0.045		
EECA03	EECA03-SC-010822	1/8/2022	N	0.0	2.1	-40.9	-40.9	-43.0		2.6		0.076	J	12		2.0		0.011	J	
EECA03	EECA03-43TO44-010822	1/8/2022	N	2.1	3.1	-40.9	-43.0	-44.0	< 0.20	UB	1.5		< 0.45	U		1.3		< 0.032	U	
EECA03	EECA03-44TO45-010822	1/8/2022	N	3.1	4.1	-40.9	-44.0	-45.0	0.26	1.6		< 0.45	U			1.2		0.014	J	
EECA04	EECA04-SC-010922	1/9/2022	N	0.0	1.8	-41.2	-41.2	-43.0		3.4		0.089	J	15		2.6		0.025	J	
EECA04	EECA04-43TO44-010922	1/9/2022	N	1.8	2.8	-41.2	-43.0	-44.0	0.67	3.9		0.089	J			2.8		0.031	J	
EECA04	EECA04-44TO45-010922	1/9/2022	N	2.8	3.8	-41.2	-44.0	-45.0	0.80	4.6		0.10	J			3.1		0.028	J	
EECA05	EECA05-SC-011222	1/12/2022	N	0.0	2.2	-40.8	-40.8	-43.0		2.7		0.081	J	12	J			3.2	J	0.017
EECA05	EECA05-43TO44-011222	1/12/2022	N	2.2	3.2	-40.8	-43.0	-44.0	0.68	2.8		0.055	J			2.2	J	0.012	J	
EECA05	EECA05-44TO45-011222	1/12/2022	N	3.2	4.2	-40.8	-44.0	-45.0	0.84	3.0		0.061	J			2.3	J	0.015	J	
EECA06	EECA06-SC-011222	1/12/2022	N	0.0	12.3	-30.7	-30.7	-43.0		8.4		0.49		23	J	48	J	0.26	J	
EECA06	EECA06-43TO44-011222	1/12/2022	N	12.3	13.3	-30.7	-43.0	-44.0	0.43	2.4		< 0.48	U			2.1	J	< 0.033	UJ	
EECA06	EECA06-44TO45-011222	1/12/2022	N	13.3	14.3	-30.7	-44.0	-45.0	0.45	2.6		0.056	J			2.1	J	0.019	J	
EECA07	EECA07-SC-010822	1/8/2022	N	0.0	1.4	-41.6	-41.6	-43.0		2.9		0.054	J	13		2.0		0.014	J	
EECA07	EECA07-43TO44-010822	1/8/2022	N	1.4	2.4	-41.6	-43.0	-44.0	0.28	2.1		0.049	J			1.5		< 0.037	U	
EECA07	EECA07-44TO45-010822	1/8/2022	N	2.4	3.4	-41.6	-44.0	-45.0	0.47	2.9		0.079	J			2.0		0.014	J	
EECA08	EECA08-SC-010822	1/8/2022	N	0.0	1.1	-41.9	-41.9	-43.0		2.6		< 0.51	U	12		2.4		0.017	J	
EECA08	EECA08-43TO44-010822	1/8/2022	N	1.1	2.1	-41.9	-43.0	-44.0	0.37	2.2		< 0.51	U			1.5		0.010	J	
EECA08	EECA08-44TO45-010822	1/8/2022	N	2.1	3.1	-41.9	-44.0	-45.0	0.26	2.0		< 0.50	U			1.3		< 0.031	U	
EECA09	EECA09-SC-010922	1/9/2022	N	0.0	2.5	-40.5	-40.5	-43.0		2.9		0.052	J	12		2.7		0.013	J	
EECA09	EECA09-43TO44-010922	1/9/2022	N	2.5	3.5	-40.5	-43.0	-44.0	0.39	2.5		0.045	J			1.6		< 0.037	U	
EECA09	EECA09-44TO45-010922	1/9/2022	N	3.5	4.5	-40.5	-44.0	-45.0	0.57	2.9		0.055	J			2.0		0.015	J	
EECA10	EECA10-SC-011122	1/11/2022	N	0.0	2.4	-40.6	-40.6	-43.0		1.7		< 0.45	U	8.6	J			1.4	J	< 0.032
EECA10	EECA10-43TO44-011122	1/11/2022	N	2.4	3.4	-40.6	-43.0	-44.0	1.2	2.8		< 0.38	UB			1.5	J	< 0.029	UJ	
EECA10	EECA10-44TO45-011122	1/11/2022	N	3.4	4.4	-40.6	-44.0	-45.0	1.2	3.1		< 0.37	UB			1.8	J	0.011	J	
EECA11	EECA11-SC-011122	1/11/2022	N	0.0	8.5	-34.5	-34.5	-43.0		7.9		0.37	J	73	J			58	J	0.17
EECA11	EECA11-43TO44-011122	1/11/2022	N	8.5	9.5	-34.5	-43.0	-44.0	0.39	2.3		0.064	J			1.9	J	< 0.028	UJ	
EECA11	EECA11-44TO45-011122	1/11/2022	N	9.5	10.5	-34.5	-44.0	-45.0	0.33	2.2		< 0.49	UB			1.7	J	0.010	J	
EECA12	EECA12-SS-011022	1/10/2022	N	0.0	0.40	-36.7	-36.7	-37.1	1.8	4.5		0.48	J			140		2.2	B	
EECA12	EECA12-SC-011022	1/10/2022	N	0.40	6.3	-36.7	-37.1	-43.0		3.1		0.23	J	11		97		0.36		
EECA12	EECA12-43TO44-011022	1/10/2022	N	6.3	7.3	-36.7	-43.0	-44.0	0.037	J	1.7	< 0.35	U			3.1		< 0.028	UB	
EECA13	EECA13-SC-010622	1/6/2022	N	0.0	1.6	-41.4	-41.4	-43.0		5.3	J	0.25	J	14		71	J	0.55		
EECA13	EECA13-43TO44-010622	1/6/2022	N	1.6	2.6	-41.4	-43.0	-44.0	0.56	1.4	J	0.046	J			4.9	J	0.077		
EECA13	EECA13-44TO45-010622	1/6/2022	N	2.6	3.6	-41.4	-44.0	-45.0	0.59	1.9	J	0.049	J			2.2	J	0.04		

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Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Arsenic mg/kg dw	Antimony mg/kg dw	Cadmium mg/kg dw	Chromium mg/kg dw	Cobalt mg/kg dw	Copper mg/kg dw	Lead mg/kg dw	Mercury mg/kg dw	Molybdenum mg/kg dw	Nickel mg/kg dw		
				Top	Bottom	Top of Core	Sample Top	Sample Bottom													
Remedial Action Level									--	57	--	--	--	--	--	0.41	--	--			
EECA14	EECA14-SC-010622	1/6/2022	N	0.0	1.3	-41.7	-41.7	-43.0	--	3.1	J	0.12	J	9.9	--	57	J	0.28	--	--	
EECA14	EECA14-43TO44-010622	1/6/2022	N	1.3	2.3	-41.7	-43.0	-44.0	0.47	--	--	--	--	--	250	0.14	--	--	--		
EECA14	EECA14-44TO45-010622	1/6/2022	N	2.3	3.3	-41.7	-44.0	-45.0	0.21	--	--	--	--	--	13	< 0.030	U	--	--		
EECA14	EECA14-45TO46-010622	1/6/2022	N	3.3	4.3	-41.7	-45.0	-46.0	0.06	J	--	--	--	--	2.0	< 0.035	U	--	--		
EECA14	EECA14-46TO47-010622	1/6/2022	N	4.3	5.3	-41.7	-46.0	-47.0	0.56	--	--	--	--	--	2.2	0.10	--	--	--		
EECA14	EECA14-47TO48-010622	1/6/2022	N	5.3	6.3	-41.7	-47.0	-48.0	0.57	--	--	--	--	--	2.3	0.027	J	--	--		
EECA14	EECA14-48TO49-010622	1/6/2022	N	6.3	7.3	-41.7	-48.0	-49.0	0.44	1.4	J	--	< 0.47	UU	--	1.0	J	0.021	J	--	
EECA14	EECA14-49TO50-010622	1/6/2022	N	7.3	8.3	-41.7	-49.0	-50.0	0.51	1.3	J	--	< 0.44	UU	--	1.0	J	0.027	J	--	
EECA15	EECA15-SC-010522	1/5/2022	N	0.0	2.8	-40.2	-40.2	-43.0	--	2.0	--	< 0.46	U	13	--	1.5	0.016	J	--	--	
EECA15	EECA15-43TO44-010522	1/5/2022	N	2.8	3.8	-40.2	-43.0	-44.0	0.47	2.3	--	< 0.53	U	--	1.6	0.018	J	--	--		
EECA15	DUP01-010522 (EECA15-43TO44-010522)	1/5/2022	FD	2.8	3.8	-40.2	-43.0	-44.0	0.19	J	2.3	0.040	J	--	1.5	0.022	J	--	--		
EECA15	EECA15-44TO45-010522	1/5/2022	N	3.8	4.8	-40.2	-44.0	-45.0	0.34	--	--	--	--	2.2	--	--	--	--	--		
EECA15	EECA15-48TO49-010522	1/5/2022	N	7.8	8.8	-40.2	-48.0	-49.0	0.52	3.0	--	0.059	J	--	1.8	0.020	J	--	--		
EECA15	EECA15-49TO50-010522	1/5/2022	N	8.8	9.8	-40.2	-49.0	-50.0	0.13	J	2.1	--	< 0.43	U	--	1.3	0.020	J	--	--	
EECA16	EECA16-SC-011122	1/11/2022	N	0.0	4.4	-38.6	-38.6	-43.0	--	2.3	--	0.060	J	9.5	J	16	J	0.074	J	--	
EECA16	EECA16-43TO44-011122	1/11/2022	N	4.2	5.2	-38.8	-43.0	-44.0	0.70	3.2	--	0.083	J	--	3.4	J	0.018	J	--	--	
EECA16	DUP12-011122 (EECA16-43TO44-011122)	1/11/2022	FD	4.2	5.2	-38.8	-43.0	-44.0	0.69	3.5	--	0.084	J	--	3.4	J	0.043	J	--	--	
EECA16	EECA16-44TO45-011122	1/11/2022	N	5.2	6.2	-38.8	-44.0	-45.0	0.58	3.3	--	0.078	J	--	2.4	J	0.015	J	--	--	
EECA17	EECA17-SC-010722	1/7/2022	N	0.0	5.2	-37.8	-37.8	-43.0	--	4.5	J	--	0.23	J	10	33	J	0.31	--	--	
EECA17	EECA17-43TO44-010722	1/7/2022	N	5.2	6.2	-37.8	-43.0	-44.0	0.54	1.0	J	--	< 0.35	UU	--	4.0	J	0.030	--	--	
EECA17	EECA17-44TO45-010722	1/7/2022	N	6.2	7.2	-37.8	-44.0	-45.0	0.39	1.5	J	--	< 0.39	UU	--	3.3	J	0.019	J	--	
EECA18	EECA18-SS-011322	1/13/2022	N	0.0	0.4	-41.5	-41.5	-41.9	1.0	6.4	--	0.22	J	--	35	0.21	--	--	--		
EECA18	EECA18-43TO44-011322	1/13/2022	N	1.5	2.5	-41.5	-43.0	-44.0	1.6	10	--	0.63	--	--	53	0.54	--	--	--		
EECA18	EECA18-44TO45-011322	1/13/2022	N	2.5	3.5	-41.5	-44.0	-45.0	1.5	--	--	--	--	--	--	0.64	--	--	--		
EECA18	EECA18-45TO46-011322	1/13/2022	N	3.5	4.5	-41.5	-45.0	-46.0	1.3	--	--	--	--	--	--	0.49	--	--	--		
EECA18	EECA18-46TO47-011322	1/13/2022	N	4.5	5.5	-41.5	-46.0	-47.0	--	--	--	--	--	--	--	0.21	--	--	--		
EECA19	EECA19-SS-010922	1/9/2022	N	0.0	0.4	-40.1	-40.1	-40.5	0.49	4.6	--	0.18	J	--	27	0.11	--	--	--		
EECA19	EECA19-43TO44-010922	1/9/2022	N	2.9	3.9	-40.1	-43.0	-44.0	0.89	4.8	--	0.22	J	--	24	0.15	--	--	--		
BERTH01-SB	BERTH01-SS-190423	4/23/2019	N	0.0	0.3	-34.9	-34.9	-35.3	5.2	37	8.5	1.1	41	--	180	180	0.60	--	--		
BERTH01-SB	BERTH01-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-34.94	-34.94	-35.94	9.3	640	190	7.7	100	--	1900	1500	2.1	--	--		
BERTH01-SB	BERTH01-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-34.94	-35.94	-36.94	9.0	120	33	3.7	67	--	440	350	2.2	--	--		
BERTH01-SB	SBDUP-01-190426 (BERTH01-SB-1TO2-190426)	4/26/2019	FD	1.0	2.0	-34.94	-35.94	-36.94	9.0	110	26	3.6	70	--	390	350	2.4	--	--		
BERTH01-SB	BERTH01-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.94	-36.94	-37.94	8.2	15	4.1	J	1.7	31	86	J	220	1.3	J	--	
BERTH01-SB	BERTH01-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.94	-38.94	-39.94	6.4	15	3.5	2.1	25	85	1000	0.66	J	--	--		
BERTH01-SB	BERTH01-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.94	-40.94	-41.94	3.3	4.2	0.51	J	0.19	J	13	20	64	J	0.062	J	--
BERTH01-SB	BERTH01-SB-7TO8-190426	4/26/2019	N	7.0	8.0	-34.94	-41.94	-42.94	1.6	--	--	--	--	--	--	--	--	--	--		
BERTH01-SB	BERTH01-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.94	-43.94	-44.94	3.1	3.7	0.22	J	0.090	J	10	14	23	0.036	J	--	

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Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Arsenic mg/kg dw	Antimony mg/kg dw	Cadmium mg/kg dw	Chromium mg/kg dw	Cobalt mg/kg dw	Copper mg/kg dw	Lead mg/kg dw	Mercury mg/kg dw	Molybdenum mg/kg dw	Nickel mg/kg dw
				Top	Bottom	Top of Core	Sample Top	Sample Bottom											
				Remedial Action Level															
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0.0	0.3	-42.2	-42.2	-42.5	7.5	30	5.8	1.0	40	--	170	140	0.75	--	--
BERTH02-SB	BERTH02-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-42.19	-42.19	-43.19	1.1	7.0	1.2	0.22	J 13	--	31	38	0.12	--	--
BERTH02-SB	BERTH02-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-42.19	-43.19	-44.19	0.62	3.7	0.50	0.099	J 13	--	19	17	0.030	--	--
BERTH02-SB	BERTH02-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-42.19	-44.19	-45.19	0.63	2.5	0.17	J 0.060	J 10	--	12	14	0.045	J	--
BERTH02-SB	BERTH02-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-42.19	-46.19	-47.19	1.6	2.7	0.12	J 0.060	J 9.5	--	12	7.9	0.035	J	--
BERTH02-SB	BERTH02-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-42.19	-48.19	-49.19	1.5	2.8	0.14	J 0.061	J 11	--	14	3.4	< 0.031	UJ	--
BERTH02-SB	BERTH02-SB-7TO8-190426	4/26/2019	N	7.0	8.0	-42.19	-49.19	-50.19	0.34	--	--	--	--	--	--	--	--	--	--
BERTH02-SB	BERTH02-SB-9TO10-190426	4/28/2019	N	9.0	10.0	-42.19	-51.19	-52.19	0.96	2.4	< 0.090	U 0.047	J 11	--	11	2.1	< 0.033	UJ	--
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0.0	0.33	-39.6	-39.6	-39.9	2.7	8.8	1.4	0.37	21	--	51	48	0.29	--	--
BERTH03-SB	BERTH03-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-39.55	-39.55	-40.55	0.67	4.3	0.44	0.33	10	--	30	66	0.34	--	--
BERTH03-SB	BERTH03-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-39.55	-40.55	-41.55	1.0	4.5	0.52	0.45	13	--	25	130	0.43	--	--
BERTH03-SB	BERTH03-SB-2TO3-190429	4/29/2019	N	2.0	3.0	-39.55	-41.55	-42.55	2.3	4.1	0.53	0.36	14	--	27	230	0.74	J	--
BERTH03-SB	BERTH03-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-39.55	-43.55	-44.55	1.3	2.6	0.10	J 0.062	J 11	--	12	7.5	< 0.034	UJ	--
BERTH03-SB	BERTH03-SB-6TO7-190429	4/29/2019	N	6.0	7.0	-39.55	-45.55	-46.55	0.59	2.9	0.095	J 0.064	J 12	--	14	3.0	< 0.024	UJ	--
BERTH03-SB	BERTH03-SB-8TO9-190429	4/29/2019	N	8.0	9.0	-39.55	-47.55	-48.55	1.4	4.1	0.14	J 0.15	J 15	--	22	3.4	0.10	J	--
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0.0	0.33	-42.2	-42.2	-42.5	2.1	J 6.3	0.86	0.26	J 19	--	39	28	0.22	--	--
BERTH04-SS	SSDUP03-190508 (BERTH04-SS-190508)	5/8/2019	FD	0.0	0.33	-42.2	-42.2	-42.5	1.3	J 6.5	0.93	0.24	J 19	--	39	29	0.19	--	--
BERTH04-SB	BERTH04-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-42.17	-42.17	-43.17	1.3	4.5	0.56	0.11	J 15	--	20	14	0.071	--	--
BERTH04-SB	BERTH04-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-42.17	-43.17	-44.17	0.81	2.7	0.13	J 0.048	J 13	--	13	4.1	0.034	--	--
BERTH04-SB	BERTH04-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-42.17	-44.17	-45.17	0.48	3.2	0.16	J 0.069	J 13	--	16	5.5	< 0.037	UJ	--
BERTH04-SB	BERTH04-SB-3TO4-190509	5/9/2019	N	3.0	4.0	-42.17	-45.17	-46.17	0.39	2.7	0.098	J 0.049	J 12	--	12	2.0	< 0.038	UJ	--
BERTH04-SB	SBDUP02-190509 (BERTH04-SB-3TO4-190509)	5/9/2019	FD	3.0	4.0	-42.17	-45.17	-46.17	0.39	2.5	< 0.093	U < 0.19	U 11	--	12	1.9	< 0.029	UJ	--
BERTH04-SB	BERTH04-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-42.17	-46.17	-47.17	0.37	2.8	0.091	J 0.045	J 11	--	12	1.8	< 0.035	UJ	--
BERTH04-SB	BERTH04-SB-6TO7.5-190509	5/9/2019	N	6.0	7.5	-42.17	-48.17	-49.67	0.49	2.5	0.096	J 0.037	J 10	--	10	1.6	< 0.030	UJ	--
BERTH04-SB	BERTH04-SB-8.5TO9.5-190509	5/9/2019	N	8.5	9.5	-42.17	-50.67	-51.67	0.82	3.7	0.12	J 0.086	J 13	--	19	2.4	0.034	J	--
BERTH05-SS	BERTH05-SS-190508	5/8/2019	N	0.0	0.3	-39.7	-39.7	-40.0	2.0	6.1	0.5	0.14	J 18	--	32	29	0.16	--	--
BERTH05-SB	BERTH05-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-39.65	-39.65	-40.65	1.9	5.6	0.81	0.19	16	--	28	29	0.080	--	--
BERTH05-SB	BERTH05-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-39.65	-40.65	-41.65	0.95	3.2	0.27	J 0.060	J 13	--	19	3.2	0.077	--	--
BERTH05-SB	BERTH05-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-39.65	-41.65	-42.65	0.58	3.4	0.10	J 0.052	J 13	--	16	2.3	0.031	J	--
BERTH05-SB	BERTH05-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-39.65	-43.65	-44.65	0.11	2.1	< 0.091	U < 0.18	U 9.1	--	7.5	1.3	< 0.024	UJ	--
BERTH05-SB	BERTH05-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-39.65	-45.65	-46.65	0.12	3.2	< 0.086	U < 0.17	U 9.3	--	9.0	1.3	< 0.030	UJ	--
BERTH05-SB	BERTH05-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-39.65	-47.65	-48.65	0.19	2.1	0.10	J < 0.21	U 9.4	--	7.9	1.5	< 0.027	UJ	--
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0.0	0.3	-40.6	-40.6	-40.9	4.5	6.0	1.2	0.19	J 13	--	27	21	0.17	--	--
BERTH06-SB	BERTH06-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-40.59	-40.59	-41.59	4.4	5.3	0.59	0.19	J 15	--	26	19	0.13	--	--
BERTH06-SB	BERTH06-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-40.59	-41.59	-42.59	3.2	8.5	1.3	0.52	25	--	55	53	0.50	--	--
BERTH06-SB	BERTH06-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-40.59	-42.59	-43.59	1.8	8.5	1.6	0.78	28	--	51	92	0.45	J	--
BERTH06-SB	BERTH06-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-40.59	-44.59	-45.59	0.52	3.3	0.16	J 0.082	J 13	--	18	5.5	< 0.03	UJ	--
BERTH06-SB	BERTH06-SB-7TO8-190510	5/10/2019	N	7.0	8.0	-40.59	-47.59	-48.59	0.60	4.2	0.14	J 0.077	J 15	--	22	3.3	< 0.033	UJ	--
BERTH06-SB	BERTH06-SB-8TO8.5-190510	5/10/2019	N	8.0	8.5	-40.59	-48.59	-49.09	0.90	4.0	0.12	J 0.057	J 13	--	18	2.4	< 0.033	UJ	--

Table 4
Metals and Tributyltin Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Arsenic mg/kg dw	Antimony mg/kg dw	Cadmium mg/kg dw	Chromium mg/kg dw	Cobalt mg/kg dw	Copper mg/kg dw	Lead mg/kg dw	Mercury mg/kg dw	Molybdenum mg/kg dw	Nickel mg/kg dw		
				Top	Bottom	Top of Core	Sample Top	Sample Bottom													
				Remedial Action Level																—	57
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0.0	0.3	-43.5	-43.5	-43.8	1.6	6.1	0.85	0.19	J	17	—	33	35	0.21	—	—	
BERTH07-SB	BERTH07-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-43.49	-43.49	-44.49	6.9	14	2.2	1.0	24	—	53	150	1.1	—	—		
BERTH07-SB	BERTH07-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-43.49	-44.49	-45.49	4.5	8.8	1.6	1.4	17	—	65	520	0.61	—	—		
BERTH07-SB	BERTH07-SB-2TO3.5-190429	4/29/2019	N	2.0	3.5	-43.49	-45.49	-46.99	9.7	14	2.8	1.0	30	—	72	230	2.3	J	—		
BERTH07-SB	BERTH07-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-43.49	-47.49	-48.49	1.8	5.4	0.40	J	0.26	27	—	29	37	0.18	J	—	
BERTH08-SS	BERTH08-SS-190508	5/9/2019	N	0.0	0.3	-39.9	-39.9	-40.2	1.7	5.8	0.60	0.13	J	19	—	34	25	0.32	—	—	
BERTH08-SB	BERTH08-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-39.9	-39.9	-40.9	0.59	3.1	0.83	0.075	J	9.8	—	15	15	< 0.037	U	—	
BERTH08-SB	BERTH08-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	0.64	3.3	0.45	0.082	J	11	—	15	25	0.035	—	—	
BERTH08-SB	BERTH08-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	0.22	2.9	0.26	J	0.066	J	12	—	12	170	< 0.031	UJ	—
BERTH08-SB	BERTH08-SB-4.5TO6-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	0.85	2.7	0.091	J	0.048	J	12	—	13	4.9	< 0.025	UJ	—
BERTH08-SB	BERTH08-SB-9TO9-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	0.51	4.4	0.083	J	0.035	J	11	—	10	2.2	< 0.027	UJ	—
BERTH09-SS	BERTH09-SS-190508	5/9/2019	N	0.0	0.3	-41.0	-41.0	-41.4	3.7	14	2.4	2.2	24	—	57	450	0.54	—	—		
BERTH09-SB	BERTH09-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-41.03	-41.03	-42.03	1.8	53	17	1.0	33	—	160	340	0.66	—	—		
BERTH09-SB	BERTH09-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-41.03	-42.03	-43.03	0.91	54	19	0.93	20	—	150	350	0.37	—	—		
BERTH09-SB	BERTH09-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-41.03	-43.03	-44.03	0.63	40	16	0.46	13	—	73	220	0.014	J	—		
BERTH09-SB	BERTH09-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-41.03	-45.03	-46.03	1.2	3.8	0.55	J	0.069	J	12	—	14	12	< 0.029	UJ	—
BERTH09-SB	BERTH09-SB-6TO7-190509	5/9/2019	N	6.0	7.0	-41.03	-47.03	-48.03	0.54	3.7	0.17	J	0.071	J	13	—	16	4.1	< 0.035	UJ	—
BERTH09-SB	BERTH09-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-41.03	-49.03	-50.03	0.91	2.9	< 0.21	U	< 0.41	U	11	—	12	1.6	< 0.025	UJ	—
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0.0	0.3	-41.0	-41.0	-41.3	1.7	6.2	0.81	0.21	J	19	—	42	32	0.17	—	—	
BERTH10-SB	BERTH10-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-40.95	-40.95	-41.95	1.1	1.9	< 0.081	U	< 0.16	U	8.9	—	8.8	5.6	< 0.042	U	—
BERTH10-SB	BERTH10-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-40.95	-41.95	-42.95	0.87	2.2	0.097	J	0.041	J	11	—	9.8	6.4	< 0.036	U	—
BERTH10-SB	BERTH10-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-40.95	-42.95	-43.95	1.3	3.0	0.21	J	0.090	J	11	—	14	14	0.029	J	—
BERTH10-SB	BERTH10-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-40.95	-44.95	-45.95	1.2	3.2	0.16	J	0.063	J	11	—	12	6.4	0.037	J	—
BERTH10-SB	BERTH10-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-40.95	-46.95	-47.95	0.60	3.3	0.10	J	0.084	J	13	—	17	2.5	0.061	J	—
BERTH10-SB	BERTH10-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-40.95	-48.95	-49.95	0.49	3.3	0.11	J	0.083	J	13	—	17	2.3	0.066	J	—
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0.0	0.3	-41.4	-41.4	-41.7	2.9	9.6	1.9	0.38	25	—	61	50	0.35	—	—		
BERTH11-SS	SSDJP01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0.0	0.33	-41.4	-41.4	-41.7	3.0	10	1.4	0.49	26	—	64	52	0.30	—	—		
BERTH11-SB	BERTH11-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-41.37	-41.37	-42.37	0.87	3.2	0.25	0.066	J	9.7	—	16	17	0.052	—	—	
BERTH11-SB	BERTH11-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-41.37	-42.37	-43.37	0.57	1.8	0.19	0.034	J	8.0	—	9.3	8.0	J	0.027	J	—
BERTH11-SB	BERTH11-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-41.37	-43.37	-44.37	0.7	2.8	0.21	J	0.046	J	11	—	13	10	< 0.027	UJ	—
BERTH11-SB	BERTH11-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-41.37	-45.37	-46.37	1.1	3.8	0.18	J	0.084	J	13	—	17	18	0.038	J	—
BERTH11-SB	BERTH11-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-41.37	-47.37	-48.37	1.8	4.0	0.28	J	0.098	J	14	—	20	25	0.054	J	—
BERTH11-SB	BERTH11-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-41.37	-50.37	-51.37	1.5	3.4	0.11	J	0.066	J	12	—	16	3.0	< 0.037	UJ	—
BERTH12-SS	BERTH12-SS-190423	4/23/2019	N	0.0	0.3	-34.5	-34.5	-34.8	4.3	35	6.9	0.87	39	—	170	160	0.54	—	—		
BERTH12-SB	BERTH12-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-34.5	-34.5	-35.5	4.6	56	14	1.4	50	—	210	270	1.0	—	—		
BERTH12-SB	BERTH12-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-34.5	-35.5	-36.5	3.1	79	17	2.7	J	62	J	270	J	430	0.89	—	—
BERTH12-SB	BERTH12-SB-2TO4-190425	4/25/2019	N	2.0	4.0	-34.5	-36.5	-38.5	1.7	54	13	0.89	19	—	180	200	1.2	J	—	—	
BERTH12-SB	BERTH12-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-34.5	-38.5	-39.5	5.6	97	23	1.9	38	—	320	350	0.79	J	—	—	
BERTH12-SB	BERTH12-SB-7TO7.9-190425	4/25/2019	N	7.0	7.9	-34.5	-41.5	-42.4	4.2	43	11	1.1	25	—	150	250	0.75	J	—	—	

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				Top	Bottom	Top of Core	Sample Top	Sample Bottom											
Remedial Action Level									—	57	—	—	—	—	—	—	0.41	—	—
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0.0	0.3	-31.7	-31.7	-32.1	9.4	15	1.7	0.82	25	—	81	53	0.28	—	—
PIER13-SB	PIER13-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-31.74	-31.74	-32.74	6.3	17	1.8	0.83	28	—	85	53	0.29	—	—
PIER13-SB	PIER13-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-31.74	-32.74	-33.74	6.3	30	3.3	1.9	62	—	140	190	0.54	—	—
PIER13-SB	PIER13-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-31.74	-33.74	-34.74	11	19	3.1	0.93	25	—	80	70	0.33	J	—
PIER13-SB	PIER13-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-31.74	-35.74	-36.74	9.9	32	9.1	2.0	48	—	170	170	0.66	J	—
PIER13-SB	PIER13-SB-7TO7.8-190425	4/25/2019	N	7.0	7.8	-31.74	-38.74	-39.54	14	73	23	2.9	77	—	290	460	1.3	J	—
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0.0	0.3	-21.7	-21.7	-22.1	15	23	4.9	J 1.5	42	—	150	110	0.45	—	—
PIER14-SB	PIER14-SB-0TO1-190425	4/25/2019	N	0.0	1.0	-21.72	-21.72	-22.72	9.4	65	22	1.8	54	—	270	400	0.63	—	—
PIER14-SB	PIER14-SB-1TO2-190425	4/25/2019	N	1.0	2.0	-21.72	-22.72	-23.72	11	170	61	4.9	110	—	630	1200	1.5	—	—
PIER14-SB	PIER14-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-21.72	-23.72	-24.72	12	310	98	4.1	64	—	1000	1100	2.2	J	—
PIER14-SB	PIER14-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-21.72	-25.72	-26.72	11	16	3.3	1.2	26	—	76	190	0.88	J	—
PIER14-SB	PIER14-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-21.72	-27.72	-28.72	25	36	18	2.9	32	—	170	850	1.9	J	—
PIER14-SB	PIER14-SB-7TO8-190425	4/25/2019	N	7.0	8.0	-21.72	-28.72	-29.72	8.5	—	—	—	—	—	—	—	—	—	—
PIER14-SB	PIER14-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-21.72	-30.72	-31.72	9.8	49	18	1.6	33	—	180	640	1.2	J	—
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0.0	0.3	-32.9	-32.9	-33.2	8.8	14	1.8	0.67	25	—	82	54	0.29	—	—
PIER15-SB	PIER15-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-32.89	-32.89	-33.89	5.9	13	3.7	1.5	27	—	85	170	1.2	—	—
PIER15-SB	PIER15-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-32.89	-33.89	-34.89	2.7	12	2.2	0.62	19	—	54	110	0.52	—	—
PIER15-SB	PIER15-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-32.89	-34.89	-35.89	2.8	7.8	1.4	0.27	18	—	35	53	0.17	J	—
PIER15-SB	PIER15-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-32.89	-36.89	-37.89	9.3	12	2.5	1.0	21	—	54	680	0.78	J	—
PIER15-SB	PIER15-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-32.89	-38.89	-39.89	2.2	3.6	0.31	J 0.10	J 13	—	18	27	0.045	J	—
PIER15-SB	PIER15-SB-7TO8-190426	4/26/2019	N	7.0	8.0	-32.89	-39.89	-40.89	0.7	—	—	—	—	—	—	—	—	—	—
PIER15-SB	PIER15-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-32.89	-41.89	-42.89	1.3	3.0	0.10	J 0.063	J 12	—	17	5.5	0.030	J	—
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0.0	0.3	-22.9	-22.9	-23.3	13	25	3.8	1.1	42	—	160	110	0.50	—	—
PIER16-SB	PIER16-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-22.94	-22.94	-23.94	9.9	31	4.8	1.6	43	—	170	130	0.63	—	—
PIER16-SB	PIER16-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-22.94	-23.94	-24.94	12	46	13	2.7	58	—	280	400	1.1	—	—
PIER16-SB	PIER16-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-22.94	-24.94	-25.94	17	37	8.4	2.0	59	—	230	250	1.4	J	—
PIER16-SB	PIER16-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-22.94	-26.94	-27.94	8.4	79	25	5.0	60	—	310	610	0.93	J	—
PIER16-SB	PIER16-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-22.94	-28.94	-29.94	9.7	18	5.2	0.92	27	—	77	210	0.59	J	—
PIER16-SB	PIER16-SB-7TO8-190425	4/25/2019	N	7.0	8.0	-22.94	-29.94	-30.94	3.7	—	—	—	—	—	—	—	—	—	—
PIER16-SB	PIER16-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-22.94	-31.94	-32.94	2.9	7.3	1.0	0.35	17	—	37	120	0.19	J	—
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0.0	0.3	-22.3	-22.3	-22.6	6.1	25	5.1	0.96	42	—	150	110	0.72	—	—
PIER17-SB	PIER17-SB-0TO2-190426	4/26/2019	N	0.0	2.0	-22.27	-22.27	-24.27	23	150	56	3.4	50	—	440	1700	1.4	J	—
PIER17-SB	PIER17-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-22.27	-24.27	-25.27	10	17	6.6	0.87	21	—	60	640	0.61	J	—
PIER17-SB	PIER17-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-22.27	-26.27	-27.27	5.8	9.2	3.0	0.36	14	—	34	130	0.18	J	—
PIER17-SB	PIER17-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-22.27	-28.27	-29.27	3.3	8.6	1.3	0.95	19	—	46	100	0.34	J	—
PIER17-SB	PIER17-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-22.27	-31.27	-32.27	2.6	5.5	0.77	0.15	J 14	—	24	41	0.013	J	—
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0.0	0.3	-25.3	-25.3	-25.6	8.7	22	4.3	J 0.92	41	—	150	98	0.30	—	—
PIER18-SS	SSDJP02-190424 (PIER18-SS-190424)	4/24/2019	FD	0.0	0.3	-25.3	-25.3	-25.6	7.5	21	2.4	J 1.2	37	—	140	84	0.47	—	—
PIER18-SB	PIER18-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-25.3	-25.3	-26.3	7.7	18	3.2	0.90	30	—	110	84	0.33	—	—
PIER18-SB	PIER18-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	13	43	15	2.2	69	—	230	360	1.1	—	—
PIER18-SB	PIER18-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-25.3	-27.3	-28.3	4.8	—	—	—	—	—	—	—	—	—	—
PIER18-SB	PIER18-SB-4TO5.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	15	41	13	2.1	43	—	170	390	1.4	J	—
PIER18-SB	PIER18-SB-6.5TO8-190425	4/25/2019	N	6.5	8.0	-25.3	-31.8	-33.3	0.29	4.1	0.55	0.098	J 11	—	14	16	0.042	J	—
PIER18-SB	PIER18-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-25.3	-34.3	-35.3	1.3	3.3	0.21	J 0.25	12	—	18	5.0	0.020	J	—

Table 4
Metals and Tributyltin Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	Arsenic mg/kg dw	Antimony mg/kg dw	Cadmium mg/kg dw	Chromium mg/kg dw	Cobalt mg/kg dw	Copper mg/kg dw	Lead mg/kg dw	Mercury mg/kg dw	Molybdenum mg/kg dw	Nickel mg/kg dw	
				Top	Bottom	Top of Core	Sample Top	Sample Bottom												
Remedial Action Level									—	57	—	—	—	—	—	—	0.41	—	—	
PIER19-SS	PIER19-SS-190423	4/23/2019	N	0.0	0.3	-34.8	-34.8	-35.1	5.1	12	2.2	0.46	37	—	59	38	0.16	—	—	
PIER19-SB	PIER19-SB-0TO2-190426	4/26/2019	N	0.0	2.0	-34.78	-34.78	-36.78	5.9	63	18	1.7	44	—	190	280	1.1	J	—	
PIER19-SB	PIER19-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.78	-36.78	-37.78	6.0	200	37	3.6	40	—	260	2200	0.88	J	—	
PIER19-SB	PIER19-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.78	-38.78	-39.78	2.8	13	3.8	0.38	14	—	35	130	0.17	J	—	
PIER19-SB	PIER19-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.78	-40.78	-41.78	1.9	5.5	0.81	0.14	13	—	21	150	0.042	J	—	
PIER19-SB	PIER19-SB-7TO8-190426	4/26/2019	N	7.0	8.0	-34.78	-41.78	-42.78	0.86	—	—	—	—	—	—	—	—	—	—	
PIER19-SB	PIER19-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.78	-43.78	-44.78	1.0	3.1	0.26	J	12	—	13	66	0.054	J	—	
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0.0	0.3	-19.4	-19.4	-19.7	6.0	12	1.3	0.51	24	—	70	40	0.21	—	—	
PIER20-SB	PIER20-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-19.38	-19.38	-20.38	5.9	50	13	1.7	56	—	190	290	0.81	—	—	
PIER20-SB	SBDUP03-190510 (PIER20-SB-0TO1-190510)	5/10/2019	FD	0.0	1.0	-19.38	-19.38	-20.38	5.9	58	11	1.3	50	—	180	270	0.85	—	—	
PIER20-SB	PIER20-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.38	-20.38	-21.38	19	20	5.5	3.3	73	—	160	300	1.5	—	—	
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0.0	0.5	-37.7	-37.7	-38.2	1.3	6.2	0.69	0.17	J	21	—	33	24	0.19	—	
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0.0	0.5	-39.8	-39.8	-40.2	2.2	6.6	0.67	0.14	J	26	—	42	28	0.21	—	
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0.0	0.7	-33.2	-33.2	-33.9	2.1	5.8	0.66	0.24	J	21	—	37	22	0.14	J	
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0.0	0.3	-19.7	-19.7	-20.0	2.0	6.5	1.9	0.18	15	—	23	22	0.097	—	—	
PIER24-SB	PIER24-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-19.67	-19.67	-20.67	1.7	10	2.7	0.34	20	—	37	38	0.093	—	—	
PIER24-SB	PIER24-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.67	-20.67	-21.67	2.0	6.3	0.76	0.29	22	—	33	33	0.19	—	—	
PIER24-SB	PIER24-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-19.67	-21.67	-22.67	3.7	7.8	2.1	0.48	21	—	45	60	0.18	J	—	
PIER24-SB	PIER24-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-19.67	-23.67	-24.67	9.0	22	4.4	4.9	100	—	160	330	2.2	J	—	
PIER24-SB	PIER24-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-19.67	-26.67	-26.67	7.7	19	3.2	4.9	44	—	120	490	0.52	J	—	
EW10-SC57	EW10-SC57-0-2	3/2/2010	N	0.0	2.0	-40.8	-40.8	-42.8	0.65	10.2	< 6	UJ	0.5	16.9	—	48.7	80	0.17	—	
EW10-SC57	EW10-SC57-2-4	3/2/2010	N	2.0	4.0	-40.8	-42.8	-44.8	0.26	1.6	< 6	UJ	< 0.2	U	10.0	—	7.9	< 2	U	
EW10-SC58	EW10-SC58-0-1.8	3/2/2010	N	0.0	1.8	-34.7	-34.7	-36.5	1.30	56.7	< 10	UJ	3.5	90	—	442	434	1.23	—	
EW10-SC58	EW10-SC58-1.8-4	3/2/2010	N	1.8	4.0	-34.7	-36.5	-38.7	1.27	4.7	< 6	UJ	0.40	17.3	—	46.8	50	0.19	—	
EW10-SC58	EW10-SC58-6-8	3/2/2010	N	6.0	8.0	-34.7	-40.7	-42.7	0.608	—	—	—	—	—	—	—	—	—	—	
EW10-SC59	EW10-SC59-0-2	3/2/2010	N	0.0	2.0	-41	-41	-43	0.95	2.4	< 6	UJ	< 0.2	U	11.7	—	14.7	16	< 0.02	U
EW10-SC59	EW10-SC59-2-4	3/2/2010	N	2.0	4.0	-41	-43	-45	0.47	3.2	< 7	UJ	< 0.3	U	14.7	—	19.9	< 3	U	
EW10-SC60	EW10-SC60-0-0.8	3/2/2010	N	0.0	0.8	-42.3	-42.3	-43.1	0.68	12.1	< 7	UJ	0.7	24.5	—	60.8	70	0.69	—	
EW10-SC60	EW10-SC60-0.8-3	3/2/2010	N	0.8	3	-42.3	-43.1	-45.3	1.7	3.0	< 7	UJ	< 0.3	U	11.9	—	16.1	7	0.03	
EW10-SC61	EW10-SC61-0-1	3/2/2010	N	0	1	-42.3	-42.3	-43.3	0.924	8.0	< 7	UJ	0.5	27.0	6.7	47.2	44	0.27	1.4	
EW10-SC61	EW10-SC61-1-3	3/2/2010	N	1	3	-42.3	-43.3	-45.3	1.2	4.7	< 6	UJ	0.3	18.3	5.5	25.7	13	0.07	1.1	
EW09-SS-213	EW09-SS-213-010	6/22/2009	N	0.0	0.5	-34.7	-34.7	-35.2	1.74	8.4	< 8	UJ	0.6	21.7	5.8	J	63.8	J	81	
EW09-SS-214	EW09-SS-214-010	6/22/2009	N	0.0	0.5	-41.5	-41.5	-42.1	1.09	10.1	< 7	UJ	0.5	20.6	5.1	J	50.8	J	66	
EW09-SS-215	EW09-SS-215-010	6/22/2009	N	0.0	0.4	-40.9	-40.9	-41.3	3.37	26.2	< 10	UJ	1.3	69	12.0	J	272	J	171	
36B-01	36B-01	11/17/2014	N	0.0	0.3	-37.0	-37.0	-37.3	2.12	30	< 10	UJ	1.8	43	J	—	144	102	J	
36B-02	36B-02	11/17/2014	N	0.0	0.3	-25.0	-25.0	-25.3	3.61	30	< 10	UJ	1.8	43	J	—	158	106	J	
36B-03	36B-03	11/17/2014	N	0.0	0.3	-34.0	-34.0	-34.3	3.64	50	< 10	UJ	1.5	37	J	—	189	177	J	
36B-04	36B-04	11/17/2014	N	0.0	0.3	-24.0	-24.0	-24.3	4.55	J	50	< 10	UJ	1.6	39	J	—	185	157	J
36B-04	36B-24 (36B-04)	11/17/2014	FD	0.0	0.3	-24.0	-24.0	-24.3	2.64	J	40	< 10	UJ	1.6	47	J	—	186	139	J
36B-05	36B-05	11/17/2014	N	0.0	0.3	-36.0	-36.0	-36.3	2.79	—	250	40	J	2.3	179	J	—	509	1180	J
36B-06	36B-06	11/17/2014	N	0.0	0.3	-28.0	-28.0	-28.3	2.47	—	50	< 10	UJ	1.7	48	J	—	235	179	J
36B-07	36B-07	11/17/2014	N	0.0	0.3	-38.0	-38.0	-38.3	2.80	—	20	< 10	UJ	1	33	J	—	112	86	J
36B-08	36B-08	11/17/2014	N	0.0	0.3	-28.0	-28.0	-28.3	6.15	—	20	< 10	UJ	1.2	35	J	—	118	80	J

Table 4
Metals and Tributyltin Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Selenium mg/kg dw	Silver mg/kg dw	Thallium mg/kg dw	Vanadium mg/kg dw	Zinc mg/kg dw	Dibutyltin µg/kg dw	Monobutyltin µg/kg dw	Tributyltin as ion		Tributyltin		
				Top	Bottom	Top of Core	Sample Top	Sample Bottom								µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	
				Remedial Action Level												—	—	—	—	—
EECA01	EECA01-SS-011222	1/12/2022	N	0.0	0.4	-39.7	-39.7	-40.1	—	—	—	—	70	J	—	—	—	< 12	U	< 1.1
EECA01	EECA01-SC-011222	1/12/2022	N	0.4	3.3	-39.7	-40.1	-43.0	1.2	0.14	—	—	—	—	—	—	—	—	—	—
EECA01	EECA01-43TO44-011222	1/12/2022	N	3.3	4.3	-39.7	-43.0	-44.0	—	—	—	—	4.9	J	—	—	—	< 9.7	U	< 3.1
EECA01	EECA01-44TO45-011222	1/12/2022	N	4.3	5.3	-39.7	-44.0	-45.0	—	—	—	—	—	—	—	—	—	—	—	—
EECA02	EECA02-SC-010722	1/7/2022	N	0.0	1.2	-41.8	-41.8	-43.0	0.86	0.038	J	—	—	—	—	—	—	—	—	—
EECA02	EECA02-43TO44-010722	1/7/2022	N	1.2	2.2	-41.8	-43.0	-44.0	—	—	—	—	18	J	—	—	—	4.6	J	0.70
EECA02	EECA02-44TO45-010722	1/7/2022	N	2.2	3.2	-41.8	-44.0	-45.0	—	—	—	—	19	J	—	—	—	< 10	U	< 1.4
EECA03	EECA03-SC-010822	1/8/2022	N	0.0	2.1	-40.9	-40.9	-43.0	1.3	0.030	J	—	—	—	—	—	—	—	—	—
EECA03	EECA03-43TO44-010822	1/8/2022	N	2.1	3.1	-40.9	-43.0	-44.0	—	—	—	—	20	—	—	—	—	< 9.2	U	< 9.2
EECA03	EECA03-44TO45-010822	1/8/2022	N	3.1	4.1	-40.9	-44.0	-45.0	—	—	—	—	21	—	—	—	—	< 9.2	U	< 3.5
EECA04	EECA04-SC-010922	1/9/2022	N	0.0	1.8	-41.2	-41.2	-43.0	1.4	0.036	J	—	—	—	—	—	—	—	—	—
EECA04	EECA04-43TO44-010922	1/9/2022	N	1.8	2.8	-41.2	-43.0	-44.0	—	—	—	—	30	—	—	—	—	< 11	U	< 1.6
EECA04	EECA04-44TO45-010922	1/9/2022	N	2.8	3.8	-41.2	-44.0	-45.0	—	—	—	—	32	—	—	—	—	< 11	U	< 1.4
EECA05	EECA05-SC-011222	1/12/2022	N	0.0	2.2	-40.8	-40.8	-43.0	1.2	0.042	J	—	—	—	—	—	—	—	—	—
EECA05	EECA05-43TO44-011222	1/12/2022	N	2.2	3.2	-40.8	-43.0	-44.0	—	—	—	—	22	J	—	—	—	< 10	U	< 1.5
EECA05	EECA05-44TO45-011222	1/12/2022	N	3.2	4.2	-40.8	-44.0	-45.0	—	—	—	—	23	J	—	—	—	< 10	U	< 1.2
EECA06	EECA06-SC-011222	1/12/2022	N	0.0	12.3	-30.7	-30.7	-43.0	1.4	0.56	—	—	—	—	—	—	—	—	—	—
EECA06	EECA06-43TO44-011222	1/12/2022	N	12.3	13.3	-30.7	-43.0	-44.0	—	—	—	—	20	J	—	—	—	< 9.1	U	< 2.1
EECA06	EECA06-44TO45-011222	1/12/2022	N	13.3	14.3	-30.7	-44.0	-45.0	—	—	—	—	23	J	—	—	—	< 9.4	U	< 2.1
EECA07	EECA07-SC-010822	1/8/2022	N	0.0	1.4	-41.6	-41.6	-43.0	1.2	0.025	J	—	—	—	—	—	—	—	—	—
EECA07	EECA07-43TO44-010822	1/8/2022	N	1.4	2.4	-41.6	-43.0	-44.0	—	—	—	—	21	—	—	—	—	< 9.5	U	< 3.4
EECA07	EECA07-44TO45-010822	1/8/2022	N	2.4	3.4	-41.6	-44.0	-45.0	—	—	—	—	25	—	—	—	—	< 10	U	< 2.1
EECA08	EECA08-SC-010822	1/8/2022	N	0.0	1.1	-41.9	-41.9	-43.0	1.1	0.030	J	—	—	—	—	—	—	—	—	—
EECA08	EECA08-43TO44-010822	1/8/2022	N	1.1	2.1	-41.9	-43.0	-44.0	—	—	—	—	21	—	—	—	—	< 11	U	< 3.0
EECA08	EECA08-44TO45-010822	1/8/2022	N	2.1	3.1	-41.9	-44.0	-45.0	—	—	—	—	21	—	—	—	—	< 10	U	< 3.8
EECA09	EECA09-SC-010922	1/9/2022	N	0.0	2.5	-40.5	-40.5	-43.0	1.1	0.022	J	—	—	—	—	—	—	—	—	—
EECA09	EECA09-43TO44-010922	1/9/2022	N	2.5	3.5	-40.5	-43.0	-44.0	—	—	—	—	20	—	—	—	—	< 9.7	U	< 2.5
EECA09	EECA09-44TO45-010922	1/9/2022	N	3.5	4.5	-40.5	-44.0	-45.0	—	—	—	—	22	—	—	—	—	< 10	U	< 1.8
EECA10	EECA10-SC-011122	1/11/2022	N	0.0	2.4	-40.6	-40.6	-43.0	0.83	0.013	J	—	—	—	—	—	—	—	—	—
EECA10	EECA10-43TO44-011122	1/11/2022	N	2.4	3.4	-40.6	-43.0	-44.0	—	—	—	—	19	J	—	—	—	< 9.3	U	< 0.78
EECA10	EECA10-44TO45-011122	1/11/2022	N	3.4	4.4	-40.6	-44.0	-45.0	—	—	—	—	20	J	—	—	—	< 9.6	U	< 0.80
EECA11	EECA11-SC-011122	1/11/2022	N	0.0	8.5	-34.5	-34.5	-43.0	1.4	0.44	—	—	—	—	—	—	—	—	—	—
EECA11	EECA11-43TO44-011122	1/11/2022	N	8.5	9.5	-34.5	-43.0	-44.0	—	—	—	—	21	J	—	—	—	< 9.7	U	< 2.5
EECA11	EECA11-44TO45-011122	1/11/2022	N	9.5	10.5	-34.5	-44.0	-45.0	—	—	—	—	22	J	—	—	—	< 9.2	U	< 2.8
EECA12	EECA12-SS-011022	1/10/2022	N	0.0	0.40	-36.7	-36.7	-37.1	—	—	—	—	69	—	—	—	—	< 12	U	< 0.67
EECA12	EECA12-SC-011022	1/10/2022	N	0.40	6.3	-36.7	-37.1	-43.0	0.78	0.17	—	—	—	—	—	—	—	—	—	—
EECA12	EECA12-43TO44-011022	1/10/2022	N	6.3	7.3	-36.7	-43.0	-44.0	—	—	—	—	16	—	—	—	—	< 9.1	U	< 25
EECA13	EECA13-SC-010622	1/6/2022	N	0.0	1.6	-41.4	-41.4	-43.0	0.96	0.19	—	—	—	—	—	—	—	—	—	—
EECA13	EECA13-43TO44-010622	1/6/2022	N	1.6	2.6	-41.4	-43.0	-44.0	—	—	—	—	13	J	—	—	—	—	—	—
EECA13	EECA13-44TO45-010622	1/6/2022	N	2.6	3.6	-41.4	-44.0	-45.0	—	—	—	—	15	J	—	—	—	—	—	—

Table 4
Metals and Tributyltin Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Selenium mg/kg dw	Silver mg/kg dw	Thallium mg/kg dw	Vanadium mg/kg dw	Zinc mg/kg dw	Dibutyltin µg/kg dw	Monobutyltin µg/kg dw	Tributyltin as ion		Tributyltin		
				Top	Bottom	Top of Core	Sample Top	Sample Bottom								µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	
				Remedial Action Level												—	—	—	—	—
EECA14	EECA14-SC-010622	1/6/2022	N	0.0	1.3	-41.7	-41.7	-43.0	0.93	0.051	J	—	—	—	—	—	—	—	—	
EECA14	EECA14-43TO44-010622	1/6/2022	N	1.3	2.3	-41.7	-43.0	-44.0	—	—	—	—	600	—	—	—	—	—	—	
EECA14	EECA14-44TO45-010622	1/6/2022	N	2.3	3.3	-41.7	-44.0	-45.0	—	—	—	—	20	—	—	—	—	—	—	
EECA14	EECA14-45TO46-010622	1/6/2022	N	3.3	4.3	-41.7	-45.0	-46.0	—	—	—	—	18	—	—	—	—	—	—	
EECA14	EECA14-46TO47-010622	1/6/2022	N	4.3	5.3	-41.7	-46.0	-47.0	—	—	—	—	24	—	—	—	—	—	—	
EECA14	EECA14-47TO48-010622	1/6/2022	N	5.3	6.3	-41.7	-47.0	-48.0	—	—	—	—	26	—	—	—	—	—	—	
EECA14	EECA14-48TO49-010622	1/6/2022	N	6.3	7.3	-41.7	-48.0	-49.0	—	—	—	—	14	J	—	—	—	—	—	
EECA14	EECA14-49TO50-010622	1/6/2022	N	7.3	8.3	-41.7	-49.0	-50.0	—	—	—	—	11	J	—	—	—	—	—	
EECA15	EECA15-SC-010522	1/5/2022	N	0.0	2.8	-40.2	-40.2	-43.0	1.1	0.015	J	—	—	—	—	—	—	—	—	
EECA15	EECA15-43TO44-010522	1/5/2022	N	2.8	3.8	-40.2	-43.0	-44.0	—	—	—	—	22	—	—	—	—	—	—	
EECA15	DUP01-010522 (EECA15-43TO44-010522)	1/5/2022	FD	2.8	3.8	-40.2	-43.0	-44.0	—	—	—	—	22	—	—	—	—	—	—	
EECA15	EECA15-44TO45-010522	1/5/2022	N	3.8	4.8	-40.2	-44.0	-45.0	—	—	—	—	—	—	—	—	—	—	—	
EECA15	EECA15-48TO49-010522	1/5/2022	N	7.8	8.8	-40.2	-48.0	-49.0	—	—	—	—	23	—	—	—	—	—	—	
EECA15	EECA15-49TO50-010522	1/5/2022	N	8.8	9.8	-40.2	-49.0	-50.0	—	—	—	—	21	—	—	—	—	—	—	
EECA16	EECA16-SC-011122	1/11/2022	N	0.0	4.4	-38.6	-38.6	-43.0	1.0	0.021	J	—	—	—	—	—	—	—	—	
EECA16	EECA16-43TO44-011122	1/11/2022	N	4.2	5.2	-38.8	-43.0	-44.0	—	—	—	—	23	J	—	—	—	< 9.3	U	< 1.3
EECA16	DUP12-011122 (EECA16-43TO44-011122)	1/11/2022	FD	4.2	5.2	-38.8	-43.0	-44.0	—	—	—	—	24	J	—	—	—	< 9.9	U	< 1.4
EECA16	EECA16-44TO45-011122	1/11/2022	N	5.2	6.2	-38.8	-44.0	-45.0	—	—	—	—	24	J	—	—	—	< 10	U	< 1.7
EECA17	EECA17-SC-010722	1/7/2022	N	0.0	5.2	-37.8	-37.8	-43.0	0.73	0.27	—	—	—	—	—	—	—	—	—	
EECA17	EECA17-43TO44-010722	1/7/2022	N	5.2	6.2	-37.8	-43.0	-44.0	—	—	—	—	11	J	—	—	—	< 9.3	U	< 1.7
EECA17	EECA17-44TO45-010722	1/7/2022	N	6.2	7.2	-37.8	-44.0	-45.0	—	—	—	—	16	J	—	—	—	< 9.4	U	< 2.4
EECA18	EECA18-SS-011322	1/13/2022	N	0.0	0.4	-41.5	-41.5	-41.9	—	—	—	—	58	—	—	—	—	< 10	U	< 1.0
EECA18	EECA18-43TO44-011322	1/13/2022	N	1.5	2.5	-41.5	-43.0	-44.0	—	—	—	—	100	—	—	—	—	< 10	U	< 0.63
EECA18	EECA18-44TO45-011322	1/13/2022	N	2.5	3.5	-41.5	-44.0	-45.0	—	—	—	—	—	—	—	—	—	—	—	—
EECA18	EECA18-45TO46-011322	1/13/2022	N	3.5	4.5	-41.5	-45.0	-46.0	—	—	—	—	—	—	—	—	—	—	—	—
EECA18	EECA18-46TO47-011322	1/13/2022	N	4.5	5.5	-41.5	-46.0	-47.0	—	—	—	—	—	—	—	—	—	—	—	—
EECA19	EECA19-SS-010922	1/9/2022	N	0.0	0.4	-40.1	-40.1	-40.5	—	—	—	—	49	—	—	—	—	< 9.7	U	< 2.0
EECA19	EECA19-43TO44-010922	1/9/2022	N	2.9	3.9	-40.1	-43.0	-44.0	—	—	—	—	42	—	—	—	—	< 10	U	< 1.1
BERTH01-SB	BERTH01-SS-190423	4/23/2019	N	0.0	0.3	-34.9	-34.9	-35.3	1.6	1.6	—	—	180	—	—	—	—	9.7	J	0.19
BERTH01-SB	BERTH01-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-34.94	-34.94	-35.94	3.0	24	—	—	900	—	—	—	—	78	—	0.84
BERTH01-SB	BERTH01-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-34.94	-35.94	-36.94	2.1	8.1	—	—	390	—	—	—	—	120	—	1.3
BERTH01-SB	SBDUP-01-190426 (BERTH01-SB-1TO2-190426)	4/26/2019	FD	1.0	2.0	-34.94	-35.94	-36.94	2.1	7.5	—	—	380	—	—	—	—	120	—	1.4
BERTH01-SB	BERTH01-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.94	-36.94	-37.94	0.77	2.0	J	—	230	J	—	—	—	< 10	U	< 0.12
BERTH01-SB	BERTH01-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.94	-38.94	-39.94	0.70	2.1	—	—	590	—	—	—	—	< 10	U	< 0.16
BERTH01-SB	BERTH01-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.94	-40.94	-41.94	< 0.49	U	0.096	J	—	58	—	—	—	—	—	—
BERTH01-SB	BERTH01-SB-7TO8-190426	4/26/2019	N	7.0	8.0	-34.94	-41.94	-42.94	—	—	—	—	—	—	—	—	—	13	—	0.81
BERTH01-SB	BERTH01-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.94	-43.94	-44.94	0.34	J	0.063	J	—	32	—	—	—	< 9.2	U	< 0.30

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				Top	Bottom	Top of Core	Sample Top	Sample Bottom								µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC
				Remedial Action Level												--	--	--	--
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0.0	0.3	-42.2	-42.2	-42.5	1.7	1.7	--	--	170	--	--	--	--	18	0.24
BERTH02-SB	BERTH02-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-42.19	-42.19	-43.19	0.87	0.31	--	--	53	--	--	--	--	7.6	J 0.89
BERTH02-SB	BERTH02-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-42.19	-43.19	-44.19	0.76	0.13	--	--	35	--	--	--	--	< 10	U < 1.6
BERTH02-SB	BERTH02-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-42.19	-44.19	-45.19	0.31	J 0.042	J	--	27	--	--	--	--	< 9.1	U < 1.4
BERTH02-SB	BERTH02-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-42.19	-46.19	-47.19	0.36	J 0.032	J	--	24	--	--	--	--	< 9.3	U < 0.58
BERTH02-SB	BERTH02-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-42.19	-48.19	-49.19	0.34	J 0.037	J	--	23	--	--	--	--	--	--
BERTH02-SB	BERTH02-SB-7TO8-190426	4/26/2019	N	7.0	8.0	-42.19	-49.19	-50.19	--	--	--	--	--	--	--	--	--	< 10	U < 2.9
BERTH02-SB	BERTH02-SB-9TO10-190426	4/28/2019	N	9.0	10.0	-42.19	-51.19	-52.19	0.35	J 0.020	J	--	22	--	--	--	--	< 10	U < 1.0
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0.0	0.33	-39.6	-39.6	-39.9	1.1	0.39	--	--	100	--	--	--	--	6.2	J 0.23
BERTH03-SB	BERTH03-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-39.55	-39.55	-40.55	0.45	J 0.23	--	--	60	--	--	--	--	7.6	J 1.1
BERTH03-SB	BERTH03-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-39.55	-40.55	-41.55	0.50	0.24	--	--	120	--	--	--	--	11	1.1
BERTH03-SB	BERTH03-SB-2TO3-190429	4/29/2019	N	2.0	3.0	-39.55	-41.55	-42.55	0.40	J 0.23	--	--	93	--	--	--	--	< 10	U < 0.44
BERTH03-SB	BERTH03-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-39.55	-43.55	-44.55	0.36	J 0.029	J	--	24	--	--	--	--	< 9.7	U < 0.75
BERTH03-SB	BERTH03-SB-6TO7-190429	4/29/2019	N	6.0	7.0	-39.55	-45.55	-46.55	0.43	J 0.03	J	--	24	--	--	--	--	< 9.6	U < 1.6
BERTH03-SB	BERTH03-SB-8TO9-190429	4/29/2019	N	8.0	9.0	-39.55	-47.55	-48.55	0.61	J 0.045	J	--	30	--	--	--	--	< 10	U < 0.71
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0.0	0.33	-42.2	-42.2	-42.5	0.93	0.27	--	--	69	--	--	--	--	3.4	J 0.16
BERTH04-SS	SSDUP03-190508 (BERTH04-SS-190508)	5/8/2019	FD	0.0	0.33	-42.2	-42.2	-42.5	0.82	0.31	--	--	70	--	--	--	--	< 12	U < 0.92
BERTH04-SB	BERTH04-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-42.17	-42.17	-43.17	0.70	0.17	--	--	32	--	--	--	--	< 10	U < 0.77
BERTH04-SB	BERTH04-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-42.17	-43.17	-44.17	0.59	0.046	J	--	25	--	--	--	--	< 10	U < 1.2
BERTH04-SB	BERTH04-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-42.17	-44.17	-45.17	0.46	J 0.042	J	--	27	--	--	--	--	--	--
BERTH04-SB	BERTH04-SB-3TO4-190509	5/9/2019	N	3.0	4.0	-42.17	-45.17	-46.17	0.39	J 0.020	J	--	23	--	--	--	--	--	--
BERTH04-SB	SBDUP02-190509 (BERTH04-SB-3TO4-190509)	5/9/2019	FD	3.0	4.0	-42.17	-45.17	-46.17	< 0.47	U 0.017	J	--	23	--	--	--	--	--	--
BERTH04-SB	BERTH04-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-42.17	-46.17	-47.17	< 0.43	U 0.023	J	--	22	--	--	--	--	--	--
BERTH04-SB	BERTH04-SB-6TO7.5-190509	5/9/2019	N	6.0	7.5	-42.17	-48.17	-49.67	0.39	J 0.018	J	--	21	--	--	--	--	--	--
BERTH04-SB	BERTH04-SB-8.5TO9.5-190509	5/9/2019	N	8.5	9.5	-42.17	-50.67	-51.67	0.42	J 0.035	J	--	26	--	--	--	--	--	--
BERTH05-SS	BERTH05-SS-190508	5/8/2019	N	0.0	0.3	-39.7	-39.7	-40.0	0.83	0.24	--	--	84	--	--	--	--	3.4	J 0.17
BERTH05-SB	BERTH05-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-39.65	-39.65	-40.65	0.57	0.23	--	--	53	--	--	--	--	9.3	J 0.49
BERTH05-SB	BERTH05-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-39.65	-40.65	-41.65	0.56	0.19	--	--	27	--	--	--	--	< 9.6	U < 1.0
BERTH05-SB	BERTH05-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-39.65	-41.65	-42.65	0.42	J 0.031	J	--	26	--	--	--	--	--	--
BERTH05-SB	BERTH05-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-39.65	-43.65	-44.65	< 0.45	U 0.014	J	--	19	--	--	--	--	--	--
BERTH05-SB	BERTH05-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-39.65	-45.65	-46.65	< 0.43	U 0.015	J	--	19	--	--	--	--	--	--
BERTH05-SB	BERTH05-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-39.65	-47.65	-48.65	< 0.52	U 0.014	J	--	20	--	--	--	--	--	--
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0.0	0.3	-40.6	-40.6	-40.9	0.71	0.17	--	--	49	--	--	--	--	7.2	J 0.16
BERTH06-SB	BERTH06-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-40.59	-40.59	-41.59	0.50	J 0.16	--	--	48	--	--	--	--	3.0	J 0.068
BERTH06-SB	BERTH06-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-40.59	-41.59	-42.59	0.76	0.53	--	--	100	--	--	--	--	13	0.41
BERTH06-SB	BERTH06-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-40.59	-42.59	-43.59	0.50	J 0.63	--	--	120	--	--	--	--	--	--
BERTH06-SB	BERTH06-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-40.59	-44.59	-45.59	< 0.56	U 0.050	J	--	30	--	--	--	--	--	--
BERTH06-SB	BERTH06-SB-7TO8-190510	5/10/2019	N	7.0	8.0	-40.59	-47.59	-48.59	0.55	J 0.040	J	--	31	--	--	--	--	--	--
BERTH06-SB	BERTH06-SB-8TO8.5-190510	5/10/2019	N	8.0	8.5	-40.59	-48.59	-49.09	0.42	J 0.038	J	--	27	--	--	--	--	--	--

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Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Selenium mg/kg dw	Silver mg/kg dw	Thallium mg/kg dw	Vanadium mg/kg dw	Zinc mg/kg dw	Dibutyltin µg/kg dw	Monobutyltin µg/kg dw	Tributyltin as ion		Tributyltin	
				Top	Bottom	Top of Core	Sample Top	Sample Bottom								µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC
				Remedial Action Level												--	--	--	--
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0.0	0.3	-43.5	-43.5	-43.8	0.85	0.23	--	--	64	--	--	--	9.3	J	0.58
BERTH07-SB	BERTH07-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-43.49	-43.49	-44.49	0.77	J 0.49	--	--	360	--	--	--	34	--	0.49
BERTH07-SB	BERTH07-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-43.49	-44.49	-45.49	0.48	J 0.56	--	--	430	--	--	--	21	--	0.47
BERTH07-SB	BERTH07-SB-2TO3.5-190429	4/29/2019	N	2.0	3.5	-43.49	-45.49	-46.99	0.67	J 0.71	--	--	450	--	--	--	--	--	--
BERTH07-SB	BERTH07-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-43.49	-47.49	-48.49	0.50	J 0.13	--	--	90	--	--	--	--	--	--
BERTH08-SS	BERTH08-SS-190508	5/8/2019	N	0.0	0.3	-39.9	-39.9	-40.2	0.80	0.23	--	--	64	--	--	--	89	--	5.2
BERTH08-SB	BERTH08-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-39.9	-39.9	-40.9	0.35	J 0.078	J	--	26	--	--	--	< 9.8	U	< 1.7
BERTH08-SB	BERTH08-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	0.38	J 0.092	J	--	27	--	--	--	< 10	U	< 1.6
BERTH08-SB	BERTH08-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	< 0.42	U 0.075	J	--	39	--	--	--	--	--	--
BERTH08-SB	BERTH08-SB-4.5TO6-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	< 0.43	U 0.025	J	--	22	--	--	--	--	--	--
BERTH08-SB	BERTH08-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	< 0.40	U 0.016	J	--	21	--	--	--	--	--	--
BERTH09-SS	BERTH09-SS-190508	5/8/2019	N	0.0	0.3	-41.0	-41.0	-41.4	1.0	1.3	--	--	630	--	--	--	12	J	0.32
BERTH09-SB	BERTH09-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-41.03	-41.03	-42.03	0.75	3.2	--	--	180	--	--	--	18	--	1.0
BERTH09-SB	BERTH09-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-41.03	-42.03	-43.03	0.76	4.3	--	--	140	--	--	--	20	--	2.2
BERTH09-SB	BERTH09-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-41.03	-43.03	-44.03	0.42	J 1.3	--	--	160	--	--	--	--	--	--
BERTH09-SB	BERTH09-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-41.03	-45.03	-46.03	< 0.51	U 0.066	J	--	28	--	--	--	--	--	--
BERTH09-SB	BERTH09-SB-6TO7-190509	5/9/2019	N	6.0	7.0	-41.03	-47.03	-48.03	0.48	J 0.044	J	--	25	--	--	--	--	--	--
BERTH09-SB	BERTH09-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-41.03	-49.03	-50.03	< 1.0	U 0.023	J	--	21	--	--	--	--	--	--
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0.0	0.3	-41.0	-41.0	-41.3	0.99	0.30	--	--	64	--	--	--	3.1	J	0.18
BERTH10-SB	BERTH10-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-40.95	-40.95	-41.95	0.36	J < 0.081	U	--	21	--	--	--	3.8	J	0.34
BERTH10-SB	BERTH10-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-40.95	-41.95	-42.95	0.37	J < 0.099	U	--	24	--	--	--	< 10	U	< 1.1
BERTH10-SB	BERTH10-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-40.95	-42.95	-43.95	< 0.47	U 0.10	--	--	30	--	--	--	--	--	--
BERTH10-SB	BERTH10-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-40.95	-44.95	-45.95	< 0.43	U 0.042	J	--	25	--	--	--	--	--	--
BERTH10-SB	BERTH10-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-40.95	-46.95	-47.95	< 0.46	U 0.036	J	--	25	--	--	--	--	--	--
BERTH10-SB	BERTH10-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-40.95	-48.95	-49.95	0.41	J 0.034	J	--	26	--	--	--	--	--	--
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0.0	0.3	-41.4	-41.4	-41.7	1.1	0.51	--	--	87	--	--	--	6.3	J	0.22
BERTH11-SS	SSDJF01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0.0	0.33	-41.4	-41.4	-41.7	1.2	0.55	--	--	98	--	--	--	5.9	J	0.20
BERTH11-SB	BERTH11-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-41.37	-41.37	-42.37	0.40	J 0.075	J	--	28	--	--	--	< 10	U	< 1.1
BERTH11-SB	BERTH11-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-41.37	-42.37	-43.37	0.33	J 0.059	J	--	21	--	--	--	< 9.6	U	< 1.7
BERTH11-SB	BERTH11-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-41.37	-43.37	-44.37	0.36	J 0.034	J	--	25	--	--	--	--	--	--
BERTH11-SB	BERTH11-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-41.37	-45.37	-46.37	0.44	0.037	J	--	32	--	--	--	--	--	--
BERTH11-SB	BERTH11-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-41.37	-47.37	-48.37	0.56	J 0.050	J	--	34	--	--	--	--	--	--
BERTH11-SB	BERTH11-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-41.37	-50.37	-51.37	0.53	J 0.030	J	--	24	--	--	--	--	--	--
BERTH12-SS	BERTH12-SS-190423	4/23/2019	N	0.0	0.3	-34.5	-34.5	-34.8	1.4	1.7	--	--	180	--	--	--	15	--	0.35
BERTH12-SB	BERTH12-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-34.5	-34.5	-35.5	1.1	3.3	--	--	240	--	--	--	15	--	0.33
BERTH12-SB	BERTH12-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-34.5	-35.5	-36.5	1.1	4.4	--	--	380	J	--	--	15	--	0.48
BERTH12-SB	BERTH12-SB-2TO4-190425	4/25/2019	N	2.0	4.0	-34.5	-36.5	-38.5	0.35	J 1.9	--	--	180	--	--	--	--	--	--
BERTH12-SB	BERTH12-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-34.5	-38.5	-39.5	0.84	4.2	--	--	330	--	--	--	--	--	--
BERTH12-SB	BERTH12-SB-7TO7.9-190425	4/25/2019	N	7.0	7.9	-34.5	-41.5	-42.4	0.56	2.6	--	--	160	--	--	--	--	--	--

Table 4
Metals and Tributyltin Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Selenium mg/kg dw	Silver mg/kg dw	Thallium mg/kg dw	Vanadium mg/kg dw	Zinc mg/kg dw	Dibutyltin µg/kg dw	Monobutyltin µg/kg dw	Tributyltin as ion		Tributyltin					
				Top	Bottom	Top of Core	Sample Top	Sample Bottom								µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC				
				Remedial Action Level												—	—	—	—	—	—	—	—
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0.0	0.3	-31.7	-31.7	-32.1	1.3	0.55	—	—	160	J	—	—	—	—	4.0	J	0.043		
PIER13-SB	PIER13-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-31.74	-31.74	-32.74	0.93	0.42	—	—	450	—	—	—	—	—	< 17	U	< 0.27		
PIER13-SB	PIER13-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-31.74	-32.74	-33.74	1.5	0.91	—	—	760	—	—	—	—	—	12	J	0.19		
PIER13-SB	PIER13-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-31.74	-33.74	-34.74	0.96	0.59	—	—	150	—	—	—	—	—	—	—	—		
PIER13-SB	PIER13-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-31.74	-35.74	-36.74	1.2	2.9	—	—	350	—	—	—	—	—	—	—	—		
PIER13-SB	PIER13-SB-7TO7.8-190425	4/25/2019	N	7.0	7.8	-31.74	-38.74	-39.54	1.2	5.8	—	—	350	—	—	—	—	—	—	—	—		
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0.0	0.3	-21.7	-21.7	-22.1	2.3	1.5	J	—	230	J	—	—	—	—	—	46	J	0.31	
PIER14-SB	PIER14-SB-0TO1-190425	4/25/2019	N	0.0	1.0	-21.72	-21.72	-22.72	1.8	3.6	—	—	350	—	—	—	—	—	—	79	—	0.84	
PIER14-SB	PIER14-SB-1TO2-190425	4/25/2019	N	1.0	2.0	-21.72	-22.72	-23.72	2.5	16	—	—	620	—	—	—	—	—	—	110	—	1.0	
PIER14-SB	PIER14-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-21.72	-23.72	-24.72	1.1	14	—	—	480	—	—	—	—	—	—	< 290	U	< 2.4	
PIER14-SB	PIER14-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-21.72	-25.72	-26.72	0.71	1.4	—	—	160	—	—	—	—	—	—	< 130	U	< 1.2	
PIER14-SB	PIER14-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-21.72	-27.72	-28.72	1.0	11	—	—	420	—	—	—	—	—	—	—	—	—	
PIER14-SB	PIER14-SB-7TO8-190425	4/25/2019	N	7.0	8.0	-21.72	-28.72	-29.72	—	—	—	—	—	—	—	—	—	—	—	< 150	U	< 1.8	
PIER14-SB	PIER14-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-21.72	-30.72	-31.72	0.67	5.6	—	—	230	—	—	—	—	—	—	< 120	U	< 1.2	
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0.0	0.3	-32.9	-32.9	-33.2	1.2	0.51	—	—	140	—	—	—	—	—	—	13	J	0.15	
PIER15-SB	PIER15-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-32.89	-32.89	-33.89	0.86	1.5	—	—	190	—	—	—	—	—	—	92	—	1.6	
PIER15-SB	PIER15-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-32.89	-33.89	-34.89	0.72	0.68	—	—	97	—	—	—	—	—	—	16	—	0.59	
PIER15-SB	PIER15-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-32.89	-34.89	-35.89	0.75	J	0.47	—	—	59	—	—	—	—	—	< 11	U	< 0.39	
PIER15-SB	PIER15-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-32.89	-36.89	-37.89	0.81	J	1.5	—	—	220	—	—	—	—	—	< 12	U	< 0.13	
PIER15-SB	PIER15-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-32.89	-38.89	-39.89	0.52	J	0.065	J	—	—	36	—	—	—	—	—	—	—	
PIER15-SB	PIER15-SB-7TO8-190426	4/26/2019	N	7.0	8.0	-32.89	-39.89	-40.89	—	—	—	—	—	—	—	—	—	—	—	< 9.8	U	< 1.4	
PIER15-SB	PIER15-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-32.89	-41.89	-42.89	0.50	J	0.033	J	—	—	25	—	—	—	—	—	< 9.6	U	< 0.74
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0.0	0.3	-22.9	-22.9	-23.3	2.2	0.91	—	—	200	—	—	—	—	—	—	100	—	0.77	
PIER16-SB	PIER16-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-22.94	-22.94	-23.94	1.7	1.0	—	—	230	—	—	—	—	—	—	120	—	1.2	
PIER16-SB	PIER16-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-22.94	-23.94	-24.94	1.7	3.5	—	—	640	—	—	—	—	—	—	21	—	0.18	
PIER16-SB	PIER16-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-22.94	-24.94	-25.94	1.7	2.1	—	—	320	—	—	—	—	—	—	85	J	0.50	
PIER16-SB	PIER16-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-22.94	-26.94	-27.94	1.2	5.7	—	—	350	—	—	—	—	—	—	220	—	2.6	
PIER16-SB	PIER16-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-22.94	-28.94	-29.94	0.66	0.87	—	—	180	—	—	—	—	—	—	—	—	—	
PIER16-SB	PIER16-SB-7TO8-190425	4/25/2019	N	7.0	8.0	-22.94	-29.94	-30.94	—	—	—	—	—	—	—	—	—	—	—	< 110	UJ	< 3.0	
PIER16-SB	PIER16-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-22.94	-31.94	-32.94	0.48	0.42	—	—	97	—	—	—	—	—	—	< 9.6	U	< 0.33	
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0.0	0.3	-22.3	-22.3	-22.6	1.6	0.81	—	—	180	—	—	—	—	—	—	12	J	0.20	
PIER17-SB	PIER17-SB-0TO2-190426	4/26/2019	N	0.0	2.0	-22.27	-22.27	-24.27	1.5	J	6.5	—	—	900	—	—	—	—	—	—	< 11	U	< 0.048
PIER17-SB	PIER17-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-22.27	-24.27	-25.27	0.70	J	0.76	—	—	150	—	—	—	—	—	—	—	—	
PIER17-SB	PIER17-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-22.27	-26.27	-27.27	0.47	J	0.41	—	—	88	—	—	—	—	—	—	—	—	
PIER17-SB	PIER17-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-22.27	-28.27	-29.27	0.74	J	0.62	—	—	120	J	—	—	—	—	—	—	—	
PIER17-SB	PIER17-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-22.27	-31.27	-32.27	0.51	J	0.13	—	—	40	—	—	—	—	—	—	—	—	
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0.0	0.3	-25.3	-25.3	-25.6	2.0	0.82	—	—	200	J	—	—	—	—	—	19	—	0.22	
PIER18-SS	SSDJP02-190424 (PIER18-SS-190424)	4/24/2019	FD	0.0	0.3	-25.3	-25.3	-25.6	1.7	0.81	—	—	440	J	—	—	—	—	—	12	J	0.16	
PIER18-SB	PIER18-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-25.3	-25.3	-26.3	1.1	0.83	—	—	210	—	—	—	—	—	—	16	—	0.21	
PIER18-SB	PIER18-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	1.9	2.7	—	—	380	—	—	—	—	—	—	120	—	0.92	
PIER18-SB	PIER18-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-25.3	-27.3	-28.3	—	—	—	—	—	—	—	—	—	—	—	100	—	2.1	
PIER18-SB	PIER18-SB-4TO5.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	0.94	4.7	—	—	270	—	—	—	—	—	—	< 59	U	< 0.39	
PIER18-SB	PIER18-SB-6.5TO8-190425	4/25/2019	N	6.5	8.0	-25.3	-31.8	-33.3	0.23	J	0.13	—	—	30	—	—	—	—	—	< 9.1	U	< 3.1	
PIER18-SB	PIER18-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-25.3	-34.3	-35.3	0.46	J	0.061	J	—	—	28	—	—	—	—	< 9	U	< 0.69	

Table 4
Metals and Tributyltin Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Selenium mg/kg dw	Silver mg/kg dw	Thallium mg/kg dw	Vanadium mg/kg dw	Zinc mg/kg dw	Dibutyltin µg/kg dw	Monobutyltin µg/kg dw	Tributyltin as ion		Tributyltin			
				Top	Bottom	Top of Core	Sample Top	Sample Bottom								µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC		
				Remedial Action Level												—	—	—	—	—	—
PIER19-SS	PIER19-SS-190423	4/23/2019	N	0.0	0.3	-34.8	-34.8	-35.1	1.1	0.41	—	—	98	—	—	—	—	9.6	J	0.19	
PIER19-SB	PIER19-SB-0TO2-190426	4/26/2019	N	0.0	2.0	-34.78	-34.78	-36.78	1.0	J 4.2	—	—	200	—	—	—	—	< 12	U	< 0.20	
PIER19-SB	PIER19-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.78	-36.78	-37.78	3.6	11	—	—	240	—	—	—	—	39	—	0.65	
PIER19-SB	PIER19-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.78	-38.78	-39.78	0.59	J 0.65	—	—	130	—	—	—	—	9.9	—	0.35	
PIER19-SB	PIER19-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.78	-40.78	-41.78	0.48	J 0.16	—	—	43	—	—	—	—	—	—	—	
PIER19-SB	PIER19-SB-7TO8-190426	4/26/2019	N	7.0	8.0	-34.78	-41.78	-42.78	—	—	—	—	—	—	—	—	—	< 9.8	U	< 1.1	
PIER19-SB	PIER19-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.78	-43.78	-44.78	0.41	J 0.076	J	—	—	29	—	—	—	< 9.4	U	< 0.94	
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0.0	0.3	-19.4	-19.4	-19.7	1.3	0.54	—	—	110	—	—	—	—	8.1	J	0.14	
PIER20-SB	PIER20-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-19.38	-19.38	-20.38	1.3	3.0	—	—	250	—	—	—	—	31	—	0.53	
PIER20-SB	SBDJP03-190510 (PIER20-SB-0TO1-190510)	5/10/2019	FD	0.0	1.0	-19.38	-19.38	-20.38	1.3	2.9	—	—	220	—	—	—	—	66	—	1.1	
PIER20-SB	PIER20-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.38	-20.38	-21.38	1.7	4.5	—	—	390	—	—	—	—	< 83	UJ	< 0.44	
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0.0	0.5	-37.7	-37.7	-38.2	0.80	0.23	—	—	61	—	—	—	—	< 11	U	< 0.85	
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0.0	0.5	-39.8	-39.8	-40.2	0.85	0.23	—	—	66	—	—	—	—	< 13	U	< 0.59	
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0.0	0.7	-33.2	-33.2	-33.9	0.89	0.20	—	—	82	—	—	—	—	< 12	U	< 0.57	
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0.0	0.3	-19.7	-19.7	-20.0	0.58	0.13	—	—	52	—	—	—	—	3.1	J	0.16	
PIER24-SB	PIER24-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-19.67	-19.67	-20.67	0.66	0.20	—	—	91	—	—	—	—	4.5	J	0.26	
PIER24-SB	PIER24-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.67	-20.67	-21.67	0.62	0.30	—	—	61	—	—	—	—	6.4	J	0.32	
PIER24-SB	PIER24-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-19.67	-21.67	-22.67	0.50	J 0.41	—	—	87	—	—	—	—	—	—	—	
PIER24-SB	PIER24-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-19.67	-23.67	-24.67	1.6	7.3	—	—	450	—	—	—	—	—	—	—	
PIER24-SB	PIER24-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-19.67	-25.67	-26.67	1.5	3.9	—	—	610	—	—	—	—	—	—	—	
EW10-SC57	EW10-SC57-0-2	3/2/2010	N	0.0	2.0	-40.8	-40.8	-42.8	< 0.6	U 0.8	—	—	74	—	—	—	—	—	—	—	
EW10-SC57	EW10-SC57-2-4	3/2/2010	N	2.0	4.0	-40.8	-42.8	-44.8	< 0.6	U < 0.4	U	—	19	—	—	—	—	—	—	—	
EW10-SC58	EW10-SC58-0-1.8	3/2/2010	N	0.0	1.8	-34.7	-34.7	-36.5	1	4.3	—	—	459	—	—	—	—	—	—	—	
EW10-SC58	EW10-SC58-1.8-4	3/2/2010	N	1.8	4.0	-34.7	-36.5	-38.7	< 0.7	U < 0.4	U	—	62	—	—	—	—	—	—	—	
EW10-SC58	EW10-SC58-6-8	3/2/2010	N	6.0	8.0	-34.7	-40.7	-42.7	—	—	—	—	—	—	—	—	—	—	—	—	
EW10-SC59	EW10-SC59-0-2	3/2/2010	N	0.0	2.0	-41	-41	-43	< 0.60	U < 0.4	U	—	24	—	—	—	3.3	U	—	—	
EW10-SC59	EW10-SC59-2-4	3/2/2010	N	2.0	4.0	-41	-43	-45	< 0.70	U < 0.4	U	—	27	—	—	—	3.3	U	—	—	
EW10-SC60	EW10-SC60-0-0.8	3/2/2010	N	0.0	0.8	-42.3	-42.3	-43.1	< 0.7	U 0.70	—	—	92	—	—	—	—	—	—	—	
EW10-SC60	EW10-SC60-0.8-3	3/2/2010	N	0.8	3	-42.3	-43.1	-45.3	< 0.7	U < 0.4	U	—	27	—	—	—	—	—	—	—	
EW10-SC61	EW10-SC61-0-1	3/2/2010	N	0	1	-42.3	-42.3	-43.3	< 0.7	U 0.4	< 0.3	U	50.1	76	—	—	—	—	—	—	
EW10-SC61	EW10-SC61-1-3	3/2/2010	N	1	3	-42.3	-43.3	-45.3	< 0.7	U < 0.4	U < 0.3	U	46.5	38	—	—	—	—	—	—	
EW09-SS-213	EW09-SS-213-010	6/22/2009	N	0.0	0.5	-34.7	-34.7	-35.2	< 0.8	U 0.8	< 0.3	U	50.0	104	J	—	—	—	—	—	
EW09-SS-214	EW09-SS-214-010	6/22/2009	N	0.0	0.5	-41.5	-41.5	-42.1	< 0.8	U 0.5	< 0.3	U	45.4	84	J	< 5.4	U	< 3.8	U	13	—
EW09-SS-215	EW09-SS-215-010	6/22/2009	N	0.0	0.4	-40.9	-40.9	-41.3	< 1	U 1.6	< 0.4	U	91.5	434	J	7.4	U	< 3.8	U	23	—
36B-01	36B-01	11/17/2014	N	0.0	0.3	-37.0	-37.0	-37.3	< 1	U 0.8	—	—	291	J	—	—	—	35	1.7	—	
36B-02	36B-02	11/17/2014	N	0.0	0.3	-25.0	-25.0	-25.3	< 1	U 1	—	—	222	J	—	—	—	59	1.6	—	
36B-03	36B-03	11/17/2014	N	0.0	0.3	-34.0	-34.0	-34.3	< 1	U 1.4	—	—	201	J	—	—	—	55	1.5	—	
36B-04	36B-04	11/17/2014	N	0.0	0.3	-24.0	-24.0	-24.3	< 1	U 1.3	—	—	270	J	—	—	—	130	—	—	
36B-04	36B-24 (36B-04)	11/17/2014	FD	0.0	0.3	-24.0	-24.0	-24.3	< 1	U 1.4	—	—	232	J	—	—	—	140	5.3	—	
36B-05	36B-05	11/17/2014	N	0.0	0.3	-36.0	-36.0	-36.3	< 1	U 1.5	—	—	1310	J	—	—	—	4000	140	—	
36B-06	36B-06	11/17/2014	N	0.0	0.3	-28.0	-28.0	-28.3	< 1	U 1.5	—	—	243	J	—	—	—	41	1.7	—	
36B-07	36B-07	11/17/2014	N	0.0	0.3	-38.0	-38.0	-38.3	< 1	U < 0.6	U	—	153	J	—	—	—	62	2.2	—	
36B-08	36B-08	11/17/2014	N	0.0	0.3	-28.0	-28.0	-28.3	< 1	U < 0.8	U	—	176	J	—	—	—	30	—	—	

Table 4
Metals and Tributyltin Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Notes:

1. Chemical parameters listed on a mg/kg OC basis represent concentrations normalized, or expressed, on a TOC basis. To normalize to TOC, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent TOC content of the sediment. OC-normalized concentrations from samples collected during the 2019 Site Investigation are based on the total organic carbon results, adjusted using total solids measured at 110 degrees Celsius (AECOM 2020).
2. Yellow shading indicates the result is above the remedial action level.
3. Gray shading means sample is shallower than -43 feet MLLW and will be removed as part of the Slip 36 berth expansion and deepening (-43 feet MLLW) to accommodate operational needs.
4. Bold values indicate the analyte was detected at a concentration greater than the method detection limit.
5. The sediment elevation of surface samples from 2019 are assumed to be the same as subsurface samples collected at the same location. The surface elevation of locations without subsurface samples (PIER21, PIER22, and PIER23) was estimated from the tide and water levels recorded at the time of sampling.

Symbols, Acronyms, and Abbreviations:

% = percent
< = compound was not detected, value presented is the reporting limit
– = not analyzed/not applicable
bss = below sediment surface
FD = field duplicate
µg/kg dw = micrograms per kilogram dry weight
mg/kg OC = milligrams per kilogram organic carbon normalized
mg/kg dw = milligrams per kilogram dry weight
MLLW = mean lower low water
N = parent sample
TOC = total organic carbon

Qualifiers:

B = Compound was found in the blank and sample.
J = Estimated value.
U = Analyte not detected above value shown.
UB = The analyte was found in an associated blank as well as in the sample.
UJ = Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	1,2,4-Trichlorobenzene µg/kg dw	1,2-Dichlorobenzene µg/kg dw	1,4-Dichlorobenzene		2,4-Dimethylphenol µg/kg dw	2-Methylphenol µg/kg dw	3-Methylphenol, 4-Methylphenol µg/kg dw	Benzoic Acid µg/kg dw	Benzyl Alcohol µg/kg dw	bis (2-Ethylhexyl) phthalate		Butyl benzyl p											
				Top	Bottom	Top of Core	Sample Top	Sample Bottom				µg/kg dw	mg/kg OC						µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC										
Remedial Action Level									--	--	--	--	3.1	--	--	--	--	--	--	--	--	--										
Apparent Effects Thresholds									--	--	--	110	22	15	5.1	3	1.8	30	4.2	19	1.7	6.1	6.3									
EECA01	EECA01-SS-011222	1/12/2022	N	0	0.4	-39.7	-39.7	-40.1	1.1	< 5.2	U	< 5.2	U	240	--	< 18	U	< 14	U	4.4	J	< 360	U	< 18	U	9.6	J	--	< 18	U		
EECA01	EECA01-43TO44-011222	1/12/2022	N	3.3	4.3	-39.7	-43	-44	0.31	< 4.5	U	< 4.5	U	57	--	< 70	U	< 53	U	< 70	U	< 1,400	U	< 350	U	< 210	U	--	< 70	U		
EECA01	EECA01-44TO45-011222	1/12/2022	N	4.3	5.3	-39.7	-44	-45	< 0.20	UB	< 18	U	< 18	U	14	J	--	< 70	U	< 70	U	< 1,400	U	< 350	U	< 210	U	--	< 70	U		
EECA01	EECA01-45TO46-011222	1/12/2022	N	5.3	6.3	-39.7	-45	-46	0.48	< 20	U	< 20	U	< 20	U	--	< 79	U	< 60	U	< 79	U	--	R	30	J	< 240	U	--	< 79	U	
EECA02	EECA02-43TO44-010722	1/7/2022	N	1.2	2.2	-41.8	-43	-44	0.66	< 4.3	U	< 4.3	U	< 4.3	U	< 0.85	< 17	U	1.4	J	3	J	< 340	U	< 17	UJ	< 51	U	< 7.7	9.2	J	
EECA02	EECA02-44TO45-010722	1/7/2022	N	2.2	3.2	-41.8	-44	-45	0.74	< 4.3	U	< 4.3	U	< 4.3	U	< 0.58	< 17	U	< 13	U	1.8	J	< 340	U	< 17	UJ	< 51	UB	< 6.9	6.1	J	
EECA03	EECA03-43TO44-010822	1/8/2022	N	2.1	3.1	-40.9	-43	-44	< 0.20	UB	< 3.7	U	< 3.7	U	< 3.7	U	--	< 15	U	< 11	U	< 15	U	< 300	U	< 15	UJ	< 44	U	--	6.2	J
EECA03	EECA03-44TO45-010822	1/8/2022	N	3.1	4.1	-40.9	-44	-45	0.26	< 3.7	U	< 3.7	U	< 3.7	U	--	< 15	U	< 11	U	< 15	U	< 300	U	< 15	UJ	< 45	U	--	5.1	J	
EECA04	EECA04-43TO44-010922	1/9/2022	N	1.8	2.8	-41.2	-43	-44	0.67	< 4.5	U	< 4.5	U	< 4.5	U	< 0.67	< 18	U	< 13	U	< 18	U	< 360	U	< 18	UJ	< 54	U	< 8.1	6.1	J	
EECA04	EECA04-44TO45-010922	1/9/2022	N	2.8	3.8	-41.2	-44	-45	0.80	< 4.3	U	< 4.3	U	< 4.3	U	< 0.54	< 17	U	< 13	U	< 17	U	< 340	U	< 17	UJ	< 51	U	< 6.4	< 17	U	
EECA05	EECA05-43TO44-011222	1/12/2022	N	2.2	3.2	-40.8	-43	-44	0.68	< 4.6	U	< 4.6	U	< 4.6	U	< 0.88	< 19	U	< 14	U	< 19	U	< 370	U	< 19	U	7.7	J	1.1	7.6	J	
EECA05	EECA05-44TO45-011222	1/12/2022	N	3.2	4.2	-40.8	-44	-45	0.84	< 4.6	U	< 4.6	U	< 4.6	U	< 0.55	< 18	U	< 14	U	< 18	U	< 370	U	< 18	UB	7.8	J	0.93	6.5	J	
EECA06	EECA06-43TO44-011222	1/12/2022	N	12.3	13.3	-30.7	-43	-44	0.43	< 4.0	U	< 4.0	U	< 4.0	U	--	< 16	U	< 12	U	< 16	U	--	R	< 16	U	6.8	J	--	4.1	J	
EECA06	EECA06-44TO45-011222	1/12/2022	N	13.3	14.3	-30.7	-44	-45	0.45	< 4.2	U	< 4.2	U	< 4.2	U	--	5.8	J	< 13	U	< 17	U	< 340	U	< 17	U	< 51	U	--	5.2	J	
EECA07	EECA07-43TO44-010822	1/8/2022	N	1.4	2.4	-41.6	-43	-44	0.28	< 3.9	U	< 3.9	U	< 3.9	U	--	< 16	U	< 12	U	< 16	U	< 320	U	< 16	UJ	< 47	U	--	< 16	U	
EECA07	EECA07-44TO45-010822	1/8/2022	N	2.4	3.4	-41.6	-44	-45	0.47	< 3.9	U	< 3.9	U	< 3.9	U	--	< 16	U	< 12	U	< 16	U	< 310	U	< 16	UJ	< 47	U	--	6.3	J	
EECA08	EECA08-43TO44-010822	1/8/2022	N	1.1	2.1	-41.9	-43	-44	0.37	< 4.2	U	< 4.2	U	< 4.2	U	--	< 17	U	< 13	U	< 17	U	< 340	U	< 17	UJ	< 51	U	--	< 17	U	
EECA08	EECA08-44TO45-010822	1/8/2022	N	2.1	3.1	-41.9	-44	-45	0.26	< 4.2	U	< 4.2	U	< 4.2	U	--	< 17	U	< 13	U	< 17	U	< 330	U	< 17	UJ	< 50	U	--	4.3	J	
EECA09	EECA09-43TO44-010922	1/9/2022	N	2.5	3.5	-40.5	-43	-44	0.39	< 4.0	U	< 4.0	U	< 4.0	U	--	< 16	U	< 12	U	< 16	U	--	R	< 16	UJ	< 48	U	--	4.8	J	
EECA09	EECA09-44TO45-010922	1/9/2022	N	3.5	4.5	-40.5	-44	-45	0.57	< 4.4	U	< 4.4	U	< 4.4	U	< 0.77	< 18	U	< 13	U	< 18	U	< 350	U	< 18	UJ	< 53	U	< 9.3	5.8	J	
EECA10	EECA10-43TO44-011122	1/11/2022	N	2.4	3.4	-40.6	-43	-44	1.2	< 4.4	U	< 4.4	U	< 4.4	U	< 0.37	< 18	U	< 13	U	< 18	U	< 350	U	< 18	U	< 53	U	< 4.4	< 18	U	
EECA10	EECA10-44TO45-011122	1/11/2022	N	3.4	4.4	-40.6	-44	-45	1.2	< 4.4	U	< 4.4	U	< 4.4	U	< 0.37	< 18	U	< 13	U	< 18	U	< 350	U	< 18	U	< 53	U	< 4.4	< 18	U	
EECA11	EECA11-43TO44-011122	1/11/2022	N	8.5	9.5	-34.5	-43	-44	0.39	< 4.2	U	< 4.2	U	< 4.2	U	--	< 17	U	< 13	U	< 17	U	< 340	U	< 17	U	< 51	U	--	< 17	U	
EECA11	EECA11-44TO45-011122	1/11/2022	N	9.5	10.5	-34.5	-44	-45	0.33	< 4.0	U	< 4.0	U	< 4.0	U	--	< 16	U	< 12	U	< 16	U	< 320	U	< 16	U	< 48	U	--	< 16	U	
EECA12	EECA12-SS-011022	1/10/2022	N	0	0.4	-36.7	-36.7	-37.1	1.8	< 5.0	U	< 5.0	U	4.0	J	0.22	24	13	J	110		< 400	U	< 20	U	< 60	UB	< 3.3	< 20	U		
EECA12	EECA12-43TO44-011022	1/10/2022	N	6.3	7.3	-36.7	-43	-44	0.037	J	< 3.9	U	< 3.9	U	--	10	J	< 12	U	< 16	U	< 310	U	< 16	U	< 47	U	--	< 16	U		
EECA13	EECA13-43TO44-010622	1/6/2022	N	1.6	2.6	-41.4	-43	-44	0.56	< 4.6	U	< 4.6	U	< 4.6	U	< 0.82	< 19	U	< 14	U	< 19	U	--	R	< 19	UJ	< 56	UB	< 10	9.0	J+	
EECA13	EECA13-44TO45-010622	1/6/2022	N	2.6	3.6	-41.4	-44	-45	0.59	< 4.4	U	< 4.4	U	< 4.4	U	< 0.75	< 18	U	< 13	U	< 18	U	--	R	< 18	UJ	< 53	U	< 9.0	6.6	J+	
EECA14	EECA14-43TO44-010622	1/6/2022	N	1.3	2.3	-41.7	-43	-44	0.47	< 4.5	U	< 4.5	U	< 4.5	U	--	48	14		8.3	J	--	R	< 18	U	11	J	--	< 18	U		
EECA14	EECA14-44TO45-010622	1/6/2022	N	2.3	3.3	-41.7	-44	-45	0.21	< 4.3	UJ	< 4.3	UJ	< 4.3	UJ	--	8.9	J	2.9	J	5.0	J	--	R	< 17	UJ	16	J	--	< 17	UJ	
EECA14	EECA14-45TO46-010622	1/6/2022	N	3.3	4.3	-41.7	-45	-46	0.055	J	< 4.0	U	< 4.0	U	--	< 16	U	< 12	U	< 16	U	--	R	< 16	UB	< 49	UJ	--	< 16	U		
EECA14	EECA14-46TO47-010622	1/6/2022	N	4.3	5.3	-41.7	-46	-47	0.56	< 4.3	U	< 4.3	U	< 4.3	U	< 0.77	16	J	2.0	J	< 17	U	--	R	< 17	U	6.6	J	1.2	< 17	U	
EECA14	EECA14-47TO48-010622	1/6/2022	N	5.3	6.3	-41.7	-47	-48	0.57	< 4.3	U	< 4.3	U	< 4.3	U	< 0.75	29	J	< 13	U	< 17	U	--	R	< 17	U	7.8	J	1.4	< 17	U	
EECA14	EECA14-48TO49-010622	1/6/2022	N	6.3	7.3	-41.7	-48	-49	0.44	< 4.2	U	< 4.2	UJ	< 4.2	UJ	--	43	J+	< 12	U	< 17	U	--	R	< 17	UJ	< 50	U	--	< 17	UJ	
EECA14	EECA14-49TO50-010622	1/6/2022	N	7.3	8.3	-41.7	-49	-50	0.51	< 4.1	U	< 4.1	U	< 4.1	U	< 0.80	79	J	< 12	U	< 16	U	--	R	< 16	UJ	< 49	U	< 9.6	< 16	UJ	
EECA14	EECA14-50TO51-010622	1/6/2022	N	8.3	9.3	-41.7	-50	-51	0.59	< 4.2	U	< 4.2	U	< 4.2	U	< 0.71	64	J	3.6	J	< 17	U	--	R	< 85	U	6.3	J	1.1	< 17	U	
EECA14	EECA14-51TO52-010622	1/6/2022	N	9.3	10.3	-41.7	-51	-52	0.41	< 4.4	U	< 4.4	U	< 4.4	U	--	44	J	3.3	J	< 18	U	--	R	< 89	U	< 53	UJ	--	< 18	U	
EECA14	EECA14-52TO53-010622	1/6/2022	N	10.3	11.3	-41.7	-52	-53	0.47	< 5.7	U	< 5.7	U	< 5.7	U	--	58	J	6.8													

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	1,2,4-Trichlorobenzene µg/kg dw	1,2-Dichlorobenzene µg/kg dw	1,4-Dichlorobenzene		2,4-Dimethylphenol µg/kg dw	2-Methylphenol µg/kg dw	3-Methylphenol, 4-Methylphenol µg/kg dw	Benzoic Acid µg/kg dw	Benzyl Alcohol µg/kg dw	bis (2-Ethylhexyl) phthalate		Butyl benzyl p µg/kg dw	n					
				Top	Bottom	Top of Core	Sample Top	Sample Bottom				µg/kg dw	mg/kg OC						µg/kg dw	mg/kg OC			µg/kg dw	mg/kg OC			
Remedial Action Level									--	--	--	--	3.1	--	--	--	--	--	--	--	--	--	--				
Apparent Effects Thresholds									--	--	--	110	--	--	--	--	--	--	--	--	--	--	63	--			
EECA16	EECA16-43TO44-011122	1/11/2022	N	4.2	5.2	-38.8	-43	-44	0.70	< 4.2	U < 4.2	U < 4.2	U < 0.60	14	J < 13	U < 17	U < 340	U < 17	U < 51	J < 7.3	J < 17	U					
EECA16	DUP12-011122 (EECA16-43TO44-011122)	1/11/2022	FD	4.2	5.2	-38.8	-43	-44	0.69	< 4.3	U < 4.3	U < 4.3	U < 0.62	9.1	J < 13	U < 17	U < 340	U < 17	U < 7.6	U < 1.1	9.8	J					
EECA16	EECA16-44TO45-011122	1/11/2022	N	5.2	6.2	-38.8	-44	-45	0.58	< 4.5	U < 4.5	U < 4.5	U < 0.78	18	J < 14	U < 18	U < 360	U < 18	U < 6.8	J < 1.2	9.1	J					
EECA17	EECA17-43TO44-010722	1/7/2022	N	5.2	6.2	-37.8	-43	-44	0.54	< 4.1	U < 4.1	U < 4.1	U < 0.76	12	J < 7.9	J < 14	J < 330	UJ < 16	UJ < 4.9	U < 9.1	8.0	J					
EECA17	EECA17-44TO45-010722	1/7/2022	N	6.2	7.2	-37.8	-44	-45	0.39	< 3.9	U < 3.9	U < 3.9	U	--	< 16	U < 1.9	J < 4.2	J < 310	U < 16	UJ < 4.7	U	5.6	J				
EECA18	EECA18-SS-011322	1/13/2022	N	0	0.4	-41.5	-41.5	-41.9	0.96	< 4.8	U < 4.8	U < 4.8	U	--	< 19	U < 14	U < 31	U < 380	U < 19	U < 5.0	J < 5.2	6.9	J				
EECA18	EECA18-43TO44-011322	1/13/2022	N	1.5	2.5	-41.5	-43	-44	1.6	< 4.6	U < 4.6	U < 4.6	U	8.4	J < 14	U < 34	U < 370	U < 18	U < 28	J < 1.8	< 18	U					
EECA19	EECA19-SS-010922	1/9/2022	N	0	0.4	-40.1	-40.1	-40.5	0.49	< 4.2	U < 4.2	U < 4.2	U	6.8	J	U < 2.8	J < 33	U < 330	U < 18	U < 5.0	UB	10	J				
EECA19	EECA19-43TO44-010922	1/9/2022	N	2.9	3.9	-40.1	-43	-44	0.89	0.63	J < 4.0	U < 4.0	U	4.8	J < 5.7	J < 1.5	J < 39	U < 320	U < 16	UJ < 18	J < 2.0	< 16	U				
BERTH01-SS	BERTH01-SS-190423	4/23/2019	N	0.0	0.3	-34.9	-34.9	-35.3	5.2	< 90	UJ < 90	UJ < 90	U	56	J	--	< 180	U < 270	U	--	< 3,600	UJ < 900	UJ < 3,000	J	--	110	J
BERTH01-SB	BERTH01-SB-0T01-190426	4/26/2019	N	0.0	1.0	-34.9	-34.9	-35.9	9.3	< 240	U < 240	U < 240	U	47	J	--	< 480	U < 720	U	--	< 9,600	UJ < 2,400	UJ < 470	J	--	< 960	U
BERTH01-SB	BERTH01-SB-1T02-190426	4/26/2019	N	1.0	2.0	-34.9	-35.9	-36.9	9.0	< 210	U < 210	U < 210	U	< 210	U	--	< 430	U < 640	U	--	< 8,600	UJ < 2,100	UJ < 2,600	U	--	< 860	U
BERTH01-SB	SDUP-01-190426 (BERTH01-SB-1T02-190426)	4/26/2019	FD	1.0	2.0	-34.9	-35.9	-36.9	9.0	< 210	U < 210	U < 210	U	--	< 420	U < 620	U	--	< 8,300	UJ < 2,100	UJ < 2,500	U	--	< 830	U		
BERTH01-SB	BERTH01-SB-2T03-190426	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	8.2	< 74	U < 74	U < 74	U	100	J	--	< 150	U < 220	U	--	< 3,000	UJ < 740	UJ < 150	J	--	< 300	U
BERTH01-SB	BERTH01-SB-4T05-190426	4/26/2019	N	4.0	5.0	-34.9	-38.9	-39.9	6.4	< 33	U < 15	J < 1300	U	--	< 67	U < 100	U	--	< 1,300	U	55	J < 400	U	--	< 130	U	
BERTH01-SB	BERTH01-SB-6T07-190426	4/26/2019	N	6.0	7.0	-34.9	-40.9	-41.9	3.3	< 68	U < 68	U < 68	U	98	J < 3.0	< 140	U < 200	U	--	--	--	< 820	U < 25	< 270	U		
BERTH01-SB	BERTH01-SB-9T010-190426	4/26/2019	N	9.0	10.0	-34.9	-43.9	-44.9	3.1	< 32	U < 32	U < 32	U < 1.0	< 64	U < 96	U	--	< 1,300	U	--	< 380	U < 12	< 130	U			
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0.0	0.3	-42.2	-42.2	-42.5	7.5	< 100	UJ < 100	UJ < 100	UJ	--	< 210	UJ < 310	UJ	--	< 4,100	UJ < 1,000	UJ < 230	J	--	< 410	UJ		
BERTH02-SB	BERTH02-SB-0T01-190426	4/26/2019	N	0.0	1.0	-42.2	-42.2	-43.2	1.1	< 33	U < 33	U < 33	U	16	J < 1.5	< 65	U < 98	U	--	< 1,300	UJ < 330	UJ < 390	U	< 35	< 130	U	
BERTH02-SB	BERTH02-SB-1T02-190426	4/26/2019	N	1.0	2.0	-42.2	-43.2	-44.2	0.62	< 32	U < 32	U < 32	U	< 5.2	< 65	U < 97	U	--	< 1,300	UJ < 320	UJ < 390	U	< 63	< 130	U		
BERTH02-SB	BERTH02-SB-2T03-190426	4/26/2019	N	2.0	3.0	-42.2	-44.2	-45.2	0.63	< 31	U < 31	UJ < 31	UJ	< 61	U < 92	UJ	--	< 1,200	UJ	--	< 300	U < 59	< 120	U			
BERTH02-SB	BERTH02-SB-4T05-190426	4/26/2019	N	4.0	5.0	-42.2	-46.2	-47.2	1.6	< 32	U < 32	U < 32	U < 2.0	< 64	U < 96	U	--	< 1,300	U	--	< 380	U < 24	< 130	U			
BERTH02-SB	BERTH02-SB-6T07-190426	4/26/2019	N	6.0	7.0	-42.2	-48.2	-49.2	1.5	< 68	J < 68	U < 68	U	< 4.5	< 140	U < 200	U	--	< 2,700	U	--	< 810	U < 54	< 270	U		
BERTH02-SB	BERTH02-SB-9T010-190426	4/26/2019	N	9.0	10.0	-42.2	-51.2	-52.2	0.96	< 63	U < 63	U < 63	U	< 6.6	< 130	UJ < 190	U	--	< 2,500	U	--	< 750	U < 78	< 250	U		
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0	0.3	-39.6	-39.6	-39.9	2.7	< 26	UJ < 26	UJ < 26	U	0.33	< 52	U < 78	U	--	< 1,000	UJ < 260	UJ < 64	J < 2.4	< 100	UJ			
BERTH03-SB	BERTH03-SB-0T01-190429	4/29/2019	N	0.0	1.0	-39.6	-39.6	-40.6	0.67	< 61	U < 61	U < 61	U	7.0	J < 7.0	< 120	U < 180	U	--	< 2,500	UJ	--	< 740	U < 110	< 250	U	
BERTH03-SB	BERTH03-SB-1T02-190429	4/29/2019	N	1.0	2.0	-39.6	-40.6	-41.6	1.0	< 33	U < 33	U < 33	U	260	J < 26	< 67	U < 100	U	--	< 1,300	U	--	< 400	U < 40	< 130	U	
BERTH03-SB	BERTH03-SB-2T03-190429	4/29/2019	N	2.0	3.0	-39.6	-41.6	-42.6	2.3	< 160	U < 160	U < 160	U	120	J < 5.2	< 310	UJ < 470	UJ	--	< 6,300	UJ	--	< 1,900	U < 83	< 630	U	
BERTH03-SB	BERTH03-SB-4T05-190429	4/29/2019	N	4.0	5.0	-39.6	-43.6	-44.6	1.3	< 65	U < 65	U < 65	U	57	J < 4.4	< 130	UJ < 190	U	--	< 2,600	U	--	< 770	U < 59	< 260	U	
BERTH03-SB	BERTH03-SB-6T07-190429	4/29/2019	N	6.0	7.0	-39.6	-45.6	-46.6	0.59	< 62	U < 62	U < 62	U	< 11	< 120	UJ < 190	UJ	--	< 2,500	UJ < 620	UJ < 750	U < 130	< 250	U			
BERTH03-SB	BERTH03-SB-8T09-190429	4/29/2019	N	8.0	9.0	-39.6	-47.6	-48.6	1.4	< 65	U < 65	U < 65	U	< 4.6	< 130	UJ < 200	UJ	--	< 2,600	UJ < 650	UJ < 790	U	< 56	< 260	U		
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0	0.3	-42.2	-42.2	-42.5	2.1	J < 75	U < 75	U < 75	U	< 3.6	< 150	U < 230	U	--	1,100	J < 750	U < 140	J < 6.7	97	J			
BERTH04-SS	SSDUP03-190508 (BERTH04-SS-190508)	5/8/2019	FD	0	0.3	-42.2	-42.2	-42.5	1.3	J < 71	U < 71	U < 71	U	< 5.5	< 140	U < 210	U	--	< 2,900	U < 710	U < 130	J < 10	77	J			
BERTH04-SB	BERTH04-SB-0T01-190509	5/9/2019	N	0.0	1.0	-42.2	-42.2	-43.2	1.3	< 6.6	U < 6.6	U < 6.6	U	< 0.51	30	U < 4.3	J	--	< 260	U < 66	U < 79	U < 6.1	< 26	U			
BERTH04-SB	BERTH04-SB-1T02-190509	5/9/2019	N	1.0	2.0	-42.2	-43.2	-44.2	0.81	< 6.2	U < 6.2	U < 6.2	U	< 0.76	24	U < 19	U	--	< 250	U < 62	U < 74	U < 9.1	< 25	U			
BERTH04-SB	BERTH04-SB-2T03-190509	5/9/2019	N	2.0	3.0	-42.2	-44.2	-45.2	0.48	< 64	UJ < 64	U < 64	U	--	< 130	UJ < 190	UJ	--	< 2,600	UJ	--	< 770	U	--	< 260	U	
BERTH04-SB	BERTH04-SB-3T04-190509	5/9/2019	N	3.0	4.0	-42.2	-45.2	-46.2	0.39	< 65	U < 65	U < 65	U	--	< 130	UJ < 200	U	--	< 2,600	U	--	< 780	U	--	< 260	U	
BERTH04-SB	SDUP02-190509 (BERTH04-SB-3T04-190509)	5/9/2019	FD	3.0	4.0	-42.2	-45.2	-46.2	0.39	< 62	U < 62	U < 62	U	--	< 120	UJ < 180	U	--	< 2,500	U	--	< 740	U	--	< 250	U	
BERTH04-SB	BERTH04-SB-4T05-190509	5/9/2019	N	4.0	5.0	-42.2	-46.2	-47.2	0.37	< 62	U < 62	U < 62	U	--	< 120	UJ < 190	UJ	--	< 2,500	UJ	--	< 750	U	--	< 250	U	
BERTH04-SB	BERTH04-SB-6T07-5-190509	5/9/2019	N	6.0	7.5	-42.2	-48.2	-49.7	0.49	< 65	U < 65	U < 65	U	--	< 130	UJ < 200	U	--	< 2,600	U	--	< 780	U	--	< 260	U	
BERTH04-SB	BERTH04-SB-8.5T09.5-190509	5/9/2019	N	8.5	9.5																						

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	1,2,4-Trichlorobenzene µg/kg dw	1,2-Dichlorobenzene µg/kg dw	1,4-Dichlorobenzene		2,4-Dimethylphenol µg/kg dw	2-Methylphenol µg/kg dw	3-Methylphenol, 4-Methylphenol µg/kg dw	Benzoic Acid µg/kg dw	Benzyl Alcohol µg/kg dw	bis (2-Ethylhexyl) phthalate		Butyl benzyl p µg/kg dw	n						
				Top	Bottom	Top of Core	Sample Top	Sample Bottom				µg/kg dw	mg/kg OC						µg/kg dw	mg/kg OC			µg/kg dw	mg/kg OC				
Remedial Action Level									--	--	--	--	3.1	--	--	--	--	--	--	--	--	--	--					
Apparent Effects Thresholds									--	--	--	110	--	--	--	--	--	--	--	--	--	--	63	--				
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0	0.3	-40.6	-40.6	-40.9	4.5	< 230	U	< 230	U	< 230	U	< 680	U	< 9,100	U	< 2,300	U	< 2,700	U	--	< 910	U		
BERTH06-SB	BERTH06-SB-0T01-190510	5/10/2019	N	0.0	1.0	-40.6	-40.6	-41.6	4.4	< 190	U	< 190	U	< 190	U	< 570	U	< 7,500	U	< 1,900	U	< 2,300	U	--	< 750	U		
BERTH06-SB	BERTH06-SB-1T02-190510	5/10/2019	N	1.0	2.0	-40.6	-41.6	-42.6	3.2	< 210	U	< 210	U	< 210	U	< 640	U	< 8,500	U	< 2,100	U	< 2,600	U	< 81	< 850	U		
BERTH06-SB	BERTH06-SB-2T03-190510	5/10/2019	N	2.0	3.0	-40.6	-42.6	-43.6	1.8	< 150	U	< 150	U	< 150	U	< 440	U	--	--	< 1,500	U	< 1,700	U	< 94	< 580	U		
BERTH06-SB	BERTH06-SB-4T05-190510	5/10/2019	N	4.0	5.0	-40.6	-44.6	-45.6	0.52	< 31	U	< 31	U	< 31	U	< 93	U	--	--	< 310	U	< 370	U	< 71	34	J		
BERTH06-SB	BERTH06-SB-7T08-190510	5/10/2019	N	7.0	8.0	-40.6	-47.6	-48.6	0.60	< 33	U	< 33	U	< 33	U	< 98	U	--	--	< 330	U	< 390	U	< 65	36	J		
BERTH06-SB	BERTH06-SB-8T08-5-190510	5/10/2019	N	8.0	8.5	-40.6	-48.6	-49.1	0.90	< 29	U	< 29	U	< 29	U	< 86	U	--	--	< 290	U	< 350	U	< 39	33	J		
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0	0.33	-43.5	-43.5	-43.8	1.6	< 190	U	< 190	U	< 190	U	< 570	U	< 7,600	U	< 1,900	U	< 2,300	U	< 140	< 760	U		
BERTH07-SB	BERTH07-SB-0T01-190429	4/29/2019	N	0.0	1.0	-43.5	-43.5	-44.5	6.9	< 110	U	< 110	U	< 110	U	< 340	U	< 4,500	U	--	--	< 1,400	U	--	< 450	U		
BERTH07-SB	BERTH07-SB-1T02-190429	4/29/2019	N	1.0	2.0	-43.5	-44.5	-45.5	4.5	< 180	U	< 180	U	< 180	U	< 550	U	< 7,400	U	--	--	< 2,200	U	--	< 740	U		
BERTH07-SB	BERTH07-SB-2T03-5-190429	4/29/2019	N	2.0	3.5	-43.5	-45.5	-47.0	9.7	< 380	U	< 380	U	< 380	U	< 1,100	U	< 15,000	U	--	--	< 4,500	U	--	< 1,500	U		
BERTH07-SB	BERTH07-SB-4T05-190429	4/29/2019	N	4.0	5.0	-43.5	-47.5	-48.5	1.8	< 63	U	< 63	U	< 63	U	< 190	U	< 2,500	U	--	--	< 750	U	< 42	< 250	U		
BERTH08-SS	BERTH08-SS-190508	5/8/2019	N	0	0.3	-39.9	-39.9	-40.2	1.7	< 33	U	< 33	U	< 33	U	< 99	U	500	J	< 330	U	130	J	7.6	39	J		
BERTH08-SB	BERTH08-SB-0T01-190509	5/9/2019	N	0.0	1.0	-39.9	-39.9	-40.9	0.59	< 64	U	< 64	U	< 64	U	< 190	U	< 2,600	U	< 640	U	< 770	U	< 130	< 260	U		
BERTH08-SB	BERTH08-SB-1T02-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	0.64	< 63	U	< 63	U	< 63	U	< 190	U	< 2,500	U	< 630	U	< 760	U	< 120	< 250	U		
BERTH08-SB	BERTH08-SB-2T03-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	0.22	< 34	U	< 34	U	< 34	U	< 100	U	--	--	< 340	U	< 410	U	--	< 140	U		
BERTH08-SB	BERTH08-SB-4.5T06-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	0.85	< 32	U	< 32	U	< 32	U	< 95	U	--	--	< 380	U	< 45	< 130	U				
BERTH08-SB	BERTH08-SB-8T09-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	0.51	< 31	U	< 31	U	< 31	U	< 94	U	--	--	< 310	U	< 380	U	< 75	< 130	U		
BERTH09-SS	BERTH09-SS-190508	5/8/2019	N	0	0.3	-41.0	-41.0	-41.4	3.7	< 82	U	< 82	U	< 82	U	< 220	U	< 3,300	U	< 820	U	120	J	3.2	< 330	U		
BERTH09-SB	BERTH09-SB-0T01-190509	5/9/2019	N	0.0	1.0	-41.0	-41.0	-42.0	1.8	< 72	U	< 72	U	29	J	1.6	< 140	< 250	U	< 2,900	U	< 720	U	300	J	17	99	J
BERTH09-SB	BERTH09-SB-1T02-190509	5/9/2019	N	1.0	2.0	-41.0	-42.0	-43.0	0.91	< 66	U	< 66	U	19	J	2.1	< 130	< 200	U	< 2,600	U	< 660	U	210	J	23	< 260	U
BERTH09-SB	BERTH09-SB-2T03-190509	5/9/2019	N	2.0	3.0	-41.0	-43.0	-44.0	0.63	< 150	U	< 150	U	< 150	U	< 450	U	< 6,000	U	--	--	< 1,800	U	< 290	160	J		
BERTH09-SB	BERTH09-SB-4T05-190509	5/9/2019	N	4.0	5.0	-41.0	-45.0	-46.0	1.2	< 62	U	< 62	U	< 62	U	< 190	U	< 2,500	U	--	--	< 740	U	< 62	67	J		
BERTH09-SB	BERTH09-SB-6T07-190509	5/9/2019	N	6.0	7.0	-41.0	-47.0	-48.0	0.54	< 62	U	< 62	U	< 62	U	< 190	U	< 2,500	U	--	--	< 740	U	< 140	< 250	U		
BERTH09-SB	BERTH09-SB-8T09-190509	5/9/2019	N	8.0	9.0	-41.0	-49.0	-50.0	0.91	< 65	U	< 65	U	< 65	U	< 200	U	< 2,600	U	--	--	< 790	U	< 87	< 260	U		
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0	0.3	-41.0	-41.0	-41.3	1.7	< 23	U	< 23	U	< 23	U	< 1.4	< 46	< 910	U	< 230	U	50	J	2.9	< 91	U		
BERTH10-SB	BERTH10-SB-0T01-190510	5/10/2019	N	0.0	1.0	-41.0	-41.0	-42.0	1.1	< 21	U	< 21	U	< 21	U	< 1.9	< 41	< 830	U	< 210	U	< 250	U	< 23	< 83	U		
BERTH10-SB	BERTH10-SB-1T02-190510	5/10/2019	N	1.0	2.0	-41.0	-42.0	-43.0	0.87	< 19	U	< 19	U	< 19	U	< 2.2	< 39	< 780	U	< 190	U	< 230	U	< 26	< 78	U		
BERTH10-SB	BERTH10-SB-2T03-190510	5/10/2019	N	2.0	3.0	-41.0	-43.0	-44.0	1.3	< 31	U	< 31	U	< 31	U	< 2.4	< 62	< 310	U	< 310	U	< 370	U	< 28	< 120	U		
BERTH10-SB	BERTH10-SB-4T05-190510	5/10/2019	N	4.0	5.0	-41.0	-45.0	-46.0	1.2	< 33	U	< 33	U	< 33	U	< 2.8	< 66	--	--	< 330	U	< 400	U	< 33	< 130	U		
BERTH10-SB	BERTH10-SB-6T07-190510	5/10/2019	N	6.0	7.0	-41.0	-47.0	-48.0	0.60	< 30	U	< 30	U	< 30	U	< 5.0	< 60	< 300	U	< 300	U	< 360	U	< 60	34	J		
BERTH10-SB	BERTH10-SB-8T09-190510	5/10/2019	N	8.0	9.0	-41.0	-49.0	-50.0	0.49	< 36	U	< 36	U	< 36	U	--	< 73	< 360	U	< 360	U	< 440	U	--	41	J		
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0	0.3	-41.4	-41.4	-41.7	2.9	< 24	U	< 24	U	< 24	U	< 0.83	< 48	< 970	U	< 240	U	99	J	3.4	29	J		
BERTH11-SS	SSDUP01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0	0.3	-41.4	-41.4	-41.7	3.0	< 26	U	< 26	U	8.1	J	0.27	< 51	< 1,000	U	< 260	U	130	J	4.3	28	J		
BERTH11-SB	BERTH11-SB-0T01-190426	4/26/2019	N	0.0	1.0	-41.4	-41.4	-42.4	0.87	< 32	U	< 32	U	< 32	U	< 3.7	< 65	< 1,300	U	--	--	< 390	U	< 45	< 130	U		
BERTH11-SB	BERTH11-SB-1T02-190426	4/26/2019	N	1.0	2.0	-41.4	-42.4	-43.4	0.57	< 31	U	< 31	U	< 31	U	< 5.4	< 62	< 1,200	U	--	--	< 370	U	< 65	< 120	U		
BERTH11-SB	BERTH11-SB-2T03-190426	4/26/2019	N	2.0	3.0	-41.4	-43.4	-44.4	0.70	< 30	U	< 30	U	< 30	U	< 4.3	< 60	< 1,200	U	< 300	U	< 360	U	< 51	< 120	U		
BERTH11-SB	BERTH11-SB-4T05-190426	4/26/2019	N	4.0	5.0	-41.4	-45.4	-46.4	1.1	< 68	U	< 68	U	< 68	U	< 6.2	< 140	< 2,700	U	< 680	U	< 810	U	< 74	< 270	U		
BERTH11-SB	BERTH11-SB-6T07-190426	4/26/2019	N	6.0	7.0	-41.4	-47.4	-48.4	1.6	< 64	U	< 64	U	< 64	U	< 4.0	< 130	< 2,600	U	< 640	U	< 770	U	< 48	< 260	U		
BERTH11-SB	BERTH11-SB-9T10-190426	4/26/2019	N	9.0	10.0	-41.4	-50.4	-51.4	1.5	< 62	U	< 62	U	< 62	U	< 4.1	< 120	< 2,500	U	< 620	U	< 740	U	< 49	< 250	U		
BERTH12-SS	BERTH12-SS-190423	4/23/2019	N	0	0.3	-34.5	-34.5	-34.8	4.3	< 89	U	< 89	U															

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	1,2,4-Trichlorobenzene µg/kg dw	1,2-Dichlorobenzene µg/kg dw	1,4-Dichlorobenzene		2,4-Dimethylphenol µg/kg dw	2-Methylphenol µg/kg dw	3-Methylphenol, 4-Methylphenol µg/kg dw	Benzoic Acid µg/kg dw	Benzyl Alcohol µg/kg dw	bis (2-Ethylhexyl) phthalate		Butyl benzyl p µg/kg dw	
				Top	Bottom	Top of Core	Sample Top	Sample Bottom				µg/kg dw	mg/kg OC						µg/kg dw	mg/kg OC		
Remedial Action Level									--	--	--	--	3.1	--	--	--	--	--	--	--	--	
Apparent Effects Thresholds									--	--	--	110	--	--	--	--	--	--	--	--	--	63
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0	0.3	-31.7	-31.7	-32.1	9.4	< 81	U < 81	U < 81	U < 81	U < 240	U < 240	U < 240	U < 240	U < 810	U < 2,700	U < 3,200	U < 1,100	U < 320
PIER13-SB	PIER13-SB-0T01-190509	5/9/2019	N	0.0	1.0	-31.7	-31.7	-32.7	6.3	< 270	U < 270	U < 270	U < 270	U < 540	U < 810	U < 810	U < 810	U < 2,700	U < 3,200	U < 3,200	U < 1,100	U < 1,100
PIER13-SB	PIER13-SB-1T02-190509	5/9/2019	N	1.0	2.0	-31.7	-32.7	-33.7	6.3	< 280	U < 280	U < 280	U < 280	U < 570	U < 850	U < 850	U < 850	U < 2,800	U < 3,400	U < 3,400	U < 1,100	U < 1,100
PIER13-SB	PIER13-SB-2T03-190425	4/25/2019	N	2.0	3.0	-31.7	-33.7	-34.7	11	< 56	U < 56	U < 56	U < 56	U < 110	U < 170	U < 170	U < 170	U < 2,200	U < 560	U < 85	U < 220	U < 220
PIER13-SB	PIER13-SB-4T05-190425	4/25/2019	N	4.0	5.0	-31.7	-35.7	-36.7	9.9	< 120	U < 120	U < 120	U < 40	U < 240	U < 350	U < 350	U < 350	U < 4,700	U < 1,200	U < 370	U < 470	U < 470
PIER13-SB	PIER13-SB-7T07.8-190425	4/25/2019	N	7.0	7.8	-31.7	-38.7	-39.5	14	< 200	U < 200	U < 200	U < 200	U < 400	U < 600	U < 600	U < 600	U < 8,000	U < 2,000	U < 970	U < 800	U < 800
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0	0.3	-21.7	-21.7	-22.1	15	< 690	U < 690	U < 690	U < 690	U < 1,380	U < 2,760	U < 2,760	U < 2,760	U < 30	U < 8,300	U < 8,300	U < 2,800	U < 2,800
PIER14-SB	PIER14-SB-0T01-190425	4/25/2019	N	0.0	1.0	-21.7	-21.7	-22.7	9.4	< 250	U < 250	U < 250	U < 250	U < 490	U < 740	U < 740	U < 740	U < 9,800	U < 2,500	U < 570	U < 980	U < 980
PIER14-SB	PIER14-SB-1T02-190425	4/25/2019	N	1.0	2.0	-21.7	-22.7	-23.7	11	< 590	U < 590	U < 590	U < 590	U < 1,200	U < 1,800	U < 1,800	U < 1,800	U < 23,000	U < 5,900	U < 7,000	U < 2,300	U < 2,300
PIER14-SB	PIER14-SB-2T03-190425	4/25/2019	N	2.0	3.0	-21.7	-23.7	-24.7	12	< 170	U < 170	U < 170	U < 170	U < 340	U < 510	U < 510	U < 510	U < 6,800	U < 1,700	U < 540	U < 680	U < 680
PIER14-SB	PIER14-SB-4T05-190425	4/25/2019	N	4.0	5.0	-21.7	-25.7	-26.7	11	< 160	U < 160	U < 160	U < 160	U < 320	U < 470	U < 470	U < 470	U < 6,300	U < 1,600	U < 1,900	U < 630	U < 630
PIER14-SB	PIER14-SB-6T07-190425	4/25/2019	N	6.0	7.0	-21.7	-27.7	-28.7	25	< 540	U < 540	U < 540	U < 540	U < 1,100	U < 1,600	U < 1,600	U < 1,600	U < 21,000	U < 5,400	U < 6,400	U < 2,100	U < 2,100
PIER14-SB	PIER14-SB-9T010-190425	4/25/2019	N	9.0	10.0	-21.7	-30.7	-31.7	9.8	< 160	U < 160	U < 160	U < 160	U < 310	U < 470	U < 470	U < 470	U < 6,200	U < 1,600	U < 1,900	U < 620	U < 620
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0	0.3	-32.9	-32.9	-33.2	8.8	< 100	U < 100	U < 100	U < 100	U < 210	U < 310	U < 310	U < 310	U < 4,200	U < 1,000	U < 350	U < 240	U < 240
PIER15-SB	PIER15-SB-0T01-190426	4/26/2019	N	0.0	1.0	-32.9	-32.9	-33.9	5.9	< 200	U < 200	U < 200	U < 200	U < 400	U < 600	U < 600	U < 600	U < 8,100	U < 2,000	U < 2,400	U < 810	U < 810
PIER15-SB	PIER15-SB-1T02-190426	4/26/2019	N	1.0	2.0	-32.9	-33.9	-34.9	2.7	< 75	U < 75	U < 75	U < 13	U < 150	U < 220	U < 220	U < 220	U < 3,000	U < 900	U < 900	U < 33	U < 300
PIER15-SB	PIER15-SB-2T03-190426	4/26/2019	N	2.0	3.0	-32.9	-34.9	-35.9	2.8	< 180	U < 180	U < 180	U < 180	U < 360	U < 540	U < 540	U < 540	U < 7,200	U < 1,800	U < 2,200	U < 79	U < 720
PIER15-SB	PIER15-SB-4T05-190426	4/26/2019	N	4.0	5.0	-32.9	-36.9	-37.9	9.3	< 190	U < 190	U < 190	U < 190	U < 380	U < 580	U < 580	U < 580	U < 7,700	U < 1,900	U < 2,300	U < 220	U < 220
PIER15-SB	PIER15-SB-6T07-190426	4/26/2019	N	6.0	7.0	-32.9	-38.9	-39.9	2.2	< 62	U < 62	U < 62	U < 62	U < 120	U < 190	U < 190	U < 190	U < 2,500	U < 620	U < 750	U < 34	U < 250
PIER15-SB	PIER15-SB-9T010-190426	4/26/2019	N	9.0	10.0	-32.9	-41.9	-42.9	1.3	< 31	U < 31	U < 31	U < 31	U < 61	U < 92	U < 92	U < 92	U < 1,200	U < 310	U < 370	U < 28	U < 120
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0	0.3	-22.9	-22.9	-23.3	13	< 670	U < 670	U < 670	U < 670	U < 1,300	U < 2,000	U < 2,000	U < 2,000	U < 27,000	U < 6,700	U < 8,000	U < 2,700	U < 2,700
PIER16-SB	PIER16-SB-0T01-190509	5/9/2019	N	0.0	1.0	-22.9	-22.9	-23.9	9.9	< 720	U < 720	U < 720	U < 720	U < 1,400	U < 2,200	U < 2,200	U < 2,200	U < 29,000	U < 7,200	U < 8,700	U < 2,900	U < 2,900
PIER16-SB	PIER16-SB-1T02-190509	5/9/2019	N	1.0	2.0	-22.9	-23.9	-24.9	12	< 630	U < 630	U < 630	U < 630	U < 1,300	U < 1,900	U < 1,900	U < 1,900	U < 25,000	U < 6,300	U < 7,500	U < 2,500	U < 2,500
PIER16-SB	PIER16-SB-2T03-190425	4/25/2019	N	2.0	3.0	-22.9	-24.9	-25.9	17	< 280	U < 280	U < 280	U < 280	U < 560	U < 840	U < 840	U < 840	U < 11,000	U < 2,800	U < 2,400	U < 1,100	U < 1,100
PIER16-SB	PIER16-SB-4T05-190425	4/25/2019	N	4.0	5.0	-22.9	-26.9	-27.9	8.4	< 100	U < 100	U < 100	U < 100	U < 210	U < 310	U < 310	U < 310	U < 4,100	U < 1,000	U < 810	U < 110	U < 110
PIER16-SB	PIER16-SB-6T07-190425	4/25/2019	N	6.0	7.0	-22.9	-28.9	-29.9	9.7	< 82	U < 82	U < 82	U < 82	U < 160	U < 250	U < 250	U < 250	U < 3,300	U < 820	U < 980	U < 330	U < 330
PIER16-SB	PIER16-SB-9T010-190425	4/25/2019	N	9.0	10.0	-22.9	-31.9	-32.9	2.9	< 170	U < 170	U < 170	U < 170	U < 340	U < 500	U < 500	U < 500	U < 6,700	U < 1,700	U < 2,000	U < 69	U < 670
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0	0.3	-22.3	-22.3	-22.6	6.1	< 100	U < 100	U < 100	U < 100	U < 210	U < 310	U < 310	U < 310	U < 4,100	U < 1,000	U < 410	U < 140	U < 140
PIER17-SB	PIER17-SB-0T02-190426	4/26/2019	N	0.0	2.0	-22.3	-22.3	-24.3	23	< 340	U < 340	U < 340	U < 340	U < 690	U < 1,000	U < 1,000	U < 1,000	U < 14,000	U < 3,400	U < 650	U < 440	U < 440
PIER17-SB	PIER17-SB-2T03-190426	4/26/2019	N	2.0	3.0	-22.3	-24.3	-25.3	10	< 190	U < 190	U < 190	U < 190	U < 380	U < 560	U < 560	U < 560	U < 7,500	U < 1,900	U < 2,300	U < 750	U < 750
PIER17-SB	PIER17-SB-4T05-190426	4/26/2019	N	4.0	5.0	-22.3	-26.3	-27.3	5.8	< 160	U < 160	U < 160	U < 160	U < 310	U < 470	U < 470	U < 470	U < 6,200	U < 1,600	U < 1,900	U < 620	U < 620
PIER17-SB	PIER17-SB-6T07-190426	4/26/2019	N	6.0	7.0	-22.3	-28.3	-29.3	3.3	< 350	U < 350	U < 350	U < 350	U < 700	U < 1,100	U < 1,100	U < 1,100	U < 14,000	U < 3,500	U < 4,200	U < 130	U < 1,400
PIER17-SB	PIER17-SB-9T010-190426	4/26/2019	N	9.0	10.0	-22.3	-31.3	-32.3	2.6	< 64	U < 64	U < 64	U < 64	U < 130	U < 190	U < 190	U < 190	U < 2,600	U < 640	U < 770	U < 30	U < 260
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0	0.3	-25.3	-25.3	-25.6	8.7	< 550	U < 550	U < 550	U < 550	U < 1,100	U < 1,700	U < 1,700	U < 1,700	U < 22,000	U < 5,500	U < 6,700	U < 1,600	U < 1,600
PIER18-SS	SSDU02-190424 (PIER18-SS-190424)	4/24/2019	FD	0	0.3	-25.3	-25.3	-25.6	7.5	< 530	U < 530	U < 530	U < 530	U < 1,100	U < 1,600	U < 1,600	U < 1,600	U < 21,000	U < 5,300	U < 6,400	U < 2,100	U < 2,100
PIER18-SB	PIER18-SB-0T01-190510	5/10/2019	N	0.0	1.0	-25.3	-25.3	-26.3	7.7	< 540	U < 540	U < 540	U < 540	U < 1,100	U < 1,600	U < 1,600	U < 1,600	U < 22,000	U < 5,400	U < 6,500	U < 2,200	U < 2,200
PIER18-SB	PIER18-SB-1T02-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	13	< 640	U < 640	U < 640	U < 640	U < 1,300	U < 1,900	U < 1,900	U < 1,900	U < 25,000	U < 6,400	U < 1,400	U < 2,500	U < 2,500
PIER18-SB	PIER18-SB-4T05.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	15	< 150	U < 150	U < 150	U < 53	U < 310	U < 460	U < 460	U < 460	U &				

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	1,2,4-Trichlorobenzene µg/kg dw	1,2-Dichlorobenzene µg/kg dw	1,4-Dichlorobenzene		2,4-Dimethylphenol µg/kg dw	2-Methylphenol µg/kg dw	3-Methylphenol, 4-Methylphenol µg/kg dw	Benzoic Acid µg/kg dw	Benzyl Alcohol µg/kg dw	bis (2-Ethylhexyl) phthalate		Butyl benzyl p µg/kg dw								
				Top	Bottom	Top of Core	Sample Top	Sample Bottom				µg/kg dw	mg/kg OC						µg/kg dw	mg/kg OC									
Remedial Action Level									--	--	--	3.1		--	--	--	--	--	--	--	--								
Apparent Effects Thresholds									110	--	--	110		--	--	--	--	--	--	--	63	--							
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0	0.3	-19.4	-19.4	-19.7	6.0	< 500	UJ	< 500	UJ	< 1000	UJ	< 1500	UJ	--	< 20,000	UJ	< 5,000	UJ	< 6,000	UJ	--	< 2,000	UJ		
PIER20-SB	PIER20-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-19.4	-19.4	-20.4	5.9	< 410	U	< 410	U	< 830	UJ	< 1200	UJ	--	< 17,000	UJ	< 4,100	UJ	< 5,000	U	--	< 1,700	U		
PIER20-SB	SBDUP03-190510 (PIER20-SB-0TO1-190510)	5/10/2019	FD	0.0	1.0	-19.4	-19.4	-20.4	5.9	< 410	U	< 410	UJ	< 810	UJ	< 1200	UJ	--	< 16,000	UJ	< 4,100	UJ	< 4,900	UJ	--	< 1,600	UJ		
PIER20-SB	PIER20-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.4	-20.4	-21.4	19	< 550	UJ	< 550	U	< 1100	UJ	< 1700	UJ	--	< 22,000	UJ	< 5,500	UJ	< 6,600	U	--	< 2,200	U		
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0	0.49	-37.7	-37.7	-38.2	1.3	< 39	U	< 39	U	< 3.0	< 77	U	< 120	U	--	600	J	< 390	U	170	J	13	55	J	
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0	0.46	-39.8	-39.8	-40.2	2.2	< 38	U	< 38	U	< 1.7	< 77	U	< 120	U	--	580	J	< 380	U	92	J	4.2	60	J	
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0	0.66	-33.2	-33.2	-33.9	2.1	< 39	UJ	< 39	U	< 1.9	< 78	U	< 120	U	--	590	J	< 390	UJ	85	J	4.0	80	J	
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0	0.33	-19.7	-19.7	-20.0	2.0	< 67	U	< 67	U	< 3.4	< 130	U	< 200	U	--	< 2,700	U	< 670	U	170	J	8.5	86	J	
PIER24-SB	PIER24-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-19.7	-19.7	-20.7	1.7	< 21	U	< 21	U	< 1.2	< 41	U	< 62	U	--	< 830	UJ	< 210	UJ	42	J	2.5	< 83	U	
PIER24-SB	PIER24-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.7	-20.7	-21.7	2.0	< 22	U	< 22	UJ	< 1.1	< 45	U	< 67	U	--	< 900	UJ	< 220	UJ	46	J	2.3	< 90	UJ	
PIER24-SB	PIER24-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-19.7	-21.7	-22.7	3.7	< 320	U	< 320	U	< 8.6	< 650	U	< 970	U	--	--	< 3,200	UJ	< 3,900	U	< 110	< 1,300	U		
PIER24-SB	PIER24-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-19.7	-23.7	-24.7	9.0	< 490	U	< 490	U	--	< 970	U	< 1500	U	--	--	< 4,900	UJ	880	J	--	< 1,900	U		
PIER24-SB	PIER24-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-19.7	-25.7	-26.7	7.7	< 470	U	< 470	U	--	< 940	U	< 1400	U	--	--	--	< 5,600	U	--	< 1,900	U			
EW10-SC57	EW10-SC57-0-2	3/2/2010	N	0.0	2.0	-40.8	-40.8	-42.8	0.65	< 6.0	U	< 6.0	U	12	< 6.0	U	< 6.0	U	--	< 240	U	< 24	U	120	J	18	< 15	U	
EW10-SC57	EW10-SC57-2-4	3/2/2010	N	2.0	4.0	-40.8	-42.8	-44.8	0.26	< 6.0	U	< 6.0	U	--	< 6.0	U	< 6.0	U	--	< 190	U	< 19	U	17	J	--	< 15	U	
EW10-SC58	EW10-SC58-0-1.8	3/2/2010	N	0.0	1.8	-34.7	-34.7	-36.5	1.30	< 6.2	UJ	< 6.2	U	8.1	0.62	< 6.2	U	< 6.2	U	--	< 510	U	< 51	U	1,000	77	44	U	
EW10-SC58	EW10-SC58-1.8-4	3/2/2010	N	1.8	4.0	-34.7	-36.5	-38.7	1.27	< 6.0	U	< 6.0	U	< 0.47	< 6.0	U	< 6.0	U	--	< 390	U	< 39	U	< 39	U	< 3.1	< 15	U	
EW10-SC58	EW10-SC58-6-8	3/2/2010	N	6.0	8.0	-34.7	-40.7	-42.7	0.608	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	U	
EW10-SC59	EW10-SC59-0-2	3/2/2010	N	0.0	2.0	-41.0	-41.0	-43.0	0.95	< 6.0	U	< 6.0	U	< 0.63	< 6.0	U	< 6.0	U	--	< 200	U	< 20	U	13	J	1.4	< 15	U	
EW10-SC59	EW10-SC59-2-4	3/2/2010	N	2.0	4.0	-41.0	-43.0	-45.0	0.47	< 6.1	U	< 6.1	U	--	< 6.1	U	< 6.1	U	--	< 200	U	< 20	U	13	J	--	< 15	U	
EW10-SC60	EW10-SC60-0-0.8	3/2/2010	N	0.0	0.8	-42.3	-42.3	-43.1	0.88	< 6.1	U	< 6.1	U	17	0.98	< 6.1	U	< 6.1	U	--	< 280	U	< 28	U	120	6.9	< 15	U	
EW10-SC60	EW10-SC60-0.8-3	3/2/2010	N	0.8	3.0	-42.3	-43.1	-45.3	1.7	< 6.2	U	< 6.2	U	< 0.71	< 6.2	U	< 6.2	U	--	< 190	U	< 19	U	29	3.3	< 15	U		
EW10-SC61	EW10-SC61-0-1	3/2/2010	N	0	1	-42.3	-42.3	-43.3	0.924	< 6.1	U	< 6.1	U	< 0.66	< 6.1	U	< 6.1	U	< 20	U	< 200	U	< 20	U	69	7.5	< 15	U	
EW10-SC61	EW10-SC61-1-3	3/2/2010	N	1	3	-42.3	-43.3	-45.3	1.2	< 6.0	U	< 6.0	U	< 0.50	< 6.0	U	< 6.0	U	< 19	U	< 190	U	< 19	U	21	1.8	< 15	U	
EW09-SS-213	EW09-SS-213-010	6/22/2009	N	0	0.5	-34.7	-34.7	-35.2	1.74	< 6.0	U	< 6.0	U	17	0.98	< 6.0	< 6.0	U	--	< 190	U	< 19	U	100	5.7	< 15	U		
EW09-SS-214	EW09-SS-214-010	6/22/2009	N	0	0.5	-41.5	-41.5	-42.1	1.09	< 6.1	U	< 6.1	U	30	2.8	9.7	< 6.1	U	--	< 190	U	< 19	U	130	12	< 15	U		
EW09-SS-215	EW09-SS-215-010	6/22/2009	N	0	0.4	-40.9	-40.9	-41.3	3.37	< 6.0	U	< 6.0	U	10	0.30	9.6	< 6.0	U	--	< 590	U	< 30	U	690	20	43	U		
36B-01	36B-01	11/17/2014	N	0	0.3	-37.0	-37.0	-37.3	2.12	< 59	U	< 59	UJ	< 2.8	< 300	U	< 59	U	--	660	< 59	U	620	29	120	U			
36B-02	36B-02	11/17/2014	N	0	0.3	-25.0	-25.0	-25.3	3.61	< 100	U	< 100	UJ	< 2.8	< 520	U	< 100	U	--	< 1,000	U	< 100	U	1,000	28	240	U		
36B-03	36B-03	11/17/2014	N	0	0.3	-34.0	-34.0	-34.3	3.64	< 60	U	< 60	UJ	56	1.5	< 300	U	< 60	U	--	< 600	U	< 60	U	440	12	150	U	
36B-04	36B-04	11/17/2014	N	0	0.3	-25.0	-25.0	-25.3	4.55	J	< 82	U	< 82	UJ	33	J	--	< 410	U	< 82	U	< 82	U	540	--	150	U		
36B-04	36B-24 (36B-04)	11/17/2014	FD	0	0.3	-35.0	-35.0	-35.3	2.64	J	< 73	U	< 73	UJ	< 73	UJ	< 2.8	< 360	U	< 73	U	< 73	U	< 180	U	< 6.8	170	U	
36B-05	36B-05	11/17/2014	N	0	0.3	-36.0	-36.0	-36.3	2.79	< 60	U	< 60	UJ	42	J	1.5	< 300	U	< 60	U	--	270	J	280	1,100	39	430	U	
36B-06	36B-06	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	2.47	< 120	U	< 120	UJ	< 120	UJ	< 4.9	< 580	U	< 120	U	--	360	J	< 120	U	1,100	45	160	U
36B-07	36B-07	11/17/2014	N	0	0.3	-38.0	-38.0	-38.3	2.80	< 58	U	< 58	UJ	90	J	3.2	< 290	U	< 58	U	--	300	J	76	800	29	140	U	
36B-08	36B-08	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	6.15	< 90	U	< 90	UJ	50	J	--	< 450	U	< 90	U	--	< 900	U	< 90	U	580	--	240	U

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Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Inhalate g/kg OC
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	
Remedial Action Level									4.9
Apparent Effects Thresholds									--
EECA01	EECA01-SS-011222	1/12/2022	N	0	0.4	-39.7	-39.7	-40.1	< 1.9
EECA01	EECA01-43TO44-011222	1/12/2022	N	3.3	4.3	-39.7	-43	-44	--
EECA01	EECA01-44TO45-011222	1/12/2022	N	4.3	5.3	-39.7	-44	-45	--
EECA01	EECA01-45TO46-011222	1/12/2022	N	5.3	6.3	-39.7	-45	-46	--
EECA02	EECA02-43TO44-010722	1/7/2022	N	1.2	2.2	-41.8	-43	-44	1.4
EECA02	EECA02-44TO45-010722	1/7/2022	N	2.2	3.2	-41.8	-44	-45	0.82
EECA03	EECA03-43TO44-010822	1/8/2022	N	2.1	3.1	-40.9	-43	-44	--
EECA03	EECA03-44TO45-010822	1/8/2022	N	3.1	4.1	-40.9	-44	-45	--
EECA04	EECA04-43TO44-010922	1/9/2022	N	1.8	2.8	-41.2	-43	-44	0.91
EECA04	EECA04-44TO45-010922	1/9/2022	N	2.8	3.8	-41.2	-44	-45	< 2.1
EECA05	EECA05-43TO44-011222	1/12/2022	N	2.2	3.2	-40.8	-43	-44	1.1
EECA05	EECA05-44TO45-011222	1/12/2022	N	3.2	4.2	-40.8	-44	-45	0.77
EECA06	EECA06-43TO44-011222	1/12/2022	N	12.3	13.3	-30.7	-43	-44	--
EECA06	EECA06-44TO45-011222	1/12/2022	N	13.3	14.3	-30.7	-44	-45	--
EECA07	EECA07-43TO44-010822	1/8/2022	N	1.4	2.4	-41.6	-43	-44	--
EECA07	EECA07-44TO45-010822	1/8/2022	N	2.4	3.4	-41.6	-44	-45	--
EECA08	EECA08-43TO44-010822	1/8/2022	N	1.1	2.1	-41.9	-43	-44	--
EECA08	EECA08-44TO45-010822	1/8/2022	N	2.1	3.1	-41.9	-44	-45	--
EECA09	EECA09-43TO44-010922	1/9/2022	N	2.5	3.5	-40.5	-43	-44	--
EECA09	EECA09-44TO45-010922	1/9/2022	N	3.5	4.5	-40.5	-44	-45	1.0
EECA10	EECA10-43TO44-011122	1/11/2022	N	2.4	3.4	-40.6	-43	-44	< 1.5
EECA10	EECA10-44TO45-011122	1/11/2022	N	3.4	4.4	-40.6	-44	-45	< 1.5
EECA11	EECA11-43TO44-011122	1/11/2022	N	8.5	9.5	-34.5	-43	-44	--
EECA11	EECA11-44TO45-011122	1/11/2022	N	9.5	10.5	-34.5	-44	-45	--
EECA12	EECA12-SS-011022	1/10/2022	N	0	0.4	-36.7	-36.7	-37.1	< 1.1
EECA12	EECA12-43TO44-011022	1/10/2022	N	6.3	7.3	-36.7	-43	-44	--
EECA13	EECA13-43TO44-010622	1/6/2022	N	1.6	2.6	-41.4	-43	-44	1.6
EECA13	EECA13-44TO45-010622	1/6/2022	N	2.6	3.6	-41.4	-44	-45	1.1
EECA14	EECA14-43TO44-010622	1/6/2022	N	1.3	2.3	-41.7	-43	-44	--
EECA14	EECA14-44TO45-010622	1/6/2022	N	2.3	3.3	-41.7	-44	-45	--
EECA14	EECA14-45TO46-010622	1/6/2022	N	3.3	4.3	-41.7	-45	-46	--
EECA14	EECA14-46TO47-010622	1/6/2022	N	4.3	5.3	-41.7	-46	-47	< 3.0
EECA14	EECA14-47TO48-010622	1/6/2022	N	5.3	6.3	-41.7	-47	-48	< 3.0
EECA14	EECA14-48TO49-010622	1/6/2022	N	6.3	7.3	-41.7	-48	-49	--
EECA14	EECA14-49TO50-010622	1/6/2022	N	7.3	8.3	-41.7	-49	-50	< 3.1
EECA14	EECA14-50TO51-010622	1/6/2022	N	8.3	9.3	-41.7	-50	-51	< 2.9
EECA14	EECA14-51TO52-010622	1/6/2022	N	9.3	10.3	-41.7	-51	-52	--
EECA14	EECA14-52TO53-010622	1/6/2022	N	10.3	11.3	-41.7	-52	-53	--
EECA14	EECA14-53TO54-010622	1/6/2022	N	11.3	12.3	-41.7	-53	-54	--
EECA14	EECA14-54TO55-010622	1/6/2022	N	12.3	13.3	-41.7	-54	-55	--
EECA14	EECA14-55TO56-010622	1/6/2022	N	13.3	14	-41.7	-55	-55.7	< 4.4
EECA15	EECA15-43TO44-010522	1/5/2022	N	2.8	3.8	-40.2	-43	-44	--
EECA15	DUP01-010522	1/5/2022	FD	2.8	3.8	-40.2	-43	-44	--
EECA15	(EECA15-43TO44-010522)	1/5/2022	N	3.8	4.8	-40.2	-44	-45	--
EECA15	EECA15-44TO45-010522	1/5/2022	N	4.8	5.8	-40.2	-45	-46	< 15
EECA15	EECA15-45TO46-010522	1/5/2022	N	5.8	6.8	-40.2	-46	-47	--
EECA15	EECA15-46TO47-010522	1/5/2022	N	6.8	7.8	-40.2	-47	-48	< 18
EECA15	EECA15-47TO48-010522	1/5/2022	N	7.8	8.8	-40.2	-48	-49	0.96
EECA15	EECA15-48TO49-010522	1/5/2022	N	8.8	9.8	-40.2	-49	-50	--

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Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Inhalate g/kg OC
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	
Remedial Action Level									4.9
Apparent Effects Thresholds									--
EECA16	EECA16-43TO44-011122	1/11/2022	N	4.2	5.2	-38.8	-43	-44	< 2.4
EECA16	DUP12-011122 (EECA16-43TO44-011122)	1/11/2022	FD	4.2	5.2	-38.8	-43	-44	1.4
EECA16	EECA16-44TO45-011122	1/11/2022	N	5.2	6.2	-38.8	-44	-45	1.6
EECA17	EECA17-43TO44-010722	1/7/2022	N	5.2	6.2	-37.8	-43	-44	1.5
EECA17	EECA17-44TO45-010722	1/7/2022	N	6.2	7.2	-37.8	-44	-45	--
EECA18	EECA18-SS-011322	1/13/2022	N	0	0.4	-41.5	-41.5	-41.9	0.72
EECA18	EECA18-43TO44-011322	1/13/2022	N	1.5	2.5	-41.5	-43	-44	< 1.1
EECA19	EECA19-SS-010922	1/9/2022	N	0	0.4	-40.1	-40.1	-40.5	--
EECA19	EECA19-43TO44-010922	1/9/2022	N	2.9	3.9	-40.1	-43	-44	< 1.8
BERTH01-SS	BERTH01-SS-190423	4/23/2019	N	0.0	0.3	-34.9	-34.9	-35.3	--
BERTH01-SB	BERTH01-SB-0T01-190426	4/26/2019	N	0.0	1.0	-34.9	-34.9	-35.9	--
BERTH01-SB	BERTH01-SB-1T02-190426	4/26/2019	N	1.0	2.0	-34.9	-35.9	-36.9	--
BERTH01-SB	SBDUP-01-190426 (BERTH01-SB-1T02-190426)	4/26/2019	FD	1.0	2.0	-34.9	-35.9	-36.9	--
BERTH01-SB	BERTH01-SB-2T03-190426	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	--
BERTH01-SB	BERTH01-SB-4T05-190426	4/26/2019	N	4.0	5.0	-34.9	-38.9	-39.9	--
BERTH01-SB	BERTH01-SB-6T07-190426	4/26/2019	N	6.0	7.0	-34.9	-40.9	-41.9	< 8.2
BERTH01-SB	BERTH01-SB-9T010-190426	4/26/2019	N	9.0	10.0	-34.9	-43.9	-44.9	< 4.2
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0.0	0.3	-42.2	-42.2	-42.5	--
BERTH02-SB	BERTH02-SB-0T01-190426	4/26/2019	N	0.0	1.0	-42.2	-42.2	-43.2	< 12
BERTH02-SB	BERTH02-SB-1T02-190426	4/26/2019	N	1.0	2.0	-42.2	-43.2	-44.2	< 21
BERTH02-SB	BERTH02-SB-2T03-190426	4/26/2019	N	2.0	3.0	-42.2	-44.2	-45.2	< 19
BERTH02-SB	BERTH02-SB-4T05-190426	4/26/2019	N	4.0	5.0	-42.2	-46.2	-47.2	< 8.1
BERTH02-SB	BERTH02-SB-6T07-190426	4/26/2019	N	6.0	7.0	-42.2	-48.2	-49.2	< 18
BERTH02-SB	BERTH02-SB-9T010-190426	4/26/2019	N	9.0	10.0	-42.2	-51.2	-52.2	< 26
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0	0.3	-39.6	-39.6	-39.9	< 3.7
BERTH03-SB	BERTH03-SB-0T01-190429	4/29/2019	N	0.0	1.0	-39.6	-39.6	-40.6	< 37
BERTH03-SB	BERTH03-SB-1T02-190429	4/29/2019	N	1.0	2.0	-39.6	-40.6	-41.6	< 13
BERTH03-SB	BERTH03-SB-2T03-190429	4/29/2019	N	2.0	3.0	-39.6	-41.6	-42.6	< 27
BERTH03-SB	BERTH03-SB-4T05-190429	4/29/2019	N	4.0	5.0	-39.6	-43.6	-44.6	< 20
BERTH03-SB	BERTH03-SB-6T07-190429	4/29/2019	N	6.0	7.0	-39.6	-45.6	-46.6	< 42
BERTH03-SB	BERTH03-SB-8T09-190429	4/29/2019	N	8.0	9.0	-39.6	-47.6	-48.6	< 19
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0	0.3	-42.2	-42.2	-42.5	4.6
BERTH04-SS	SSDUP03-190508 (BERTH04-SS-190508)	5/8/2019	FD	0	0.3	-42.2	-42.2	-42.5	5.9
BERTH04-SB	BERTH04-SB-0T01-190509	5/9/2019	N	0.0	1.0	-42.2	-42.2	-43.2	< 2.0
BERTH04-SB	BERTH04-SB-1T02-190509	5/9/2019	N	1.0	2.0	-42.2	-43.2	-44.2	< 3.1
BERTH04-SB	BERTH04-SB-2T03-190509	5/9/2019	N	2.0	3.0	-42.2	-44.2	-45.2	--
BERTH04-SB	BERTH04-SB-3T04-190509	5/9/2019	N	3.0	4.0	-42.2	-45.2	-46.2	--
BERTH04-SB	SBDUP02-190509 (BERTH04-SB-3T04-190509)	5/9/2019	FD	3.0	4.0	-42.2	-45.2	-46.2	--
BERTH04-SB	BERTH04-SB-4T05-190509	5/9/2019	N	4.0	5.0	-42.2	-46.2	-47.2	--
BERTH04-SB	BERTH04-SB-6T07-5-190509	5/9/2019	N	6.0	7.5	-42.2	-48.2	-49.7	--
BERTH04-SB	BERTH04-SB-8.5T09.5-190509	5/9/2019	N	8.5	9.5	-42.2	-50.7	-51.7	< 32
BERTH05-SS	BERTH05-SS-190508	5/8/2019	N	0	0.3	-39.7	-39.7	-40.0	2.4
BERTH05-SB	BERTH05-SB-0T01-190510	5/10/2019	N	0.0	1.0	-39.7	-39.7	-40.7	< 7.4
BERTH05-SB	BERTH05-SB-1T02-190510	5/10/2019	N	1.0	2.0	-39.7	-40.7	-41.7	< 8.3
BERTH05-SB	BERTH05-SB-2T03-190510	5/10/2019	N	2.0	3.0	-39.7	-41.7	-42.7	5.9
BERTH05-SB	BERTH05-SB-4T05-190510	5/10/2019	N	4.0	5.0	-39.7	-43.7	-44.7	--
BERTH05-SB	BERTH05-SB-6T07-190510	5/10/2019	N	6.0	7.0	-39.7	-45.7	-46.7	--
BERTH05-SB	BERTH05-SB-8T09-190510	5/10/2019	N	8.0	9.0	-39.7	-47.7	-48.7	--

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				Top	Bottom	Top of Core	Sample Top	Sample Bottom	
Remedial Action Level									4.9
Apparent Effects Thresholds									--
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0	0.3	-40.6	-40.6	-40.9	--
BERTH06-SB	BERTH06-SB-0T01-190510	5/10/2019	N	0.0	1.0	-40.6	-40.6	-41.6	--
BERTH06-SB	BERTH06-SB-1T02-190510	5/10/2019	N	1.0	2.0	-40.6	-41.6	-42.6	<u>< 27</u>
BERTH06-SB	BERTH06-SB-2T03-190510	5/10/2019	N	2.0	3.0	-40.6	-42.6	-43.6	<u>< 32</u>
BERTH06-SB	BERTH06-SB-4T05-190510	5/10/2019	N	4.0	5.0	-40.6	-44.6	-45.6	6.5
BERTH06-SB	BERTH06-SB-7T08-190510	5/10/2019	N	7.0	8.0	-40.6	-47.6	-48.6	6.0
BERTH06-SB	BERTH06-SB-8T08.5-190510	5/10/2019	N	8.0	8.5	-40.6	-48.6	-49.1	3.7
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0	0.33	-43.5	-43.5	-43.8	<u>< 48</u>
BERTH07-SB	BERTH07-SB-0T01-190429	4/29/2019	N	0.0	1.0	-43.5	-43.5	-44.5	--
BERTH07-SB	BERTH07-SB-1T02-190429	4/29/2019	N	1.0	2.0	-43.5	-44.5	-45.5	--
BERTH07-SB	BERTH07-SB-2T03.5-190429	4/29/2019	N	2.0	3.5	-43.5	-45.5	-47.0	--
BERTH07-SB	BERTH07-SB-4T05-190429	4/29/2019	N	4.0	5.0	-43.5	-47.5	-48.5	<u>< 14</u>
BERTH08-SS	BERTH08-SS-190508	5/8/2019	N	0	0.3	-39.9	-39.9	-40.2	2.3
BERTH08-SB	BERTH08-SB-0T01-190509	5/9/2019	N	0.0	1.0	-39.9	-39.9	-40.9	<u>< 44</u>
BERTH08-SB	BERTH08-SB-1T02-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	<u>< 39</u>
BERTH08-SB	BERTH08-SB-2T03-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	--
BERTH08-SB	BERTH08-SB-4.5T06-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	<u>< 15</u>
BERTH08-SB	BERTH08-SB-8T09-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	<u>< 25</u>
BERTH09-SS	BERTH09-SS-190508	5/8/2019	N	0	0.3	-41.0	-41.0	-41.4	<u>< 8.9</u>
BERTH09-SB	BERTH09-SB-0T01-190509	5/9/2019	N	0.0	1.0	-41.0	-41.0	-42.0	5.5
BERTH09-SB	BERTH09-SB-1T02-190509	5/9/2019	N	1.0	2.0	-41.0	-42.0	-43.0	<u>< 29</u>
BERTH09-SB	BERTH09-SB-2T03-190509	5/9/2019	N	2.0	3.0	-41.0	-43.0	-44.0	25
BERTH09-SB	BERTH09-SB-4T05-190509	5/9/2019	N	4.0	5.0	-41.0	-45.0	-46.0	5.6
BERTH09-SB	BERTH09-SB-6T07-190509	5/9/2019	N	6.0	7.0	-41.0	-47.0	-48.0	<u>< 46</u>
BERTH09-SB	BERTH09-SB-8T09-190509	5/9/2019	N	8.0	9.0	-41.0	-49.0	-50.0	<u>< 29</u>
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0	0.3	-41.0	-41.0	-41.3	<u>< 5.4</u>
BERTH10-SB	BERTH10-SB-0T01-190510	5/10/2019	N	0.0	1.0	-41.0	-41.0	-42.0	<u>< 7.5</u>
BERTH10-SB	BERTH10-SB-1T02-190510	5/10/2019	N	1.0	2.0	-41.0	-42.0	-43.0	<u>< 9.0</u>
BERTH10-SB	BERTH10-SB-2T03-190510	5/10/2019	N	2.0	3.0	-41.0	-43.0	-44.0	<u>< 9.2</u>
BERTH10-SB	BERTH10-SB-4T05-190510	5/10/2019	N	4.0	5.0	-41.0	-45.0	-46.0	<u>< 11</u>
BERTH10-SB	BERTH10-SB-6T07-190510	5/10/2019	N	6.0	7.0	-41.0	-47.0	-48.0	5.7
BERTH10-SB	BERTH10-SB-8T09-190510	5/10/2019	N	8.0	9.0	-41.0	-49.0	-50.0	--
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0	0.3	-41.4	-41.4	-41.7	1.0
BERTH11-SS	SSDUP01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0	0.3	-41.4	-41.4	-41.7	0.93
BERTH11-SB	BERTH11-SB-0T01-190426	4/26/2019	N	0.0	1.0	-41.4	-41.4	-42.4	<u>< 15</u>
BERTH11-SB	BERTH11-SB-1T02-190426	4/26/2019	N	1.0	2.0	-41.4	-42.4	-43.4	<u>< 21</u>
BERTH11-SB	BERTH11-SB-2T03-190426	4/26/2019	N	2.0	3.0	-41.4	-43.4	-44.4	<u>< 17</u>
BERTH11-SB	BERTH11-SB-4T05-190426	4/26/2019	N	4.0	5.0	-41.4	-45.4	-46.4	<u>< 25</u>
BERTH11-SB	BERTH11-SB-6T07-190426	4/26/2019	N	6.0	7.0	-41.4	-47.4	-48.4	<u>< 16</u>
BERTH11-SB	BERTH11-SB-9T010-190426	4/26/2019	N	9.0	10.0	-41.4	-50.4	-51.4	<u>< 17</u>
BERTH12-SS	BERTH12-SS-190423	4/23/2019	N	0	0.3	-34.5	-34.5	-34.8	--
BERTH12-SB	BERTH12-SB-0T01-190510	5/10/2019	N	0.0	1.0	-34.5	-34.5	-35.5	--
BERTH12-SB	BERTH12-SB-1T02-190510	5/10/2019	N	1.0	2.0	-34.5	-35.5	-36.5	<u>< 24</u>
BERTH12-SB	BERTH12-SB-2T04-190425	4/25/2019	N	2.0	4.0	-34.5	-36.5	-38.5	<u>< 16</u>
BERTH12-SB	BERTH12-SB-4T05-190425	4/25/2019	N	4.0	5.0	-34.5	-38.5	-39.5	--
BERTH12-SB	BERTH12-SB-7T07.9-190425	4/25/2019	N	7.0	7.9	-34.5	-41.5	-42.4	--

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Inhalate g/kg OC
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	
Remedial Action Level									4.9
Apparent Effects Thresholds									--
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0	0.3	-31.7	-31.7	-32.1	--
PIER13-SB	PIER13-SB-0T01-190509	5/9/2019	N	0.0	1.0	-31.7	-31.7	-32.7	--
PIER13-SB	PIER13-SB-1T02-190509	5/9/2019	N	1.0	2.0	-31.7	-32.7	-33.7	--
PIER13-SB	PIER13-SB-2T03-190425	4/25/2019	N	2.0	3.0	-31.7	-33.7	-34.7	--
PIER13-SB	PIER13-SB-4T05-190425	4/25/2019	N	4.0	5.0	-31.7	-35.7	-36.7	--
PIER13-SB	PIER13-SB-7T07.8-190425	4/25/2019	N	7.0	7.8	-31.7	-38.7	-39.5	--
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0	0.3	-21.7	-21.7	-22.1	--
PIER14-SB	PIER14-SB-0T01-190425	4/25/2019	N	0.0	1.0	-21.7	-21.7	-22.7	--
PIER14-SB	PIER14-SB-1T02-190425	4/25/2019	N	1.0	2.0	-21.7	-22.7	-23.7	--
PIER14-SB	PIER14-SB-2T03-190425	4/25/2019	N	2.0	3.0	-21.7	-23.7	-24.7	--
PIER14-SB	PIER14-SB-4T05-190425	4/25/2019	N	4.0	5.0	-21.7	-25.7	-26.7	--
PIER14-SB	PIER14-SB-6T07-190425	4/25/2019	N	6.0	7.0	-21.7	-27.7	-28.7	--
PIER14-SB	PIER14-SB-9T010-190425	4/25/2019	N	9.0	10.0	-21.7	-30.7	-31.7	--
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0	0.3	-32.9	-32.9	-33.2	--
PIER15-SB	PIER15-SB-0T01-190426	4/26/2019	N	0.0	1.0	-32.9	-32.9	-33.9	--
PIER15-SB	PIER15-SB-1T02-190426	4/26/2019	N	1.0	2.0	-32.9	-33.9	-34.9	< 11
PIER15-SB	PIER15-SB-2T03-190426	4/26/2019	N	2.0	3.0	-32.9	-34.9	-35.9	< 26
PIER15-SB	PIER15-SB-4T05-190426	4/26/2019	N	4.0	5.0	-32.9	-36.9	-37.9	--
PIER15-SB	PIER15-SB-6T07-190426	4/26/2019	N	6.0	7.0	-32.9	-38.9	-39.9	< 11
PIER15-SB	PIER15-SB-9T010-190426	4/26/2019	N	9.0	10.0	-32.9	-41.9	-42.9	< 9.2
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0	0.3	-22.9	-22.9	-23.3	--
PIER16-SB	PIER16-SB-0T01-190509	5/9/2019	N	0.0	1.0	-22.9	-22.9	-23.9	--
PIER16-SB	PIER16-SB-1T02-190509	5/9/2019	N	1.0	2.0	-22.9	-23.9	-24.9	--
PIER16-SB	PIER16-SB-2T03-190425	4/25/2019	N	2.0	3.0	-22.9	-24.9	-25.9	--
PIER16-SB	PIER16-SB-4T05-190425	4/25/2019	N	4.0	5.0	-22.9	-26.9	-27.9	--
PIER16-SB	PIER16-SB-6T07-190425	4/25/2019	N	6.0	7.0	-22.9	-28.9	-29.9	--
PIER16-SB	PIER16-SB-9T010-190425	4/25/2019	N	9.0	10.0	-22.9	-31.9	-32.9	< 23
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0	0.3	-22.3	-22.3	-22.6	--
PIER17-SB	PIER17-SB-0T02-190426	4/26/2019	N	0.0	2.0	-22.3	-22.3	-24.3	--
PIER17-SB	PIER17-SB-2T03-190426	4/26/2019	N	2.0	3.0	-22.3	-24.3	-25.3	--
PIER17-SB	PIER17-SB-4T05-190426	4/26/2019	N	4.0	5.0	-22.3	-26.3	-27.3	--
PIER17-SB	PIER17-SB-6T07-190426	4/26/2019	N	6.0	7.0	-22.3	-28.3	-29.3	< 42
PIER17-SB	PIER17-SB-9T010-190426	4/26/2019	N	9.0	10.0	-22.3	-31.3	-32.3	< 10
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0	0.3	-25.3	-25.3	-25.6	--
PIER18-SS	SSDUP02-190424 (PIER18-SS-190424)	4/24/2019	FD	0	0.3	-25.3	-25.3	-25.6	--
PIER18-SB	PIER18-SB-0T01-190510	5/10/2019	N	0.0	1.0	-25.3	-25.3	-26.3	--
PIER18-SB	PIER18-SB-1T02-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	--
PIER18-SB	PIER18-SB-4T05.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	--
PIER18-SB	PIER18-SB-6.5T08-190425	4/25/2019	N	6.5	8.0	-25.3	-31.8	-33.3	--
PIER18-SB	PIER18-SB-9T010-190425	4/25/2019	N	9.0	10.0	-25.3	-34.3	-35.3	< 9.2
PIER19-SS	PIER19-SS-190423	4/23/2019	N	0	0.3	-34.8	-34.8	-35.1	--
PIER19-SB	PIER19-SB-0T02-190426	4/26/2019	N	0.0	2.0	-34.8	-34.8	-36.8	--
PIER19-SB	PIER19-SB-2T03-190426	4/26/2019	N	2.0	3.0	-34.8	-36.8	-37.8	--
PIER19-SB	PIER19-SB-4T05-190426	4/26/2019	N	4.0	5.0	-34.8	-38.8	-39.8	< 23
PIER19-SB	PIER19-SB-6T07-190426	4/26/2019	N	6.0	7.0	-34.8	-40.8	-41.8	< 14
PIER19-SB	PIER19-SB-9T010-190426	4/26/2019	N	9.0	10.0	-34.8	-43.8	-44.8	< 22

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Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Inhalate
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	g/kg OC
Remedial Action Level									4.9
Apparent Effects Thresholds									--
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0	0.3	-19.4	-19.4	-19.7	--
PIER20-SB	PIER20-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-19.4	-19.4	-20.4	--
PIER20-SB	SBDUP03-190510 (PIER20-SB-0TO1-190510)	5/10/2019	FD	0.0	1.0	-19.4	-19.4	-20.4	--
PIER20-SB	PIER20-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.4	-20.4	-21.4	--
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0	0.49	-37.7	-37.7	-38.2	4.2
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0	0.46	-39.8	-39.8	-40.2	2.7
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0	0.66	-33.2	-33.2	-33.9	3.8
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0	0.33	-19.7	-19.7	-20.0	4.3
PIER24-SB	PIER24-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-19.7	-19.7	-20.7	< 4.9
PIER24-SB	PIER24-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.7	-20.7	-21.7	< 4.5
PIER24-SB	PIER24-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-19.7	-21.7	-22.7	< 3.5
PIER24-SB	PIER24-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-19.7	-23.7	-24.7	--
PIER24-SB	PIER24-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-19.7	-25.7	-26.7	--
EW10-SC57	EW10-SC57-0-2	3/2/2010	N	0.0	2.0	-40.8	-40.8	-42.8	< 2.3
EW10-SC57	EW10-SC57-2-4	3/2/2010	N	2.0	4.0	-40.8	-42.8	-44.8	--
EW10-SC58	EW10-SC58-0-1.8	3/2/2010	N	0.0	1.8	-34.7	-34.7	-36.5	3.4
EW10-SC58	EW10-SC58-1.8-4	3/2/2010	N	1.8	4.0	-34.7	-36.5	-38.7	< 1.2
EW10-SC58	EW10-SC58-6-8	3/2/2010	N	6.0	8.0	-34.7	-40.7	-42.7	--
EW10-SC59	EW10-SC59-0-2	3/2/2010	N	0.0	2.0	-41.0	-41.0	-43.0	< 1.6
EW10-SC59	EW10-SC59-2-4	3/2/2010	N	2.0	4.0	-41.0	-43.0	-45.0	--
EW10-SC60	EW10-SC60-0-0.8	3/2/2010	N	0.0	0.8	-42.3	-42.3	-43.1	< 0.86
EW10-SC60	EW10-SC60-0.8-3	3/2/2010	N	0.8	3.0	-42.3	-43.1	-45.3	< 1.7
EW10-SC61	EW10-SC61-0-1	3/2/2010	N	0	1	-42.3	-42.3	-43.3	1.6
EW10-SC61	EW10-SC61-1-3	3/2/2010	N	1	3	-42.3	-43.3	-45.3	1.3
EW09-SS-213	EW09-SS-213-010	6/22/2009	N	0	0.5	-34.7	-34.7	-35.2	< 0.86
EW09-SS-214	EW09-SS-214-010	6/22/2009	N	0	0.5	-41.5	-41.5	-42.1	< 1.4
EW09-SS-215	EW09-SS-215-010	6/22/2009	N	0	0.4	-40.9	-40.9	-41.3	1.3
36B-01	36B-01	11/17/2014	N	0	0.3	-37.0	-37.0	-37.3	5.7
36B-02	36B-02	11/17/2014	N	0	0.3	-25.0	-25.0	-25.3	6.6
36B-03	36B-03	11/17/2014	N	0	0.3	-34.0	-34.0	-34.3	4.1
36B-04	36B-04	11/17/2014	N	0	0.3	-25.0	-25.0	-25.3	--
36B-04	36B-24 (36B-04)	11/17/2014	FD	0	0.3	-35.0	-35.0	-35.3	6.4
36B-05	36B-05	11/17/2014	N	0	0.3	-36.0	-36.0	-36.3	15
36B-06	36B-06	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	6.5
36B-07	36B-07	11/17/2014	N	0	0.3	-38.0	-38.0	-38.3	5.0
36B-08	36B-08	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	--

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Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Carbazole µg/kg dw	Dibenzofuran		Diethylphthalate µg/kg dw	Dimethylphthalate µg/kg dw	Di-n-butyl phthalate		Di-n-octyl phthalate µg/kg dw	Hexachloro-1,3-butadiene µg/kg dw	Hexachlorobenzene µg/kg dw	N-Nitrosodiphenylamine		Pentachlorophenol µg/kg dw	Phenol µg/kg dw																			
				Top	Bottom	Top of Core	Sample Top	Sample Bottom		µg/kg dw	mg/kg OC			µg/kg dw	mg/kg OC				µg/kg dw	mg/kg OC			µg/kg dw	mg/kg OC																	
Remedial Action Level																						--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Apparent Effects Thresholds																						--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EECA01	EECA01-SS-011222	1/12/2022	N	0	0.4	-39.7	-39.7	-40.1	17	23	2.1	<42	U	<16	U	<52	UB	<4.7	<16	U	<5.2	U	<5.2	U	<6.2	U	<0.56	--	R	<16	U										
EECA01	EECA01-43TO44-011222	1/12/2022	N	3.3	4.3	-39.7	-43	-44	3.6	J	6.2	J	--	<36	U	<14	U	<45	UB	--	<14	U	<4.5	U	<4.5	U	--	--	R	<14	U										
EECA01	EECA01-44TO45-011222	1/12/2022	N	4.3	5.3	-39.7	-44	-45	<53	U	<53	U	--	<140	U	<53	U	<180	U	--	<53	U	<18	U	<18	U	<21	U	--	<140	U	59	U								
EECA01	EECA01-45TO46-011222	1/12/2022	N	5.3	6.3	-39.7	-45	-46	<60	U	<60	U	--	<160	U	<60	U	<200	U	--	<60	U	<20	U	<20	U	<24	U	--	<160	U	45	J								
EECA02	EECA02-43TO44-010722	1/7/2022	N	1.2	2.2	-41.8	-43	-44	3.2	J	2.6	J	0.39	<34	U	<13	U	<43	UB	<6.5	<13	UJ	<4.3	U	<4.3	U	<5.1	U	<0.77	<34	UJ	<13	UB								
EECA02	EECA02-44TO45-010722	1/7/2022	N	2.2	3.2	-41.8	-44	-45	1.8	J	1.6	J	0.22	<34	U	<13	U	<43	UB	<5.8	<13	UJ	<4.3	U	<4.3	U	<5.1	U	<0.69	<34	UJ	<13	UB								
EECA03	EECA03-43TO44-010822	1/8/2022	N	2.1	3.1	-40.9	-43	-44	<11	U	<11	U	--	<30	U	<11	U	<37	U	--	<11	UJ	<3.7	U	<3.7	U	<4.4	U	--	<30	UJ	<11	UB								
EECA03	EECA03-44TO45-010822	1/8/2022	N	3.1	4.1	-40.9	-44	-45	<11	U	<11	U	--	<30	U	<11	U	<37	U	--	<11	UJ	<3.7	U	<3.7	U	<4.5	U	--	<30	UJ	<11	UB								
EECA04	EECA04-43TO44-010922	1/9/2022	N	1.8	2.8	-41.2	-43	-44	<13	U	<13	U	<1.9	<36	U	<13	U	<45	U	<6.7	<13	UJ	<4.5	U	<4.5	U	<5.4	U	<0.81	<36	UJ	<13	UB								
EECA04	EECA04-44TO45-010922	1/9/2022	N	2.8	3.8	-41.2	-44	-45	<13	U	<13	U	<1.6	<34	U	<13	U	<43	U	<5.4	<13	UJ	<4.3	U	<4.3	U	<5.1	U	<0.64	<36	UJ	<13	UB								
EECA05	EECA05-43TO44-011222	1/12/2022	N	2.2	3.2	-40.8	-43	-44	0.93	J	1.4	J	0.21	<37	U	<14	U	<46	UB	<6.8	<14	U	<4.6	U	<4.6	U	<5.6	U	<0.82	--	R	<14	U								
EECA05	EECA05-44TO45-011222	1/12/2022	N	3.2	4.2	-40.8	-44	-45	<14	U	1.1	J	0.13	<37	U	<14	U	<46	UB	<5.5	<14	U	<4.6	U	<4.6	U	<5.5	U	<0.66	--	R	<14	UB								
EECA06	EECA06-43TO44-011222	1/12/2022	N	12.3	13.3	-30.7	-43	-44	13	J	21	J	--	<32	U	<12	U	<40	UB	--	<12	UJ	<4.0	U	<4.0	U	<4.8	U	--	--	R	63	J-								
EECA06	EECA06-44TO45-011222	1/12/2022	N	13.3	14.3	-30.7	-44	-45	<13	U	1.3	J	--	<34	U	<13	U	<42	UB	--	<13	UJ	<4.2	U	<4.2	U	<5.1	U	--	--	R	<13	U								
EECA07	EECA07-43TO44-010822	1/8/2022	N	1.4	2.4	-41.6	-43	-44	<12	U	<12	U	--	<32	U	<12	U	<39	U	--	<12	UJ	<3.9	U	<3.9	U	<4.7	U	--	<32	UJ	<12	UB								
EECA07	EECA07-44TO45-010822	1/8/2022	N	2.4	3.4	-41.6	-44	-45	<12	U	0.57	J	--	<31	U	<12	U	<39	U	--	<12	UJ	<3.9	U	<3.9	U	<4.7	U	--	<31	UJ	<12	UB								
EECA08	EECA08-43TO44-010822	1/8/2022	N	1.1	2.1	-41.9	-43	-44	0.80	J	2.1	J	--	<34	U	<13	U	<42	UB	--	<13	UJ	<4.2	U	<4.2	U	<5.1	U	--	<34	UJ	<13	UB								
EECA08	EECA08-44TO45-010822	1/8/2022	N	2.1	3.1	-41.9	-44	-45	<13	U	<13	U	--	<33	U	<13	U	<42	UB	--	<13	UJ	<4.2	U	<4.2	U	<5.0	U	--	<33	UJ	<13	UB								
EECA09	EECA09-43TO44-010922	1/9/2022	N	2.5	3.5	-40.5	-43	-44	<12	U	1.8	J	--	<32	U	<12	U	<40	UB	--	<12	UJ	<4.0	U	<4.0	U	<4.8	U	--	<32	UJ	<12	UB								
EECA09	EECA09-44TO45-010922	1/9/2022	N	3.5	4.5	-40.5	-44	-45	<13	U	0.74	J	0.13	<35	U	<13	U	<44	UB	<7.7	<13	UJ	<4.4	U	<4.4	U	<5.3	U	<0.93	<35	UJ	<13	UB								
EECA10	EECA10-43TO44-011122	1/11/2022	N	2.4	3.4	-40.6	-43	-44	<13	U	1.1	J	0.092	<35	U	<13	U	<44	UB	<3.7	<13	UJ	<4.4	U	<4.4	U	<5.3	U	<0.44	--	R	<13	UB								
EECA10	EECA10-44TO45-011122	1/11/2022	N	3.4	4.4	-40.6	-44	-45	<13	U	2.5	J	0.21	<35	U	<13	U	<44	UB	<3.7	<13	UJ	<4.4	U	<4.4	U	<5.3	U	<0.44	--	R	<13	UB								
EECA11	EECA11-43TO44-011122	1/11/2022	N	8.5	9.5	-34.5	-43	-44	<13	U	0.78	J	--	<34	U	<13	U	<42	UB	--	<13	UJ	<4.2	U	<4.2	U	<5.1	U	--	--	R	<13	U								
EECA11	EECA11-44TO45-011122	1/11/2022	N	9.5	10.5	-34.5	-44	-45	<12	U	0.54	J	--	<32	U	<12	U	<40	UB	--	<12	UJ	<4.0	U	<4.0	U	<4.8	U	--	--	R	<12	U								
EECA12	EECA12-SS-011022	1/10/2022	N	0	0.4	-36.7	-36.7	-37.1	22	J	37	J	2.1	<40	U	<15	U	<50	UB	<2.8	<15	U	<5.0	U	<5.0	U	<6.0	U	<0.33	<40	UJ	26	U								
EECA12	EECA12-43TO44-011022	1/10/2022	N	6.3	7.3	-36.7	-43	-44	<12	U	<12	U	--	<31	U	<12	U	<39	UB	--	1.1	J	<3.9	U	<3.9	U	<4.7	U	--	<31	UJ	<12	U								
EECA13	EECA13-43TO44-010622	1/6/2022	N	1.6	2.6	-41.4	-43	-44	<14	U	3.3	J	0.59	<37	UJ	<14	U	<46	UB	<8.2	<14	UJ	<4.6	U	<4.6	U	<5.6	U	<1.0	<37	UJ	<14	UB								
EECA13	EECA13-44TO45-010622	1/6/2022	N	2.6	3.6	-41.4	-44	-45	<13	U	0.90	J	0.15	<35	UJ	<13	U	<44	UB	<7.5	<13	UJ	<4.4	U	<4.4	U	<5.3	U	<0.90	<35	UJ	<13	UB								
EECA14	EECA14-43TO44-010622	1/6/2022	N	1.3	2.3	-41.7	-43	-44	250	J	560	J	--	5.1	J	<13	U	<45	UB	--	<13	UJ	<4.5	U	<4.5	U	<5.4	U	--	<36	UJ	2.7	J								
EECA14	EECA14-44TO45-010622	1/6/2022	N	2.3	3.3	-41.7	-44	-45	100	J	2,600	J	--	<3,400	U	<1,300	U	<43	UJ	--	<13	UJ	<4.3	UJ	<4.3	UJ	<5.1	UJ	--	<34	UJ	2.9	J								
EECA14	EECA14-45TO46-010622	1/6/2022	N	3.3	4.3	-41.7	-45	-46	19	J	32	J	--	9.6	J	<12	U	<40	UB	--	<12	UJ	<4.0	U	<4.0	U	<4.9	U	--	<32	UJ	<12	UB								
EECA14	EECA14-46TO47-010622	1/6/2022	N	4.3	5.3	-41.7	-46	-47	22	J	15	J	2.7	<34	U	<13	U	<43	UB	<7.7	<13	UJ	<4.3	U	<4.3	U	<5.1	U	<0.91	<34	UJ	<13	UB								
EECA14	EECA14-47TO48-010622	1/6/2022	N	5.3	6.3	-41.7	-47	-48	24	J	11	J	1.9	7.5	J	<13	U	<43	UB	<7.5	<13	UJ	<4.3	U	<4.3	U	<5.2	U	<0.91	<35	UJ	<13	UB								
EECA14	EECA14-48TO49-010622	1/6/2022	N	6.3	7.3	-41.7	-48	-49	180	J-	30	J	--	<33	UJ	<12	U	<42	UB	--	<12	UJ	<4.2	U	<4.2	U	<5.0	U	--	<33	UJ	<12	UB								
EECA14	EECA14-49TO50-010622	1/6/2022	N	7.3	8.3	-41.7	-49	-50	36	J	11	J	2.2	<32	UJ	<12	U	<41	UB	<8.0	<12	UJ	<4.1	U	<4.1	U	<4.9	U	<0.96	<32	UJ	<12	UB								
EECA14	EECA14-50TO51-010622	1/6/2022	N	8.3	9.3	-41.7	-50	-51	3.4	J	2.3	J	0.39	11	J	<13	U	<42	UB	<7.1	<13	UJ	<4.2	U	<4.2	U	<5.1	U	<0.86	<34	UJ	<13	UB								
EECA14	EECA14-51TO52-010622	1/6/2022	N	9.3	10.3	-41.7	-51	-52	11	J	3.9	J	--	12	J	<13	U	<44	UB	--	<13	UJ	<4.4	U	<4.4	U	<5.3	U	--	<35	UJ	2.4	J								
EECA14	EECA14-52TO53-010622	1/6/2022	N	10.3	11.3	-41.7	-52	-53	<17	U	7.1	J	--	<46	U	<17	U	3.1	J	--	<17	UJ	<5.7	U	<5.7	U	<6.9	U	--	<46	U	<17	UB								
EECA14	EECA14-53TO54-010622	1/6/2022	N	11.3	12.3	-41.7	-53	-54	230	J	34	J	--	<47	U	<18	U	<59	UB	--	<18	UJ	<5.9	U	<5.9	U	<7.1	U	--	<47	U	<18	UB								
EECA14	EECA14-54TO55-010622	1/6/2022	N	12.3	13.3	-41.7	-54	-55	85	J	55	J	--	<45	U	<17	U	<56	UB	--	<17	UJ	<5.6	U	<5.6	U	<6.8	U	--	<45	U	<17	UB								
EECA14	EECA14-55TO56-010622	1/6/2022	N	13.3	14	-41.7	-55	-55.7	15	J	18	J	3.6	<48	U	<18	U	<60	UB	<12	<18	UJ	<6.0	U	<6.0	U	<7.2	U	<1.4	<											

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Carbazole		Dibenzofuran		Diethyl-phthalate	Dimethyl-phthalate	Di-n-butyl phthalate		Di-n-octyl phthalate	Hexachloro-1,3-butadiene	Hexachloro-benzene	N-Nitrosodiphenylamine		Pentachloro-phenol	Phenol																					
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	µg/kg dw	U	µg/kg dw	mg/kg OC	µg/kg dw	µg/kg dw	µg/kg dw	mg/kg OC	µg/kg dw	µg/kg dw	µg/kg dw	µg/kg dw	mg/kg OC	µg/kg dw	µg/kg dw	µg/kg dw	µg/kg dw																			
Remedial Action Level																							--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Apparent Effects Thresholds																							--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
EECA16	EECA16-43TO44-011122	1/11/2022	N	4.2	5.2	-38.8	-43	-44	< 13	U	1.1	J	0.16	< 34	U	< 13	U	< 42	UB	< 6.0	< 13	U	< 4.2	U	< 4.2	U	< 5.1	U	< 0.73	--	R	< 13	U											
EECA16	DUP12-011122 (EECA16-43TO44-011122)	1/11/2022	FD	4.2	5.2	-38.8	-43	-44	< 13	U	1.2	J	0.17	< 34	U	< 13	U	< 43	UB	< 6.2	< 13	U	< 4.3	U	< 4.3	U	< 5.1	U	< 0.74	--	R	< 13	U											
EECA16	EECA16-44TO45-011122	1/11/2022	N	5.2	6.2	-38.8	-44	-45	< 14	U	0.79	J	0.14	< 36	U	< 14	U	< 45	UB	< 7.8	< 14	U	< 4.5	U	< 4.5	U	< 5.5	U	< 0.85	--	R	< 14	U											
EECA17	EECA17-43TO44-010722	1/7/2022	N	5.2	6.2	-37.8	-43	-44	5.0	J	14		2.6	< 33	U	< 12	U	< 41	U	< 7.6	< 12	UJ	< 4.1	U	< 4.1	U	< 4.9	U	< 0.91	< 33	UJ	< 12	UB											
EECA17	EECA17-44TO45-010722	1/7/2022	N	6.2	7.2	-37.8	-44	-45	2.7	J	7.4	J	--	< 31	U	< 12	U	< 39	U	--	< 12	UJ	< 3.9	U	< 3.9	U	< 4.7	U	--	< 31	UJ	< 12	UB											
EECA18	EECA18-SS-011322	1/13/2022	N	0	0.4	-41.5	-41.5	-41.9	22	J	22		2.3	< 38	U	2.0	J	< 48	UB	< 5.0	< 14	U	< 4.8	U	< 4.8	U	< 5.8	U	< 0.60	--	R	160												
EECA18	EECA18-43TO44-011322	1/13/2022	N	1.5	2.5	-41.5	-43	-44	40	J	31		1.9	< 37	U	< 14	U	< 46	UB	< 2.9	< 14	U	< 4.6	U	< 4.6	U	< 5.5	U	< 0.34	--	R	31												
EECA19	EECA19-SS-010922	1/9/2022	N	0	0.4	-40.1	-40.1	-40.5	29	J	25		--	< 33	U	1.8	J	< 42	UB	--	< 12	U	< 4.2	U	< 4.2	U	< 5.0	U	--	5.4	J	110												
EECA19	EECA19-43TO44-010922	1/9/2022	N	2.9	3.9	-40.1	-43	-44	7.1	J	15		1.7	< 32	U	< 12	U	< 40	UB	< 4.5	< 12	UJ	< 4.0	U	< 4.0	U	< 4.8	U	< 0.54	< 32	UJ	< 12	UB											
BERTH01-SS	BERTH01-SS-190423	4/23/2019	N	0.0	0.3	-34.9	-34.9	-35.3	--		160	J	--	< 2,700	UJ	< 270	UJ	< 900	UJ	--	< 270	UJ	--	--	--	< 110	UJ	--	< 810	U	< 270	U												
BERTH01-SB	BERTH01-SB-0T01-190426	4/26/2019	N	0.0	1.0	-34.9	-34.9	-35.9	--		52	J	--	7,200	U	< 720	U	< 2,400	U	--	< 720	U	< 2.3	U	< 1.7	U	< 290	U	< 2,200	UJ	< 720	U												
BERTH01-SB	BERTH01-SB-1T02-190426	4/26/2019	N	1.0	2.0	-34.9	-35.9	-36.9	--		45	J	--	6,400	U	< 640	U	< 2,100	U	--	< 640	U	< 2.1	U	0.76	J	< 260	U	--	< 1,900	UJ	< 640	U											
BERTH01-SB	SDUP-01-190426 (BERTH01-SB-1T02-190426)	4/26/2019	FD	1.0	2.0	-34.9	-35.9	-36.9	--		35	J	--	6,200	U	< 620	U	< 2,100	U	--	< 620	U	< 2.1	U	< 1.6	U	< 250	U	--	< 1,900	UJ	< 620	U											
BERTH01-SB	BERTH01-SB-2T03-190426	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	--		67	J	--	2,200	U	< 220	U	< 740	U	--	< 220	U	--	--	--	< 89	U	--	< 1,600	U	41	J												
BERTH01-SB	BERTH01-SB-4T05-190426	4/26/2019	N	4.0	5.0	-34.9	-38.9	-39.9	--		57	J	--	1,000	U	< 100	U	< 330	U	--	< 100	U	--	--	--	< 40	U	--	< 300	U	20	J												
BERTH01-SB	BERTH01-SB-6T07-190426	4/26/2019	N	6.0	7.0	-34.9	-40.9	-41.9	--		77	J	2.3	2,000	U	< 200	U	< 680	U	< 21	< 200	U	--	--	--	27	J	0.82	< 610	U	< 200	U												
BERTH01-SB	BERTH01-SB-9T010-190426	4/26/2019	N	9.0	10.0	-34.9	-43.9	-44.9	--		36	J	1.2	< 960	U	< 96	U	< 320	U	< 10	< 96	U	--	--	--	< 38	U	< 1.2	< 290	U	< 96	U												
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0.0	0.3	-42.2	-42.2	-42.5	--		230	J	--	< 3,100	UJ	< 310	UJ	140	J	--	< 310	UJ	--	--	--	42	J	--	< 930	UJ	< 310	UJ												
BERTH02-SB	BERTH02-SB-0T01-190426	4/26/2019	N	0.0	1.0	-42.2	-42.2	-43.2	--		19	J	1.7	< 980	U	< 98	U	< 330	U	< 30	< 98	U	< 1.6	U	< 1.2	U	6.2	J	0.56	< 290	UJ	< 98	U											
BERTH02-SB	BERTH02-SB-1T02-190426	4/26/2019	N	1.0	2.0	-42.2	-43.2	-44.2	--		18	J	2.9	< 970	U	< 97	U	< 320	U	< 52	< 97	U	< 0.52	UJ	< 0.39	U	5.8	J	0.94	< 290	UJ	< 97	U											
BERTH02-SB	BERTH02-SB-2T03-190426	4/26/2019	N	2.0	3.0	-42.2	-44.2	-45.2	--		5.4	J	0.86	< 920	U	< 92	UJ	< 310	U	< 49	< 92	U	--	--	--	< 37	UJ	< 5.9	< 280	U	< 92	UJ												
BERTH02-SB	BERTH02-SB-4T05-190426	4/26/2019	N	4.0	5.0	-42.2	-46.2	-47.2	--		96	U	< 6.0	< 960	U	< 96	U	< 320	U	< 20	< 96	U	--	--	--	< 38	U	< 2.4	< 290	U	< 96	U												
BERTH02-SB	BERTH02-SB-6T07-190426	4/26/2019	N	6.0	7.0	-42.2	-48.2	-49.2	--		< 200	U	< 13	< 2,000	U	< 200	U	< 680	U	< 45	< 200	U	--	--	--	< 81	U	< 5.4	< 610	U	< 200	U												
BERTH02-SB	BERTH02-SB-9T010-190426	4/26/2019	N	9.0	10.0	-42.2	-51.2	-52.2	--		< 190	U	< 20	< 1,900	U	< 190	U	< 630	U	< 66	< 190	U	--	--	--	< 75	U	< 7.8	< 570	U	< 190	U												
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0	0.3	-39.6	-39.6	-39.9	--		57	J	2.1	< 780	UJ	< 78	UJ	< 260	UJ	< 9.6	< 78	UJ	--	--	--	5.4	J	0.20	< 230	U	21	J												
BERTH03-SB	BERTH03-SB-0T01-190429	4/29/2019	N	0.0	1.0	-39.6	-39.6	-40.6	--		16	J	2.4	< 1,800	U	< 180	U	< 610	U	< 91	< 180	U	< 0.56	UJ	< 0.42	UJ	< 74	U	< 11	< 2,500	UJ	< 180	U											
BERTH03-SB	BERTH03-SB-1T02-190429	4/29/2019	N	1.0	2.0	-39.6	-40.6	-41.6	--		47	J	4.7	< 1,000	U	< 100	U	< 330	U	< 33	< 100	U	< 0.52	UJ	< 0.39	UJ	< 40	U	< 4.0	< 300	U	< 100	U											
BERTH03-SB	BERTH03-SB-2T03-190429	4/29/2019	N	2.0	3.0	-39.6	-41.6	-42.6	--		740	J	32	< 4,700	U	< 470	U	< 1,600	U	< 70	< 470	U	--	--	--	< 190	U	< 8.3	< 1,400	UJ	< 470	UJ												
BERTH03-SB	BERTH03-SB-4T05-190429	4/29/2019	N	4.0	5.0	-39.6	-43.6	-44.6	--		< 190	U	< 15	< 1,900	U	< 190	U	< 650	U	< 50	< 190	U	--	--	--	< 77	U	< 5.9	< 580	U	< 190	U												
BERTH03-SB	BERTH03-SB-6T07-190429	4/29/2019	N	6.0	7.0	-39.6	-45.6	-46.6	--		< 190	U	< 32	< 1,900	U	< 190	U	< 620	U	< 110	< 190	U	--	--	--	< 75	U	< 13	< 560	UJ	< 190	UJ												
BERTH03-SB	BERTH03-SB-8T09-190429	4/29/2019	N	8.0	9.0	-39.6	-47.6	-48.6	--		< 200	U	< 14	< 2,000	U	< 200	U	< 650	U	< 46	< 200	U	--	--	--	< 79	U	< 5.6	< 590	UJ	< 200	UJ												
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0	0.3	-42.2	-42.2	-42.5	--		180	J	8.6	< 2,300	U	< 230	U	< 750	U	< 36	< 230	U	--	--	--	< 90	U	< 4.3	< 680	U	< 230	U												
BERTH04-SS	SSDU03-190508 (BERTH04-SS-190508)	5/8/2019	FD	0	0.3	-42.2	-42.2	-42.5	--		87	J	6.7	< 2,100	U	< 210	U	< 710	U	< 55	< 210	U	--	--	--	< 86	U	< 6.6	< 640	U	< 210	U												
BERTH04-SB	BERTH04-SB-0T01-190509	5/9/2019	N	0.0	1.0	-42.2	-42.2	-43.2	--		29	J	2.2	< 200	U	< 20	U	7.5	J	0.58	< 20	U	< 5.2	U	< 3.9	U	< 7.9	U	< 0.61	< 59	U	4.8	J											
BERTH04-SB	BERTH04-SB-1T02-190509	5/9/2019	N	1.0	2.0	-42.2	-43.2	-44.2	--		3.8	J	0.47	< 1,900	U	< 19	U	8.1	J	1.0	< 19	U	< 4.6	U	< 3.4	U	< 7.4	U	< 0.91	< 56	U	4.2	J											
BERTH04-SB	BERTH04-SB-2T03-190509	5/9/2019	N	2.0	3.0	-42.2	-44.2	-45.2	--																																			

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Carbazole µg/kg dw	Dibenzofuran		Diethyl-phthalate µg/kg dw	Dimethyl-phthalate µg/kg dw	Di-n-butyl phthalate		Di-n-octyl phthalate µg/kg dw	Hexachloro-1,3-butadiene µg/kg dw	Hexachloro-benzene µg/kg dw	N-Nitrosodiphenylamine		Pentachloro-phenol µg/kg dw	Phenol µg/kg dw																			
				Top	Bottom	Top of Core	Sample Top	Sample Bottom		µg/kg dw	mg/kg OC			µg/kg dw	mg/kg OC				µg/kg dw	mg/kg OC			µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC															
Remedial Action Level																						--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Apparent Effects Thresholds																						--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0	0.3	-40.6	-40.6	-40.9	--	< 680	U	--	< 6,800	U	< 680	U	< 2,300	U	--	< 680	U	--	--	< 270	U	--	< 2,000	UJ	< 680	UJ											
BERTH06-SB	BERTH06-SB-0T01-190510	5/10/2019	N	0.0	1.0	-40.6	-40.6	-41.6	--	100	J	--	< 5,700	U	< 570	U	< 1,900	U	--	< 570	U	< 0.54	U	< 0.41	U	< 230	U	--	< 1,700	U	< 570	U									
BERTH06-SB	BERTH06-SB-1T02-190510	5/10/2019	N	1.0	2.0	-40.6	-41.6	-42.6	--	45	J	1.4	< 6,400	U	< 640	U	< 2,100	U	< 66	< 640	U	< 1.3	U	< 0.96	U	< 260	U	< 8.1	< 1,900	U	< 640	U									
BERTH06-SB	BERTH06-SB-2T03-190510	5/10/2019	N	2.0	3.0	-40.6	-42.6	-43.6	--	180	J	10	< 4,400	U	< 440	U	< 1,500	U	< 83	< 440	U	--	--	--	< 170	U	< 9.4	< 1,300	U	< 440	U										
BERTH06-SB	BERTH06-SB-4T05-190510	5/10/2019	N	4.0	5.0	-40.6	-44.6	-45.6	--	1,000	J	190	< 930	U	< 93	U	< 310	U	< 60	< 93	U	--	--	--	< 37	U	< 7.1	< 280	U	< 93	U										
BERTH06-SB	BERTH06-SB-7T08-190510	5/10/2019	N	7.0	8.0	-40.6	-47.6	-48.6	--	1,600	J	270	49	< 98	U	< 330	U	< 55	< 98	U	--	--	--	< 39	U	< 6.5	< 290	U	< 98	U											
BERTH06-SB	BERTH06-SB-8T08.5-190510	5/10/2019	N	8.0	8.5	-40.6	-48.6	-49.1	--	1,800	J	200	< 860	U	< 86	U	< 290	U	< 32	< 86	U	--	--	--	< 35	U	< 3.9	< 260	U	< 86	U										
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0	0.33	-43.5	-43.5	-43.8	--	26	J	1.6	< 5,700	U	< 570	U	< 1,900	U	< 120	< 570	U	--	--	--	< 230	U	< 14	< 1,700	UJ	< 570	UJ										
BERTH07-SB	BERTH07-SB-0T01-190429	4/29/2019	N	0.0	1.0	-43.5	-43.5	-44.5	--	1,100	J	--	< 3,400	U	< 340	U	< 1,100	U	--	< 340	U	< 0.91	U	< 0.68	U	59	J	--	< 1,000	UJ	< 340	U									
BERTH07-SB	BERTH07-SB-1T02-190429	4/29/2019	N	1.0	2.0	-43.5	-44.5	-45.5	--	150	J	--	< 5,500	U	< 550	U	< 1,800	U	--	< 550	U	< 0.67	UJ	< 0.50	UJ	< 220	U	--	< 1,700	UJ	< 550	U									
BERTH07-SB	BERTH07-SB-2T03.5-190429	4/29/2019	N	2.0	3.5	-43.5	-45.5	-47.0	--	380	J	--	< 11,000	U	< 1,100	U	< 3,800	U	--	< 1,100	U	--	--	--	< 450	U	--	< 3,400	U	< 1,100	U										
BERTH07-SB	BERTH07-SB-4T05-190429	4/29/2019	N	4.0	5.0	-43.5	-47.5	-48.5	--	230	J	13	< 1,900	U	< 190	U	< 630	U	< 35	< 190	U	--	--	--	< 75	U	< 4.2	< 560	U	< 190	U										
BERTH08-SS	BERTH08-SS-190508	5/8/2019	N	0	0.3	-39.9	-39.9	-40.2	--	31	J	1.8	< 990	U	< 99	U	< 330	U	< 19	< 99	U	--	--	--	< 40	U	< 2.4	< 300	U	36	J										
BERTH08-SB	BERTH08-SB-0T01-190509	5/9/2019	N	0.0	1.0	-39.9	-39.9	-40.9	--	100	J	17	< 1,900	U	< 190	U	< 640	U	< 110	< 190	U	< 1.5	U	< 1.1	UJ	33	J	5.6	< 580	U	< 190	U									
BERTH08-SB	BERTH08-SB-1T02-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	--	73	J	11	< 1,900	U	< 190	U	< 630	U	< 98	< 190	U	< 1.5	U	< 1.1	UJ	27	J	4.2	< 570	U	< 190	U									
BERTH08-SB	BERTH08-SB-2T03-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	--	120	J	--	< 1,000	U	< 100	U	< 340	U	--	< 100	U	--	--	--	15	J	--	< 310	U	< 100	U										
BERTH08-SB	BERTH08-SB-4.5T06-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	--	30	J	3.5	< 950	U	< 95	U	< 320	U	< 38	< 95	U	--	--	--	< 38	U	< 4.5	< 280	U	< 95	U										
BERTH08-SB	BERTH08-SB-8T09-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	--	89	J	17	< 940	U	< 94	U	< 310	U	< 61	< 94	U	--	--	--	< 38	U	< 7.5	< 280	U	< 94	U										
BERTH09-SS	BERTH09-SS-190508	5/8/2019	N	0	0.3	-41.0	-41.0	-41.4	--	52	J	1.4	< 2,500	U	< 250	U	< 820	U	< 22	< 250	U	--	--	--	< 98	U	< 2.6	< 740	U	< 250	U										
BERTH09-SB	BERTH09-SB-0T01-190509	5/9/2019	N	0.0	1.0	-41.0	-41.0	-42.0	--	70	J	3.9	< 2,200	U	< 220	U	< 720	U	< 40	< 220	U	< 4.3	U	< 3.2	U	< 86	U	< 4.8	< 650	U	< 220	U									
BERTH09-SB	BERTH09-SB-1T02-190509	5/9/2019	N	1.0	2.0	-41.0	-42.0	-43.0	--	43	J	4.7	< 2,000	U	< 200	U	< 660	U	< 73	< 200	U	< 5.6	U	5.2	< 79	U	< 8.7	< 600	U	< 200	U										
BERTH09-SB	BERTH09-SB-2T03-190509	5/9/2019	N	2.0	3.0	-41.0	-43.0	-44.0	--	84	J	13	< 4,500	UJ	< 450	UJ	< 1,500	UJ	< 240	< 450	UJ	--	--	--	< 180	UJ	< 29	< 1,400	UJ	< 450	UJ										
BERTH09-SB	BERTH09-SB-4T05-190509	5/9/2019	N	4.0	5.0	-41.0	-45.0	-46.0	--	< 190	U	< 16	< 1,900	U	< 190	U	< 620	U	< 52	< 190	U	--	--	--	< 74	U	< 6.2	< 560	U	< 190	U										
BERTH09-SB	BERTH09-SB-6T07-190509	5/9/2019	N	6.0	7.0	-41.0	-47.0	-48.0	--	< 190	U	< 35	< 1,900	U	< 190	U	< 620	U	< 110	< 190	U	--	--	--	< 74	U	< 14	< 560	UJ	< 190	UJ										
BERTH09-SB	BERTH09-SB-8T09-190509	5/9/2019	N	8.0	9.0	-41.0	-49.0	-50.0	--	< 200	U	< 22	< 2,000	U	< 200	U	< 650	U	< 71	< 200	U	--	--	--	< 79	U	< 8.7	< 590	U	< 200	U										
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0	0.3	-41.0	-41.0	-41.3	--	37	J	2.2	< 680	UJ	< 68	UJ	< 230	UJ	< 14	< 68	UJ	--	--	--	< 27	UJ	< 1.6	< 210	U	< 68	U										
BERTH10-SB	BERTH10-SB-0T01-190510	5/10/2019	N	0.0	1.0	-41.0	-41.0	-42.0	--	3.1	J	0.28	< 620	U	< 62	U	< 210	U	< 19	< 62	U	< 0.54	U	< 0.41	U	< 25	U	< 2.3	< 190	U	< 62	U									
BERTH10-SB	BERTH10-SB-1T02-190510	5/10/2019	N	1.0	2.0	-41.0	-42.0	-43.0	--	< 58	UJ	< 6.7	< 580	UJ	< 58	UJ	< 190	UJ	< 22	< 58	UJ	< 0.53	U	< 0.39	U	< 23	UJ	< 2.8	< 170	UJ	< 58	UJ									
BERTH10-SB	BERTH10-SB-2T03-190510	5/10/2019	N	2.0	3.0	-41.0	-43.0	-44.0	--	18	J	1.4	< 930	U	< 93	U	< 310	U	< 24	< 93	U	--	--	--	< 37	U	< 2.8	< 280	U	< 93	U										
BERTH10-SB	BERTH10-SB-4T05-190510	5/10/2019	N	4.0	5.0	-41.0	-45.0	-46.0	--	< 99	U	< 8.2	< 990	U	< 99	U	< 330	U	< 28	< 99	U	--	--	--	< 40	U	< 3.3	< 300	U	< 99	U										
BERTH10-SB	BERTH10-SB-6T07-190510	5/10/2019	N	6.0	7.0	-41.0	-47.0	-48.0	--	< 90	U	< 15	< 900	U	< 90	U	< 300	U	< 50	< 90	U	--	--	--	< 36	U	< 6.0	< 270	UJ	< 90	UJ										
BERTH10-SB	BERTH10-SB-8T09-190510	5/10/2019	N	8.0	9.0	-41.0	-49.0	-50.0	--	< 110	U	--	< 1,100	U	< 110	U	< 360	U	--	< 110	U	--	--	--	< 44	U	--	< 330	U	< 110	U										
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0	0.3	-41.4	-41.4	-41.7	--	54	J	1.9	< 730	UJ	< 73	UJ	< 240	UJ	< 8.3	< 73	UJ	--	--	--	< 29	UJ	< 1.0	< 220	U	29	J										
BERTH11-SS	SSDUP01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0	0.3	-41.4	-41.4	-41.7	--	58	J	1.9	< 770	UJ	9.1	J	< 260	UJ	< 8.7	< 77	UJ	--	--	--	< 31	UJ	< 1.0	< 230	U	52	J										
BERTH11-SB	BERTH11-SB-0T01-190426	4/26/2019	N	0.0	1.0	-41.4	-41.4	-42.4	--	9.2	J	1.1	< 970	U	< 97	U	< 320	U	< 37	< 97	U	< 0.54	U	< 0.41	U	< 39	U	< 4.5	< 290	UJ	< 97	U									
BERTH11-SB	BERTH11-SB-1T02-190426	4/26/2019	N	1.0	2.0	-41.4	-42.4	-43.4	--	5.4	J	0.95	< 940	U	< 94	U	< 310	U	< 54	< 94	U	< 0.51	U	< 0.38	U	< 37	U	< 6.5	< 280	UJ	< 94	U									
BERTH11-S																																									

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Carbazole µg/kg dw	Dibenzofuran		Diethylphthalate µg/kg dw	Dimethylphthalate µg/kg dw	Di-n-butyl phthalate		Di-n-octyl phthalate µg/kg dw	Hexachloro-1,3-butadiene µg/kg dw	Hexachlorobenzene µg/kg dw	N-Nitrosodiphenylamine		Pentachlorophenol µg/kg dw	Phenol µg/kg dw																				
				Top	Bottom	Top of Core	Sample Top	Sample Bottom		µg/kg dw	mg/kg OC			µg/kg dw	mg/kg OC				µg/kg dw	mg/kg OC			µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC																
				Remedial Action Level																																						
Apparent Effects Thresholds																						--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0	0.3	-31.7	-31.7	-32.1	--	190	J	--	< 2,400	U	< 240	U	< 810	U	--	< 240	U	--	--	23	J	--	< 730	U	< 240	U												
PIER13-SB	PIER13-SB-0T01-190509	5/9/2019	N	0.0	1.0	-31.7	-31.7	-32.7	--	120	J	--	< 8,100	U	< 810	U	< 2,700	U	--	< 810	U	< 2.6	U	< 1.9	U	< 320	U	--	< 2,400	U	< 810	U										
PIER13-SB	PIER13-SB-1T02-190509	5/9/2019	N	1.0	2.0	-31.7	-31.7	-33.7	--	84	J	--	< 8,500	U	< 850	U	< 2,800	U	--	< 850	U	< 2.6	U	< 1.9	U	< 340	U	--	< 2,500	U	< 850	U										
PIER13-SB	PIER13-SB-2T03-190425	4/25/2019	N	2.0	3.0	-31.7	-33.7	-34.7	--	80	J	--	< 1,700	U	< 170	U	< 560	U	--	< 170	U	--	--	31	J	--	240	J	110	J												
PIER13-SB	PIER13-SB-4T05-190425	4/25/2019	N	4.0	5.0	-31.7	-35.7	-36.7	--	91	J	--	< 3,500	U	< 350	U	< 1,200	U	--	< 350	U	--	--	79	J	--	< 1,100	U	< 350	U												
PIER13-SB	PIER13-SB-7T07.8-190425	4/25/2019	N	7.0	7.8	-31.7	-38.7	-39.5	--	140	J	--	< 6,000	U	< 600	U	< 2,000	U	--	< 600	U	--	--	99	J	--	< 1,800	U	< 600	U												
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0	0.3	-21.7	-21.7	-22.1	--	3,300	J	--	< 21,000	U	< 2,100	U	< 6,900	U	--	< 2,100	U	--	--	< 830	U	--	--	--	--	--												
PIER14-SB	PIER14-SB-0T01-190425	4/25/2019	N	0.0	1.0	-21.7	-21.7	-22.7	--	34	J	--	< 7,400	U	< 740	U	< 2,500	U	--	< 740	U	< 2.4	U	< 1.8	U	50	J	--	< 2,200	U	< 740	U										
PIER14-SB	PIER14-SB-1T02-190425	4/25/2019	N	1.0	2.0	-21.7	-22.7	-23.7	--	73	J	--	< 18,000	U	< 1,800	U	< 5,900	U	--	< 1,800	U	< 2.8	U	< 2.1	U	< 700	U	--	< 5,300	U	< 1,800	U										
PIER14-SB	PIER14-SB-2T03-190425	4/25/2019	N	2.0	3.0	-21.7	-23.7	-24.7	--	360	J	--	< 5,100	U	< 510	U	< 1,700	U	--	< 510	U	--	--	< 200	U	--	< 1,500	U	93	J												
PIER14-SB	PIER14-SB-4T05-190425	4/25/2019	N	4.0	5.0	-21.7	-25.7	-26.7	--	220	J	--	< 4,700	U	< 470	U	< 1,600	U	--	< 470	U	--	--	< 190	U	--	< 1,400	U	110	J												
PIER14-SB	PIER14-SB-6T07-190425	4/25/2019	N	6.0	7.0	-21.7	-27.7	-28.7	--	460	J	--	< 16,000	U	< 1,600	U	< 5,400	U	--	< 1,600	U	--	--	< 640	U	--	< 4,800	U	< 1,600	U												
PIER14-SB	PIER14-SB-9T010-190425	4/25/2019	N	9.0	10.0	-21.7	-30.7	-31.7	--	170	J	--	< 4,700	U	88	J	< 1,600	U	--	< 470	U	--	--	57	J	--	< 1,400	U	190	J												
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0	0.3	-32.9	-32.9	-33.2	--	1,100	J	--	< 3,100	U	< 310	U	< 1,000	U	--	< 310	U	--	--	83	J	--	< 940	U	< 310	U												
PIER15-SB	PIER15-SB-0T01-190426	4/26/2019	N	0.0	1.0	-32.9	-32.9	-33.9	--	36	J	--	< 6,000	U	< 600	U	< 2,000	U	--	< 600	U	< 1.9	U	0.76	J	< 240	U	--	< 1,800	U	< 600	U										
PIER15-SB	PIER15-SB-1T02-190426	4/26/2019	N	1.0	2.0	-32.9	-33.9	-34.9	--	51	J	1.9	< 2,200	U	< 220	U	< 750	U	< 28	< 220	U	< 0.61	U	< 0.46	U	13	J	0.48	< 670	U	< 220	U										
PIER15-SB	PIER15-SB-2T03-190426	4/26/2019	N	2.0	3.0	-32.9	-34.9	-35.9	--	23	J	0.82	< 5,400	U	< 540	U	< 1,800	U	< 64	< 540	U	--	--	< 220	U	< 7.9	< 1,600	U	< 540	U												
PIER15-SB	PIER15-SB-4T05-190426	4/26/2019	N	4.0	5.0	-32.9	-36.9	-37.9	--	120	J	--	< 5,800	U	< 580	U	< 1,900	U	--	< 580	U	--	--	< 230	U	--	< 1,700	U	< 580	U												
PIER15-SB	PIER15-SB-6T07-190426	4/26/2019	N	6.0	7.0	-32.9	-38.9	-39.9	--	8.5	J	0.39	< 1,900	U	< 190	U	< 620	U	< 28	< 190	U	--	--	< 75	U	< 3.4	< 560	U	< 190	U												
PIER15-SB	PIER15-SB-9T010-190426	4/26/2019	N	9.0	10.0	-32.9	-41.9	-42.9	--	92	U	< 7.1	< 920	U	< 92	U	< 310	U	< 24	< 92	U	--	--	< 37	U	< 2.8	< 280	U	< 92	U												
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0	0.3	-22.9	-22.9	-23.3	--	3,100	J	--	< 20,000	U	< 2,000	U	< 6,700	U	--	< 2,000	U	--	--	< 800	U	--	< 6,000	U	< 2,000	U												
PIER16-SB	PIER16-SB-0T01-190509	5/9/2019	N	0.0	1.0	-22.9	-22.9	-23.9	--	700	J	--	< 22,000	U	< 2,200	U	< 7,200	U	--	< 2,200	U	< 3.4	U	< 2.6	U	< 870	U	--	< 6,500	U	< 2,200	U										
PIER16-SB	PIER16-SB-1T02-190509	5/9/2019	N	1.0	2.0	-22.9	-23.9	-24.9	--	< 1,900	U	--	< 19,000	U	< 1,900	U	< 6,300	U	--	< 1,900	U	< 9.7	U	< 7.3	U	< 750	U	--	< 5,600	U	< 1,900	U										
PIER16-SB	PIER16-SB-2T03-190425	4/25/2019	N	2.0	3.0	-22.9	-24.9	-25.9	--	640	J	--	< 8,400	U	< 840	U	< 2,800	U	--	< 840	U	--	--	< 340	U	--	< 2,500	U	< 840	U												
PIER16-SB	PIER16-SB-4T05-190425	4/25/2019	N	4.0	5.0	-22.9	-26.9	-27.9	--	110	J	--	< 3,100	U	70	J	< 1,000	U	--	< 310	U	--	--	< 120	U	--	< 920	U	< 310	U												
PIER16-SB	PIER16-SB-6T07-190425	4/25/2019	N	6.0	7.0	-22.9	-28.9	-29.9	--	80	J	--	< 2,500	U	< 250	U	< 820	U	--	< 250	U	--	--	< 98	U	--	< 740	U	42	J												
PIER16-SB	PIER16-SB-9T010-190425	4/25/2019	N	9.0	10.0	-22.9	-31.9	-32.9	--	94	J	3.2	< 5,000	U	< 500	U	< 1,700	U	< 59	< 500	U	--	--	< 200	U	< 6.9	< 1,500	U	< 500	U												
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0	0.3	-22.3	-22.3	-22.6	--	1,500	J	--	< 3,100	U	< 310	U	< 1,000	U	--	< 310	U	--	--	64	J	--	< 930	U	< 310	U												
PIER17-SB	PIER17-SB-0T02-190426	4/26/2019	N	0.0	2.0	-22.3	-22.3	-24.3	--	90	J	--	< 10,000	U	< 1,000	U	< 3,400	U	--	< 1,000	U	--	--	< 410	U	--	< 3,100	U	< 1,000	U												
PIER17-SB	PIER17-SB-2T03-190426	4/26/2019	N	2.0	3.0	-22.3	-24.3	-25.3	--	39	J	--	< 5,600	U	< 560	U	< 1,900	U	--	< 560	U	--	--	< 230	U	--	< 1,700	U	< 560	U												
PIER17-SB	PIER17-SB-4T05-190426	4/26/2019	N	4.0	5.0	-22.3	-26.3	-27.3	--	23	J	--	< 4,700	U	< 470	U	< 1,600	U	--	< 470	U	--	--	< 190	U	--	< 1,400	U	< 470	U												
PIER17-SB	PIER17-SB-6T07-190426	4/26/2019	N	6.0	7.0	-22.3	-28.3	-29.3	--	< 1,100	U	< 33	< 11,000	U	< 1,100	U	< 3,500	U	< 110	< 1,100	U	--	--	< 420	U	< 13	< 3,200	U	< 1,100	U												
PIER17-SB	PIER17-SB-9T010-190426	4/26/2019	N	9.0	10.0	-22.3	-31.3	-32.3	--	58	J	2.2	< 1,900	U	< 190	U	< 640	U	< 25	83	J	--	--	< 77	U	< 3.0	< 580	U	< 190	U												
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0	0.3	-25.3	-25.3	-25.6	--	1,900	J	--	< 17,000	U	< 1,700	U	< 5,500	U	--	< 1,700	U	--	--	< 670	U	--	< 5,000	U	< 1,700	U												
PIER18-SS	SSDUP02-190424 (PIER18-SS-190424)	4/24/2019	FD	0	0.3	-25.3	-25.3	-25.6	--	1,100	J	--	< 16,000	U	< 1,600	U	< 5,300	U	--	< 1,600	U	--	--	< 640	U	--	< 4,800	U	< 1,600	U												
PIER18-SB	PIER18-SB-0T01-190510	5/10/2019	N	0.0	1.0	-25.3	-25.3	-26.3	--	630	J	--	< 16,000	U	< 1,600	U	< 5,400	U	--	< 1,600	U	< 2.6	U	< 2.0	U	< 650	U	--	< 4,900	U	< 1,600	U										
PIER18-SB	PIER18-SB-1T02-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	--	120	J	--	< 19,000	U	< 1,900	U	< 6,400	U	--	< 1,900	U	< 9.1	U	< 6.8	U	< 760	U	--	< 5,700	U	< 1,900	U										
PIER18-SB	PIER18-SB-4T05.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	--	130	J	--	< 4,600	U	< 460	U	< 1,500	U	--	< 460	U	--	--	< 180	U	--	< 1,400	U	< 460	U												
PIER18-SB	PIER18-SB-6.5T08-190425	4/25/2019	N	6.5	8.0	-25.3	-31.8	-33.3	--	49	J	--	< 860	U	< 86	U	< 290	U	--	< 86	U	--	--	< 34	U	--	< 260	U	< 86	U												
PIER18-SB	PIER18-SB-9T010-190425	4/25/2019	N	9.0	10.0	-25.3	-34.3	-35.3	--	17	J	1.3	< 940	U	< 94	U	< 310	U	< 24	< 94	U	--	--	< 37	U	< 2.8	< 280	U	< 94	U												
PIER19-SS	PIER19-SS-190423	4/23/2019	N	0	0.3	-34.8	-34.8	-35.1	--	720	J	--	< 2,500	U	< 250	U	< 850	U	--	< 250	U	--	--	< 100	U	--	< 760	U	58	J												
PIER19-SB	PIER19-SB-0T02-190426	4/26/2019	N	0.0	2.0	-34.8	-34.8	-36.8	--	< 530	U	--	< 5,300	U	< 530	U	< 1,800	U	--	< 530	U	--	--	< 210	U	--	< 1,60															

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Carbazole µg/kg dw	Dibenzofuran		Diethylphthalate µg/kg dw	Dimethylphthalate µg/kg dw	Di-n-butyl phthalate		Di-n-octyl phthalate µg/kg dw	Hexachloro-1,3-butadiene µg/kg dw	Hexachlorobenzene µg/kg dw	N-Nitrosodiphenylamine		Pentachlorophenol µg/kg dw	Phenol µg/kg dw																				
				Top	Bottom	Top of Core	Sample Top	Sample Bottom		µg/kg dw	mg/kg OC			µg/kg dw	mg/kg OC				µg/kg dw	mg/kg OC			µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC																
				Remedial Action Level																						--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Apparent Effects Thresholds																						--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0	0.3	-19.4	-19.4	-19.7	--	470	J	--	< 15,000	UJ	< 1,500	UJ	< 5,000	UJ	--	< 1,500	UJ	--	--	< 600	UJ	--	< 4,500	UJ	< 1,500	UJ												
PIER20-SB	PIER20-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-19.4	-19.4	-20.4	--	220	J	--	< 12,000	U	< 1,200	U	< 4,100	U	--	< 1,200	U	< 1.9	U	< 1.4	UJ	< 500	U	--	< 3,700	UJ	< 1,200	UJ										
PIER20-SB	SBDUP03-190510 (PIER20-SB-0TO1-190510)	5/10/2019	FD	0.0	1.0	-19.4	-19.4	-20.4	--	< 1,200	UJ	--	< 12,000	UJ	< 1,200	UJ	< 4,100	UJ	--	< 1,200	UJ	< 1.9	U	< 1.4	UJ	< 490	UJ	--	< 3,700	UJ	< 1,200	UJ										
PIER20-SB	PIER20-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.4	-20.4	-21.4	--	< 1,700	U	--	< 17,000	U	< 1,700	U	< 5,500	U	--	< 1,700	U	< 8.3	U	< 6.3	UJ	< 660	U	--	< 5,000	UJ	< 1,700	UJ										
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0	0.49	-37.7	-37.7	-38.2	--	56	J	4.3	< 1,200	U	< 120	U	< 390	U	< 30	< 120	U	--	--	< 46	U	< 3.5	< 350	U	< 120	U												
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0	0.46	-39.8	-39.8	-40.2	--	57	J	2.6	< 1,200	U	< 120	U	< 380	U	< 17	< 120	U	--	--	< 46	U	< 2.1	< 350	U	82	J												
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0	0.66	-33.2	-33.2	-33.9	--	31	J	1.5	< 1,200	U	< 120	U	< 390	U	< 19	< 120	U	--	--	< 47	U	< 2.2	< 350	U	< 120	UJ												
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0	0.33	-19.7	-19.7	-20.0	--	19	J	0.95	< 2,000	U	< 200	U	< 670	U	< 34	< 200	U	--	--	< 81	U	< 4.0	< 600	U	< 200	U												
PIER24-SB	PIER24-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-19.7	-19.7	-20.7	--	23	J	1.4	< 620	U	< 62	U	< 210	U	< 12	< 62	U	< 1.1	U	< 0.83	U	< 25	U	< 1.5	< 190	U	< 62	U										
PIER24-SB	PIER24-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.7	-20.7	-21.7	--	20	J	1.0	< 670	UJ	< 67	UJ	< 220	UJ	< 11	< 67	UJ	< 0.58	UJ	< 0.43	U	< 27	UJ	< 1.4	< 200	U	< 67	U										
PIER24-SB	PIER24-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-19.7	-21.7	-22.7	--	450	J	12	< 9,700	U	< 970	U	< 3,200	U	< 86	< 970	U	--	--	< 390	U	< 11	< 2,900	U	< 970	U												
PIER24-SB	PIER24-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-19.7	-23.7	-24.7	--	390	J	--	< 15,000	U	< 1,500	U	< 4,900	U	--	< 1,500	U	--	--	< 580	U	--	< 4,400	U	< 1,500	U												
PIER24-SB	PIER24-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-19.7	-25.7	-26.7	--	380	J	--	< 14,000	U	< 1,400	U	< 4,700	U	--	< 1,400	U	--	--	< 560	U	--	< 4,200	U	< 1,400	U												
EW10-SC57	EW10-SC57-0-2	3/2/2010	N	0.0	2.0	-40.8	-40.8	-42.8	73	74	11	< 24	U	< 15	U	< 24	U	< 3.7	< 24	U	< 6.0	U	< 6.0	U	< 17	U	< 2.6	< 30	U	< 24	U											
EW10-SC57	EW10-SC57-2-4	3/2/2010	N	2.0	4.0	-40.8	-42.8	-44.8	< 19	U	< 19	U	< 19	U	< 15	U	< 19	U	--	< 19	U	< 0.98	U	< 0.98	U	< 6.0	U	--	< 30	U	< 19	U										
EW10-SC58	EW10-SC58-0-1.8	3/2/2010	N	0.0	1.8	-34.7	-34.7	-36.5	260	56	4.3	< 51	U	16	< 51	U	< 3.9	< 51	U	< 6.2	U	< 6.2	U	< 6.2	U	< 0.48	< 31	U	< 51	U												
EW10-SC58	EW10-SC58-1.8-4	3/2/2010	N	1.8	4.0	-34.7	-36.5	-38.7	< 39	U	500	39	< 39	U	< 15	U	< 39	U	< 3.1	< 39	U	< 6.0	U	< 6.0	U	< 3.1	< 30	U	< 39	U												
EW10-SC58	EW10-SC58-6-8	3/2/2010	N	6.0	8.0	-34.7	-40.7	-42.7	--	10	1.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--												
EW10-SC59	EW10-SC59-0-2	3/2/2010	N	0.0	2.0	-41.0	-41.0	-43.0	< 20	U	< 20	U	< 2.1	< 20	U	< 15	U	< 20	U	< 2.1	< 20	U	< 6.0	U	< 6.0	U	< 6.0	U	< 0.63	< 30	U	< 20	U									
EW10-SC59	EW10-SC59-2-4	3/2/2010	N	2.0	4.0	-41.0	-43.0	-45.0	< 20	U	< 20	U	< 2.0	U	< 15	U	< 20	U	--	< 20	U	< 6.1	U	< 6.1	U	< 6.1	U	< 6.1	U	< 6.1	U											
EW10-SC60	EW10-SC60-0-0.8	3/2/2010	N	0.0	0.8	-42.3	-42.3	-43.1	57	38	2.2	< 28	U	< 15	U	< 28	U	< 1.6	< 28	U	< 6.1	U	< 6.1	U	< 6.1	U	< 0.35	< 31	U	< 28	U											
EW10-SC60	EW10-SC60-0.8-3	3/2/2010	N	0.8	3.0	-42.3	-43.1	-45.3	< 19	U	< 19	U	< 2.2	< 19	U	< 15	U	< 19	U	< 2.2	< 19	U	< 6.2	U	< 6.2	U	< 6.2	U	< 0.71	< 31	U	< 19	U									
EW10-SC61	EW10-SC61-0-1	3/2/2010	N	0	1	-42.3	-42.3	-43.3	21	10	1.1	< 20	U	< 15	U	< 20	U	< 2.2	< 20	U	< 6.1	U	< 6.1	U	< 6.1	U	< 3.0	< 30	U	< 20	U											
EW10-SC61	EW10-SC61-1-3	3/2/2010	N	1	3	-42.3	-43.3	-45.3	15	J	< 19	U	< 1.6	< 19	U	< 15	U	< 19	U	< 1.6	< 19	U	< 6.0	U	< 6.0	U	< 6.0	U	< 2.5	< 30	U	< 19	U									
EW09-SS-213	EW09-SS-213-010	6/22/2009	N	0	0.5	-34.7	-34.7	-35.2	120	72	4.1	< 19	U	< 15	U	< 19	U	< 1.1	< 19	U	--	--	--	--	< 6.6	U	< 0.38	< 30	U	< 19	U											
EW09-SS-214	EW09-SS-214-010	6/22/2009	N	0	0.5	-41.5	-41.5	-42.1	84	62	5.7	57	< 15	U	< 19	U	< 1.7	< 19	U	< 1.7	< 19	U	< 6.1	U	< 6.1	U	< 6.1	U	< 0.56	< 30	U	200										
EW09-SS-215	EW09-SS-215-010	6/22/2009	N	0	0.4	-40.9	-40.9	-41.3	370	150	4.5	< 15	U	< 15	U	< 59	U	< 1.8	< 59	U	< 6.0	U	< 6.0	U	< 6	U	< 0.18	< 30	U	< 59	U											
36B-01	36B-01	11/17/2014	N	0	0.3	-37.0	-37.0	-37.3	--	700	33	< 59	U	< 59	U	< 59	U	< 2.8	< 59	U	< 59	U	< 59	U	< 59	U	< 2.8	< 300	UJ	< 160	U											
36B-02	36B-02	11/17/2014	N	0	0.3	-25.0	-25.0	-25.3	--	2,000	55	< 100	U	< 100	U	< 100	U	< 2.8	< 100	U	< 100	U	< 100	U	< 100	U	< 2.8	< 520	UJ	< 150	U											
36B-03	36B-03	11/17/2014	N	0	0.3	-34.0	-34.0	-34.3	--	1,000	27	< 60	U	< 60	U	< 60	U	< 1.6	< 60	U	< 60	U	< 60	U	< 60	U	< 1.6	< 300	UJ	< 62	U											
36B-04	36B-04	11/17/2014	N	0	0.3	-25.0	-25.0	-25.3	--	1,700	--	< 82	U	< 82	U	< 82	U	--	< 82	U	< 82	U	< 82	U	< 82	U	--	< 410	UJ	< 82	U											
36B-04	36B-24 (36B-04)	11/17/2014	FD	0	0.3	-35.0	-35.0	-35.3	--	1,300	49	84	< 73	U	< 73	U	< 73	U	< 2.8	< 73	U	< 73	U	< 73	U	< 73	U	< 2.8	< 360	UJ	< 73	U										
36B-05	36B-05	11/17/2014	N	0	0.3	-36.0	-36.0	-36.3	--	250	9.0	89	< 60	U	< 60	U	< 2.2	< 60	U	< 60	U	< 60	U	< 60	U	< 60	U	< 2.2	< 300	UJ	290											
36B-06	36B-06	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	--	6,600	270	< 120	U	< 120	U	< 120	U	< 4.9	< 120	U	< 120	U	< 120	U	< 120	U	< 4.9	< 580	UJ	< 140	U											
36B-07	36B-07	11/17/2014	N	0	0.3	-38.0	-38.0	-38.3	--	2,200	79	< 58	U	< 58	U	35	J	4.3	< 58	U	< 58	U	< 58	U	< 58	U	< 2.1	< 290	UJ	< 120	U											
36B-08	36B-08	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	--	3,400	--	< 90	U	< 90	U	< 90	U	--	< 90	U	< 90	U	< 90	U	< 90	U	--	< 450	UJ	< 90	U											

Table 5
SVOC Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Notes:

1. Chemical parameters listed on a mg/kg OC basis represent concentrations normalized, or expressed, on a TOC basis. To normalize to TOC, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent TOC content of the sediment. OC-normalized concentrations from samples collected during the 2019 Site Investigation are based on the total organic carbon results, adjusted using total solids measured at 110 degrees Celsius (AECOM 2020).
2. Yellow shading indicates result is above the remedial action level. For samples with TOC less than 0.5 percent or above 4 percent and remedial action levels that are on an OC-normalized basis, the dry weight concentrations were compared to the apparent effects threshold.
3. Gray shading means sample is shallower than -43 feet MLLW and will be removed as part of the Slip 36 berth expansion and deepening (-43 feet MLLW) to accommodate operational needs.
4. Underlined values indicate the analyte was not detected with a reporting limit that is above the associated screening level.
5. Bold values indicate the analyte was detected at a concentration greater than the method detection limit.
6. The sediment elevation of surface samples from 2019 are assumed to be the same as subsurface samples collected at the same location. The surface elevation of locations without subsurface samples (PIER21, PIER22, and PIER23) was estimated from the tide and water levels recorded at the time of sampling.

Symbols, Acronyms, and Abbreviations:

% = percent
< = compound was not detected, value presented is the reporting limit
– = not analyzed/not applicable
bss = below sediment surface
FD = field duplicate
µg/kg dw = micrograms per kilogram dry weight
mg/kg OC = milligrams per kilogram organic carbon
MLLW = mean lower low water
N = parent sample
OC = organic carbon
TOC = total organic carbon
SVOC = semivolatile organic compound

Qualifiers:

J = Estimated value.
J- Estimated value, low bias.
J+ = Estimated value, high bias.
R = The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
U = Analyte not detected above value shown.
UB = The analyte was found in an associated blank as well as the sample.
UJ = Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.

Reference:

AECOM. 2020. Site Investigation Report, Pier 36, United States Coast Guard Base Seattle, Washington. October 20.

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	1-Methyl naphthalene µg/kg dw	2-Methylnaphthalene		Acenaphthene		Acenaphthylene µg/kg dw	Anthracene		Benz(a)anthracene		Benzo(a)pyrene									
				Top	Bottom	Top of Core	Sample Top	Sample Bottom			µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC		µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC								
				Remedial Action Level									--	--		16	--	--	--	--	--	--	--						
Apparent Effects Thresholds									--	--	500	--	--	--	--	--	--	--	--	--									
ECCA01	EECA01-SS-011222	1/12/2022	N	0.0	0.4	-39.7	-39.7	-40.1	1.1	16	30	2.7	22	2.0	20	79	7.2	150	14	120	11								
ECCA01	EECA01-43TO44-011222	1/12/2022	N	3.3	4.3	-39.7	-43.0	-44.0	0.31	3.6	5.9	--	7.1	--	4.9	21	--	35	--	29	--								
ECCA01	EECA01-44TO45-011222	1/12/2022	N	4.3	5.3	-39.7	-44.0	-45.0	< 0.20	UB	1.8	J	< 18	U	--	1.9	J	--	< 8.8	U	< 21	U	--	< 14	U	--	6.0	J	--
ECCA01	EECA01-45TO46-011222	1/12/2022	N	5.3	6.3	-39.7	-45.0	-46.0	0.48	< 1.2	U	--	< 20	U	--	< 16	U	--	< 9.9	U	< 24	U	--	< 16	U	--	< 24	U	--
ECCA02	EECA02-43TO44-010722	1/17/2022	N	1.2	2.2	-41.8	-43.0	-44.0	0.66	1.5	2.6	0.39	3.8	0.58	1.0	6.4	0.97	10	1.5	8.3	1.3								
ECCA02	EECA02-44TO45-010722	1/17/2022	N	2.2	3.2	-41.8	-44.0	-45.0	0.74	1.1	1.9	0.26	1.8	J	0.24	0.62	3.8	0.51	7.4	1.0	5.8	0.78							
ECCA03	EECA03-43TO44-010822	1/8/2022	N	2.1	3.1	-40.9	-43.0	-44.0	< 0.20	UB	0.21	J	0.45	--	< 0.37	U	--	< 0.37	U	< 0.37	U	--	0.35	J	--	< 0.37	U	--	
ECCA03	EECA03-44TO45-010822	1/8/2022	N	3.1	4.1	-40.9	-44.0	-45.0	0.26	0.56	0.78	--	< 0.37	U	--	< 0.37	U	< 0.37	U	--	0.33	J	--	< 0.37	U	--			
ECCA04	EECA04-43TO44-010922	1/9/2022	N	1.8	2.8	-41.2	-43.0	-44.0	0.67	1.7	1.7	0.25	< 0.45	U	< 0.067	< 0.45	U	< 0.45	U	< 0.067	0.72	0.11	< 0.45	U	< 0.067				
ECCA04	EECA04-44TO45-010922	1/9/2022	N	2.8	3.8	-41.2	-44.0	-45.0	0.80	0.88	1.3	0.16	< 0.43	U	< 0.054	< 0.43	U	0.41	J	0.051	0.47	0.059	< 0.43	U	< 0.054				
ECCA05	EECA05-43TO44-011222	1/12/2022	N	2.2	3.2	-40.8	-43.0	-44.0	0.68	1.7	2.2	0.32	1.3	J	0.19	0.39	J	1.4	0.21	6.2	0.91	6.5	0.96						
ECCA05	EECA05-44TO45-011222	1/12/2022	N	3.2	4.2	-40.8	-44.0	-45.0	0.84	1.6	1.9	0.23	0.90	0.11	0.32	J	0.94	0.11	4.2	0.50	4.8	0.57							
ECCA06	EECA06-43TO44-011222	1/12/2022	N	12.3	13.3	-30.7	-43.0	-44.0	0.43	26	55	--	31	--	1.2	0.69	--	0.67	--	< 0.40	U	--							
ECCA06	EECA06-44TO45-011222	1/12/2022	N	13.3	14.3	-30.7	-44.0	-45.0	0.45	4.0	4.4	--	1.8	J	--	< 0.42	U	< 0.42	U	--	0.38	J	--	< 0.42	U	--			
ECCA07	EECA07-43TO44-010822	1/8/2022	N	1.4	2.4	-41.6	-43.0	-44.0	0.28	0.72	0.97	--	< 0.39	U	--	< 0.39	U	< 0.39	U	--	0.43	--	< 0.39	U	--				
ECCA07	EECA07-44TO45-010822	1/8/2022	N	2.4	3.4	-41.6	-44.0	-45.0	0.47	1.2	1.1	--	< 0.39	U	--	< 0.39	U	< 0.39	U	--	0.39	--	< 0.39	U	--				
ECCA08	EECA08-43TO44-010822	1/8/2022	N	1.1	2.1	-41.9	-43.0	-44.0	0.37	2.3	2.0	--	1.0	J	--	0.33	J	1.6	--	4.8	--	4.0	--						
ECCA08	EECA08-44TO45-010822	1/8/2022	N	2.1	3.1	-41.9	-44.0	-45.0	0.26	0.26	J	0.52	--	0.36	J	--	< 0.42	U	0.29	J	0.52	--	0.93	--	0.87	--			
ECCA09	EECA09-43TO44-010922	1/9/2022	N	2.5	3.5	-40.5	-43.0	-44.0	0.39	4.7	4.2	--	< 0.40	U	--	< 0.40	U	0.16	J	0.13	0.13	0.78	0.14	< 0.44	U	< 0.077			
ECCA09	EECA09-44TO45-010922	1/9/2022	N	3.5	4.5	-40.5	-44.0	-45.0	0.57	0.94	1.4	0.25	0.30	J	0.053	< 0.44	U	0.076	J	0.013	0.78	0.14	< 0.44	U	< 0.077				
ECCA10	EECA10-43TO44-011122	1/11/2022	N	2.4	3.4	-40.6	-43.0	-44.0	1.2	2.8	3.6	0.30	< 0.44	U	< 0.037	< 0.44	U	0.053	J	0.0040	< 0.44	U	< 0.037	< 0.44	U	< 0.037			
ECCA10	EECA10-44TO45-011122	1/11/2022	N	3.4	4.4	-40.6	-44.0	-45.0	1.2	4.5	3.3	0.28	< 0.44	U	< 0.037	< 0.44	U	0.18	J	0.015	1.4	0.12	< 0.44	U	< 0.037				
ECCA11	EECA11-43TO44-011122	1/11/2022	N	8.5	9.5	-34.5	-43.0	-44.0	0.39	1.3	1.4	--	< 0.42	U	--	< 0.42	U	--	0.42	--	< 0.42	U	--						
ECCA11	EECA11-44TO45-011122	1/11/2022	N	9.5	10.5	-34.5	-44.0	-45.0	0.33	0.71	1.1	--	< 0.40	U	--	0.099	J	< 0.40	U	--	0.44	--	< 0.40	U	--				
ECCA12	EECA12-SS-011022	1/10/2022	N	0.0	0.4	-36.7	-36.7	-37.1	1.8	24	46	2.6	30	1.7	36	79	4.4	93	5.2	120	6.7								
ECCA12	EECA12-43TO44-011022	1/10/2022	N	6.3	7.3	-36.7	-43.0	-44.0	0.037	J	0.31	J	0.52	--	< 0.39	U	--	< 0.39	U	0.084	J	--	0.78	--	< 0.39	U	--		
ECCA13	EECA13-43TO44-010622	1/6/2022	N	1.6	2.6	-41.4	-43.0	-44.0	0.56	4.5	6.9	1.2	2.0	0.36	1.5	4.6	0.82	7.2	1.3	9.8	1.8								
ECCA13	EECA13-44TO45-010622	1/6/2022	N	2.6	3.6	-41.4	-44.0	-45.0	0.59	1.2	1.3	0.22	0.62	0.11	0.42	J	0.64	0.11	1.3	0.22	0.91	0.15							
ECCA14	EECA14-43TO44-010622	1/6/2022	N	1.3	2.3	-41.7	-43.0	-44.0	0.47	220	180	--	690	--	11	370	--	340	--	80	--								
ECCA14	EECA14-44TO45-010622	1/6/2022	N	2.3	3.3	-41.7	-44.0	-45.0	0.21	720	730	--	3,600	--	40	1,700	--	1,500	--	380	--								
ECCA14	EECA14-45TO46-010622	1/6/2022	N	3.3	4.3	-41.7	-45.0	-46.0	0.055	J	14	16	--	27	--	0.69	14	--	3.9	--	1.0	--							
ECCA14	EECA14-46TO47-010622	1/6/2022	N	4.3	5.3	-41.7	-46.0	-47.0	0.56	21	17	3.0	30	5.4	0.50	2.4	0.43	0.35	J	0.062	< 0.43	U	< 0.077						
ECCA14	EECA14-47TO48-010622	1/6/2022	N	5.3	6.3	-41.7	-47.0	-48.0	0.57	13	9.8	1.7	20	3.5	0.33	J	1.8	0.32	0.36	J	0.063	< 0.43	U	< 0.075					
ECCA14	EECA14-48TO49-010622	1/6/2022	N	6.3	7.3	-41.7	-48.0	-49.0	0.44	28	30	--	62	J-	--	1.4	2.1	--	0.88	--	< 0.42	U	--						
ECCA14	EECA14-49TO50-010622	1/6/2022	N	7.3	8.3	-41.7	-49.0	-50.0	0.51	13	13	2.5	27	5.3	0.35	J	1.6	0.31	0.66	0.13	< 0.41	U	< 0.080						
ECCA14	EECA14-50TO51-010622	1/6/2022	N	8.3	9.3	-41.7	-50.0	-51.0	0.59	7.5	8.0	1.4	9.0	1.5	< 2.1	U	< 5.1	U	< 0.86	< 3.4	U	< 0.58	< 5.1	U	< 0.86				
ECCA14	EECA14-51TO52-010622	1/6/2022	N	9.3	10.3	-41.7	-51.0	-52.0	0.41	7.4	8.2	--	26	--	< 2.2	U	< 5.3	U	--	< 3.5	U	--	< 5.3	U	--				
ECCA14	EECA14-52TO53-010622	1/6/2022	N	10.3	11.3	-41.7	-52.0	-53.0	0.47	24	17	--	76	--	< 2.9	U	2.0	J	--	2.1	J	--	< 6.9	U	--				
ECCA14	EECA14-53TO54-010622	1/6/2022	N	11.3	12.3	-41.7	-53.0	-54.0	0.27	43	66	--	370	--	< 3.0	U	3.6	J	--	< 4.7	U	--	< 7.1	U	--				
ECCA14	EECA14-54TO55-010622	1/6/2022	N	12.3	13.3	-41.7	-54.0	-55.0	0.35	24	31	--	97	--	< 2.8	U	8.8	--	< 4.5	U	--	< 6.8	U	--					
ECCA14	EECA14-55TO56-010622	1/6/2022	N	13.3	14.0	-41.7	-55.0	-55.7	0.50	18	12	J+	2.4	49	9.8	< 3.0	U	2.2	J	0.44	< 4.8	U	< 0.96	< 7.2	U	< 1.4			
ECCA15	EECA15-43TO44-010522	1/5/2022	N	2.8	3.8	-40.2	-43.0	-44.0	0.47	0.41	J	0.47	--	0.39	J	--	< 0.45	U	0.53	--	0.49	--	< 0.45	U	--				
ECCA15	DUP01-010522 (EECA15-43TO44-010522)	1/5/2022	FD	2.8	3.8	-40.2	-43.0	-44.0	0.19	J	0.77	1.1	--	0.56	--	< 0.42	U	0.23	J	--	0.45	--	< 0.42	U	--				
ECCA15	EECA15-44TO45-010522	1/5/2022	N	3.8	4.8	-40.2	-44.0	-45.0	0.34	2.0	J	2.0	J	--	0.45	J	--	< 2.3	U	0.61	J	--	< 2.3	U	--	< 2.3	U	--	
ECCA15	EECA15-45TO46-010522	1/5/2022	N	4.8	5.8	-40.2	-45.0	-46.0	0.55	2.3	2.1	0.38	0.53	J	0.096	< 2.0	U	0.80	J	0.15	< 2.0	U	< 0.36	< 2.0	U	< 0.36			
ECCA15	EECA15-46TO47-010522	1/5/2022	N	5.8	6.8	-40.2	-46.0	-47.0	0.43	1.3	J	1.2	J	--	< 1.9	U	--	< 1.9	U	--	< 1.9	U	--	< 1.9	U	--			
ECCA15	EECA15-47TO48-010522	1/5/2022	N	6.8	7.8	-40.2	-47.0	-48.0	0.50	3.1	3.2	0.64	< 2.2	U	< 0														

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	1-Methyl naphthalene µg/kg dw	2-Methylnaphthalene		Acenaphthene		Acenaphthylene µg/kg dw	Anthracene		Benz(a)anthracene		Benzo(a)pyrene									
				Top	Bottom	Top of Core	Sample Top	Sample Bottom			µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC		µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC								
				Remedial Action Level																									
									--	--	--	--	16	--	--	--	--	--	--	--	--								
									--	--	--	500	--	--	--	--	--	--	--	--	--								
EECA16	EECA16-43TO44-011122	1/11/2022	N	4.2	5.2	-38.8	-43.0	-44.0	0.70	1.7	2.2	0.31	0.65	0.093	0.17	J	0.61		0.087	1.1	0.16	< 0.42	U	< 0.060					
EECA16	DUP12-011122 (EECA16-43TO44-011122)	1/11/2022	FD	4.2	5.2	-38.8	-43.0	-44.0	0.69	1.5	1.8	0.26	0.58	0.084	< 0.43	U	0.63		0.091	1.4	0.20	< 0.43	U	< 0.062					
EECA16	EECA16-44TO45-011122	1/11/2022	N	5.2	6.2	-38.8	-44.0	-45.0	0.58	1.2	1.7	0.29	< 0.45	U	< 0.078	< 0.45	U	< 0.45	U	< 0.078	0.62	0.11	< 0.45	U	< 0.078				
EECA17	EECA17-43TO44-010722	1/7/2022	N	5.2	6.2	-37.8	-43.0	-44.0	0.54	22	39	7.2	9.7	1.8	3.9		30		5.6	29	J+	5.4	--	17	3.1				
EECA17	EECA17-44TO45-010722	1/7/2022	N	6.2	7.2	-37.8	-44.0	-45.0	0.39	7.0	11	--	3.3	--	1.1		8.2		--	8.0	J+	--	4.6	--					
EECA18	EECA18-SS-011322	1/13/2022	N	0.0	0.4	-41.5	-41.5	-41.9	0.96	11	21	2.2	29	3.0	19		75		7.8	150		16	140	15					
EECA18	EECA18-43TO44-011322	1/13/2022	N	1.5	2.5	-41.5	-43.0	-44.0	1.6	17	30	1.9	43	2.7	29		110		6.9	240		15	230	14					
EECA19	EECA19-SS-010922	1/9/2022	N	0.0	0.4	-40.1	-40.1	-40.5	0.49	12	21	--	31	--	14		55		--	150		--	170	--					
EECA19	EECA19-43TO44-010922	1/9/2022	N	2.9	3.9	-40.1	-43.0	-44.0	0.89	11	20	2.2	31	1.2	7.7		24		2.7	44		4.9	55	6.2					
BERTH01-SB	BERTH01-SB-190423	4/23/2019	N	0	0.3	-34.9	-34.9	-35.3	5.2	--	41	J	--	990	J	--	120	J	1,600	J	--	4,200	J	--	4,400	J	--		
BERTH01-SB	BERTH01-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-34.9	-34.9	-35.9	9.3	--	< 240	U	--	75	J	--	63	J	320	--	790	--	--	780	--				
BERTH01-SB	BERTH01-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-34.9	-35.9	-36.9	9.0	--	< 210	U	--	50	J	--	74	J	270	--	530	--	--	880	--				
BERTH01-SB	SBDUP-01-190426 (BERTH01-SB-1TO2-190426)	4/26/2019	FD	1.0	2.0	-34.9	-35.9	-36.9	9.0	--	< 210	U	--	41	J	--	44	J	160	--	230	--	--	590	--				
BERTH01-SB	BERTH01-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	8.2	--	63	J	--	50	--	47		190	--	440	--	--	640	--					
BERTH01-SB	BERTH01-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.9	-38.9	-39.9	6.4	--	38	--	49	--	67		240	--	810	--	--	490	--						
BERTH01-SB	BERTH01-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.9	-40.9	-41.9	3.3	--	51	J	1.5	110	3.3	16	J	87	2.6	86	J	2.6	82	J	2.5				
BERTH01-SB	BERTH01-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.9	-43.9	-44.9	3.1	--	37	1.2	53	1.7	< 16	U	40		1.3	67		2.2	44	1.4					
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0	0.3	-42.2	-42.2	-42.5	7.5	--	79	J	--	1,200	J	--	140	J	2,000	J	--	4,900	J	--	6,200	J	--		
BERTH02-SB	BERTH02-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-42.2	-42.2	-43.2	1.1	--	10	J	0.91	52		4.7	6.8	J	79	7.2	200		18	200	18				
BERTH02-SB	BERTH02-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-42.2	-43.2	-44.2	0.62	--	10	J	1.6	26		4.2	3.4	J	39	6.3	74		12	70	11				
BERTH02-SB	BERTH02-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-42.2	-44.2	-45.2	0.63	--	< 31	UU	< 4.9	13	J	2.1	< 15	UU	22	J	3.5	46	J	7.3	50	J	7.9		
BERTH02-SB	BERTH02-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-42.2	-46.2	-47.2	1.6	--	< 32	U	< 2.0	7.9	J	0.49	< 16	U	11	J	0.69	28		1.8	21	J	1.3		
BERTH02-SB	BERTH02-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-42.2	-48.2	-49.2	1.5	--	< 68	U	< 4.5	< 34	U	< 2.3	< 34	U	< 34	U	< 2.3	7.3	J	0.49	< 81	U	< 5.4		
BERTH02-SB	BERTH02-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-42.2	-51.2	-52.2	0.96	--	< 63	U	< 6.6	< 31	U	< 3.2	< 31	U	< 31	U	< 3.2	< 31	U	< 3.2	< 75	U	< 7.8		
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0	0.3	-39.6	-39.6	-39.9	2.7	--	12	J	0.44	290	J	11		25	J	440	J	16	1,200	J	44	1,200	J	44	
BERTH03-SB	BERTH03-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-39.6	-39.6	-40.6	0.67	--	11	J	1.6	21	J	3.1		9.4	J	38		5.7	78		12	84	13		
BERTH03-SB	BERTH03-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-39.6	-40.6	-41.6	1.0	--	73	7.3	46		4.6	14	J	52		5.2	95		9.5	120	12				
BERTH03-SB	BERTH03-SB-2TO3-190429	4/29/2019	N	2.0	3.0	-39.6	-41.6	-42.6	2.3	--	330		14	600		26	< 78	U	330		14	530		23	210	9.1			
BERTH03-SB	BERTH03-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-39.6	-43.6	-44.6	1.3	--	< 65	U	< 5.0	< 32	U	< 2.5	< 32	U	< 32	U	< 2.5	< 32	U	< 2.5	< 77	U	< 5.9		
BERTH03-SB	BERTH03-SB-6TO7-190429	4/29/2019	N	6.0	7.0	-39.6	-45.6	-46.6	0.59	--	< 62	U	< 11	< 31	U	< 5.3	< 31	U	< 31	U	< 5.3	< 31	U	< 5.3	< 75	U	< 13		
BERTH03-SB	BERTH03-SB-8TO9-190429	4/29/2019	N	8.0	9.0	-39.6	-47.6	-48.6	1.4	--	< 65	U	< 4.6	< 33	U	< 2.4	< 33	U	< 33	U	< 2.4	< 33	U	< 2.4	< 79	U	< 5.6		
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0	0.3	-42.2	-42.2	-42.5	2.1	J	--	46	J	2.2	710	J	34		46		1,000	J	48	2,400		110	2,100		100
BERTH04-SS	SSDUP03-190508 (BERTH04-SS-190508)	5/8/2019	FD	0	0.3	-42.2	-42.2	-42.5	1.3	J	--	25	J	1.9	430	J	33		52		680	J	52	1,800		140	1,800		140
BERTH04-SB	BERTH04-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-42.2	-42.2	-43.2	1.3	--	22		1.7	32		2.5	4.8		31		2.4	68		5.2	92	7.1			
BERTH04-SB	BERTH04-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-42.2	-43.2	-44.2	0.81	--	6.3	0.78	13		1.6	2.5	J	20		2.5	53		6.5	57	7.0				
BERTH04-SB	BERTH04-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-42.2	-44.2	-45.2	0.48	--	< 64	U	--	< 32	U	--	< 32	U	< 32	U	--	26	J	--	21	J	--		
BERTH04-SB	BERTH04-SB-3TO4-190509	5/9/2019	N	3.0	4.0	-42.2	-45.2	-46.2	0.39	--	< 65	U	--	< 33	U	--	< 33	U	< 33	U	--	< 33	U	--	< 78	U	--		
BERTH04-SB	SBDUP02-190509 (BERTH04-SB-3TO4-190509)	5/9/2019	FD	3.0	4.0	-42.2	-45.2	-46.2	0.39	--	< 62	U	--	< 31	U	--	< 31	U	< 31	U	--	6.5	J	--	< 74	U	--		
BERTH04-SB	BERTH04-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-42.2	-46.2	-47.2	0.37	--	< 62	U	--	7.5	J	--	< 31	U	< 31	U	--	< 31	U	--	< 75	U	--		
BERTH04-SB	BERTH04-SB-6TO7-5-190509	5/9/2019	N	6.0	7.5	-42.2	-48.2	-49.7	0.49	--	< 65	U	--	18	J	--	< 33	U	< 33	U	--	< 33	U	--	< 78	U	--		
BERTH04-SB	BERTH04-SB-8.5TO9.5-190509	5/9/2019	N	8.5	9.5	-42.2	-50.7	-51.7	0.82	--	< 66	U	< 8.0	< 33	U	< 4.0	< 33	U	< 33	U	< 4.0	< 33	U	< 4.0	< 79	U	< 9.6		
BERTH05-SS	BERTH05-SS-190508	5/8/2019	N	0	0.3	-39.7	-39.7	-40.0	2.0	--	12	J	0.60	140		7.0	23		250		12	600		30	580	29			
BERTH05-SB	BERTH05-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-39.7	-39.7	-40.7	1.9	--	8.6	J	0.45	43	J	2.3	18	J	86	J	4.5	140	J	7.4	250	J	13		
BERTH05-SB	BERTH05-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-39.7	-40.7	-41.7	0.95	--	< 20	UU	< 2.1	5.4	J	0.57	< 9.9	UU	7.3	J	0.77	11	J	1.2	13	J	1.4		
BERTH05-SB	BERTH05-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-39.7	-41.7	-42.7	0.58	--	16	J	2.8	11	J	1.9	< 15	U	10	J	1.7	< 15	U	< 2.6	< 36	U	< 6.2		
BERTH05-SB	BERTH05-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-39.7	-43.7	-44.7	0.11	--																			

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	1-Methyl naphthalene µg/kg dw	2-Methylnaphthalene		Acenaphthene		Acenaphthylene µg/kg dw	Anthracene		Benz(a)anthracene		Benzo(a)pyrene												
				Top	Bottom	Top of Core	Sample Top	Sample Bottom			µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC		µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC											
				Remedial Action Level																												
Apparent Effects Thresholds																	--	--	--	16	--	--	--	--	--	--	--	--	--	--	--	--
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0	0.3	-40.6	-40.6	-40.9	4.5	--	< 230	U	--	68	J	--	< 110	U	170	--	310	--	290	--								
BERTH06-SB	BERTH06-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-40.6	-40.6	-41.6	4.4	--	40	J	--	91	J	--	66	J	410	--	580	--	610	--								
BERTH06-SB	BERTH06-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-40.6	-41.6	-42.6	3.2	--	< 210	U	< 6.6	120	J	3.8	32	J	360	11	540	17	540	17								
BERTH06-SB	BERTH06-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-40.6	-42.6	-43.6	1.8	--	130	J	7.2	120	J	6.7	79	J	330	18	970	54	860	48								
BERTH06-SB	BERTH06-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-40.6	-44.6	-45.6	0.52	--	310	J	60	1,500	J	290	31	J	250	48	130	25	40	7.7								
BERTH06-SB	BERTH06-SB-7TO8-190510	5/10/2019	N	7.0	8.0	-40.6	-47.6	-48.6	0.60	--	2,100	J	350	1,300	J	220	18	J	120	20	< 16	U	< 2.7	< 39	U	< 6.5						
BERTH06-SB	BERTH06-SB-8TO8.5-190510	5/10/2019	N	8.0	8.5	-40.6	-48.6	-49.1	0.90	--	2,700	J	300	1,500	J	170	19	J	66	7.3	< 14	U	< 1.6	< 35	U	< 3.9						
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0	0.33	-43.5	-43.5	-43.8	1.6	--	< 190	U	< 12	74	J	4.6	< 95	U	130	8.1	330	21	360	22								
BERTH07-SB	BERTH07-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-43.5	-43.5	-44.5	6.9	--	1,100	J	--	1,400	J	--	73	J	2,300	--	1,200	--	880	--								
BERTH07-SB	BERTH07-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-43.5	-44.5	-45.5	4.5	--	75	J	--	150	J	--	95	J	730	--	1,400	--	1,500	--								
BERTH07-SB	BERTH07-SB-2TO3.5-190429	4/29/2019	N	2.0	3.5	-43.5	-45.5	-47.0	9.7	--	180	J	--	550	J	--	190	J	1,800	--	5,700	--	2,700	--								
BERTH07-SB	BERTH07-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-43.5	-47.5	-48.5	1.8	--	210	J	12	420	J	23	< 31	U	260	14	540	30	140	7.8								
BERTH08-SS	BERTH08-SS-190508	5/8/2019	N	0	0.3	-39.9	-39.9	-40.2	1.7	--	10	J	0.59	120	J	7.1	< 13	J	210	12	480	28	450	26								
BERTH08-SB	BERTH08-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-39.9	-39.9	-40.9	0.59	--	34	J	5.8	860	J	150	< 32	U	500	85	220	37	140	24								
BERTH08-SB	BERTH08-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	0.64	--	26	J	4.1	230	J	36	10	J	230	36	240	38	120	19								
BERTH08-SB	BERTH08-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	0.22	--	71	J	--	210	J	--	14	J	980	--	220	--	71	--								
BERTH08-SB	BERTH08-SB-4.5TO6-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	0.85	--	23	J	2.7	170	J	20	< 16	U	25	2.9	< 16	U	< 1.9	< 38	U	< 4.5						
BERTH08-SB	BERTH08-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	0.51	--	380	J	75	340	J	67	9.9	J	19	J	3.7	< 16	U	< 3.1	< 38	U	< 7.5					
BERTH09-SS	BERTH09-SS-190508	5/8/2019	N	0	0.3	-41.0	-41.0	-41.4	3.7	--	20	J	0.54	190	J	5.1	37	J	310	8.4	690	19	770	21								
BERTH09-SB	BERTH09-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-41.0	-41.0	-42.0	1.8	--	49	J	2.7	82	J	4.6	63	J	220	12	410	23	970	54								
BERTH09-SB	BERTH09-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-41.0	-42.0	-43.0	0.91	--	24	J	2.6	53	J	5.8	44	J	110	12	230	25	450	49								
BERTH09-SB	BERTH09-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-41.0	-43.0	-44.0	0.63	--	29	J	4.6	54	J	8.6	< 75	UJ	55	J	8.7	95	J	15	180	J	29					
BERTH09-SB	BERTH09-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-41.0	-45.0	-46.0	1.2	--	< 62	U	< 5.2	< 31	U	< 2.6	< 31	U	< 31	U	< 2.6	< 31	U	< 2.6	16	J	1.3					
BERTH09-SB	BERTH09-SB-6TO7-190509	5/9/2019	N	6.0	7.0	-41.0	-47.0	-48.0	0.54	--	< 62	U	< 11	< 31	U	< 5.7	< 31	U	< 31	U	< 5.7	< 31	U	< 5.7	< 74	U	< 14					
BERTH09-SB	BERTH09-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-41.0	-49.0	-50.0	0.91	--	< 65	U	< 7.1	< 33	U	< 3.6	< 33	U	< 33	U	< 3.6	< 33	U	< 3.6	< 79	U	< 8.7					
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0	0.3	-41.0	-41.0	-41.3	1.7	--	8.9	J	0.52	190	J	11	21	J	320	J	19	680	J	40	710	J	42					
BERTH10-SB	BERTH10-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-41.0	-41.0	-42.0	1.1	--	4.1	J	0.37	4.0	J	0.36	< 10	U	8.2	J	0.74	15	1.4	18	J	1.6						
BERTH10-SB	BERTH10-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-41.0	-42.0	-43.0	0.87	--	5.5	J	0.63	< 9.7	UJ	< 1.1	< 9.7	UJ	5.5	J	0.63	15	J	1.7	15	J	1.7					
BERTH10-SB	BERTH10-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-41.0	-43.0	-44.0	1.3	--	21	J	1.6	12	J	0.92	8.2	J	18	J	1.4	28	J	2.2	27	J	2.1					
BERTH10-SB	BERTH10-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-41.0	-45.0	-46.0	1.2	--	18	J	1.5	< 17	U	< 1.4	< 17	U	< 17	U	< 1.4	< 17	U	< 1.4	< 40	U	< 3.3					
BERTH10-SB	BERTH10-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-41.0	-47.0	-48.0	0.60	--	16	J	2.7	< 15	U	< 2.5	< 15	U	< 15	U	< 2.5	< 15	U	< 2.5	< 36	U	< 6.0					
BERTH10-SB	BERTH10-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-41.0	-49.0	-50.0	0.49	--	20	J	--	< 18	U	--	< 18	U	< 18	U	--	< 18	U	--	< 44	U	--					
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0	0.3	-41.4	-41.4	-41.7	2.9	--	17	J	0.59	300	J	10	37	J	450	J	16	1,200	J	41	1,200	J	41					
BERTH11-SS	SSDUP01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0	0.3	-41.4	-41.4	-41.7	3.0	--	18	J	0.60	300	J	10	34	J	460	J	15	1,200	J	40	1,400	J	47					
BERTH11-SB	BERTH11-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-41.4	-41.4	-42.4	0.87	--	11	J	1.3	14	J	1.6	< 16	U	28	J	3.2	55	J	6.3	60	J	6.9					
BERTH11-SB	BERTH11-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-41.4	-42.4	-43.4	0.57	--	6.4	J	1.1	7.2	J	1.3	< 16	U	14	J	2.5	28	J	4.9	32	J	5.6					
BERTH11-SB	BERTH11-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-41.4	-43.4	-44.4	0.70	--	< 30	U	< 4.3	4.3	J	0.61	< 15	U	13	J	1.9	21	J	3.0	20	J	2.9					
BERTH11-SB	BERTH11-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-41.4	-45.4	-46.4	1.1	--	< 68	U	< 6.2	< 34	U	< 3.1	< 34	U	12	J	1.1	12	J	1.1	< 81	U	< 7.4					
BERTH11-SB	BERTH11-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-41.4	-47.4	-48.4	1.6	--	< 64	U	< 4.0	< 32	U	< 2.0	< 32	U	13	J	0.81	23	J	1.4	20	J	1.2					
BERTH11-SB	BERTH11-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-41.4	-50.4	-51.4	1.5	--	< 62	U	< 4.1	< 31	U	< 2.1	< 31	U	< 31	U	< 2.1	< 31	U	< 2.1	< 74	U	< 4.9					
BERTH12-SS	BERTH12-SS-190423	4/23/2019	N	0	0.3	-34.5	-34.5	-34.8	4.3	--	89	J	--	1,400	J	--	170	J	1,900	J	--	4,500	J	--	5,400	J	--					
BERTH12-SB	BERTH12-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-34.5	-34.5	-35.5	4.6	--	< 480	U	--	250	J	--	< 240	U	390	J	--	970	J	--	1,200	J	--					
BERTH12-SB	BERTH12-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-34.5	-35.5	-36.5	3.1	--	< 190	U	< 6.1	22	J	0.71	< 94	U	86	J	2.8	210	J	6.8	340	J	11					
BERTH12-SB	BERTH12-SB-2TO4-190425	4/25/2019	N	2.0	4.0	-34.5	-36.5	-38.5	1.7	--	47	J	2.8	200	J	12	33	J	240	14	650	38	570	34								
BERTH12-SB	BERTH12-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-34.5	-38.5	-39.5	5.6	--	28	J	--	120	J	--	36	J	190	--	540	--	700	--								
BERTH12-SB	BERTH12-SB-7TO7.9-190425	4/25/2019	N	7.0	7.9	-34.5	-41.5	-42.4	4.2	--	26	J	--	16	J	--	21	J	44	--	140	--	150	--								

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	1-Methyl naphthalene µg/kg dw	2-Methylnaphthalene		Acenaphthene		Acenaphthylene µg/kg dw	Anthracene		Benz(a)anthracene		Benzo(a)pyrene							
				Top	Bottom	Top of Core	Sample Top	Sample Bottom			µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC		µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC						
				Remedial Action Level									--	--		16	--	--	--	--	--	--	--				
Apparent Effects Thresholds									--	--	500	--	--	--	--	--	--	--	--	--							
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0	0.3	-31.7	-31.7	-32.1	9.4	--	--	57	J	--	92	J	1,400	J	3,100	J	3,600	J	--				
PIER13-SB	PIER13-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-31.7	-31.7	-32.7	6.3	--	< 270	U	--	65	J	1,000	J	2,200	J	2,900	J	--	--				
PIER13-SB	PIER13-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-31.7	-32.7	-33.7	6.3	--	< 280	U	--	66	J	610	J	1,400	J	2,100	J	--	--				
PIER13-SB	PIER13-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-31.7	-33.7	-34.7	11	--	37	J	--	390	J	600	J	1,800	J	1,700	J	--	--				
PIER13-SB	PIER13-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-31.7	-35.7	-36.7	9.9	--	70	J	--	210	J	520	J	1,300	J	2,000	J	--	--				
PIER13-SB	PIER13-SB-7TO7.8-190425	4/25/2019	N	7.0	7.8	-31.7	-38.7	-39.5	14	--	140	J	--	210	J	460	J	1,500	J	1,600	J	--	--				
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0	0.3	-21.7	-21.7	-22.1	15	--	910	J	--	12,000	J	500	J	18,000	J	40,000	J	39,000	J	--			
PIER14-SB	PIER14-SB-0TO1-190425	4/25/2019	N	0.0	1.0	-21.7	-21.7	-22.7	9.4	--	< 250	UJ	--	65	J	180	J	430	J	670	J	--	--				
PIER14-SB	PIER14-SB-1TO2-190425	4/25/2019	N	1.0	2.0	-21.7	-22.7	-23.7	11	--	< 590	U	--	80	J	480	J	930	J	1,400	J	--	--				
PIER14-SB	PIER14-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-21.7	-23.7	-24.7	12	--	160	J	--	710	J	230	J	1,900	J	1,900	J	--	--				
PIER14-SB	PIER14-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-21.7	-25.7	-26.7	11	--	140	J	--	340	J	730	J	2,800	J	2,100	J	--	--				
PIER14-SB	PIER14-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-21.7	-27.7	-28.7	25	--	340	J	--	580	J	390	J	1,000	J	3,200	J	3,700	J	--			
PIER14-SB	PIER14-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-21.7	-30.7	-31.7	9.8	--	110	J	--	410	J	110	J	650	J	1,700	J	2,300	J	--			
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0	0.3	-32.9	-32.9	-33.2	8.8	--	240	J	--	4,800	J	320	J	6,600	J	18,000	J	15,000	J	--			
PIER15-SB	PIER15-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-32.9	-32.9	-33.9	5.9	--	35	J	--	45	J	41	J	130	J	270	J	560	J	--			
PIER15-SB	PIER15-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-32.9	-33.9	-34.9	2.7	--	41	J	1.5	40	J	21	J	81	J	3.0	160	5.9	240	8.9			
PIER15-SB	PIER15-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-32.9	-34.9	-35.9	2.8	--	< 180	U	< 6.4	51	J	1.8	21	J	78	J	2.8	420	15	470	17		
PIER15-SB	PIER15-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-32.9	-36.9	-37.9	9.3	--	< 190	U	--	170	J	--	28	J	730	J	1,000	J	460	--			
PIER15-SB	PIER15-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-32.9	-38.9	-39.9	2.2	--	< 62	U	< 2.8	18	J	0.82	< 31	U	16	J	0.73	21	J	0.96	16	J	0.73
PIER15-SB	PIER15-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-32.9	-41.9	-42.9	1.3	--	< 31	U	< 2.4	< 15	U	< 1.2	< 15	U	< 15	U	< 1.2	< 15	U	< 37	U	< 2.8	
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0	0.3	-22.9	-22.9	-23.3	13	--	650	J	--	14,000	J	380	J	19,000	J	45,000	J	40,000	J	--			
PIER16-SB	PIER16-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-22.9	-22.9	-23.9	9.9	--	160	J	--	3,500	J	170	J	4,700	J	9,900	J	11,000	J	--			
PIER16-SB	PIER16-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-22.9	-23.9	-24.9	12	--	< 630	UJ	--	230	J	120	J	480	J	1,000	J	1,600	J	--			
PIER16-SB	PIER16-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-22.9	-24.9	-25.9	17	--	280	J	--	2,200	J	530	J	2,600	J	6,600	J	7,300	J	--			
PIER16-SB	PIER16-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-22.9	-26.9	-27.9	8.4	--	69	J	--	290	J	150	J	860	J	2,100	J	2,800	J	--			
PIER16-SB	PIER16-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-22.9	-28.9	-29.9	9.7	--	84	J	--	120	J	55	J	190	J	480	J	690	J	--			
PIER16-SB	PIER16-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-22.9	-31.9	-32.9	2.9	--	120	J	4.1	320	J	11	< 84	U	96	J	3.3	290	10	200	6.9		
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0	0.3	-22.3	-22.3	-22.6	6.1	--	330	J	--	5,800	J	160	J	7,700	J	15,000	J	18,000	J	--			
PIER17-SB	PIER17-SB-0TO2-190426	4/26/2019	N	0.0	2.0	-22.3	-22.3	-24.3	23	--	67	J	--	230	J	60	J	610	J	2,000	J	1,500	J	--			
PIER17-SB	PIER17-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-22.3	-24.3	-25.3	10	--	< 190	U	--	44	J	56	J	230	J	620	J	970	J	--			
PIER17-SB	PIER17-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-22.3	-26.3	-27.3	5.8	--	< 160	U	--	41	J	25	J	100	J	230	J	280	J	--			
PIER17-SB	PIER17-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-22.3	-28.3	-29.3	3.3	--	< 350	U	< 11	36	J	1.1	< 180	U	110	J	3.3	330	10	170	J	5.2	
PIER17-SB	PIER17-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-22.3	-31.3	-32.3	2.6	--	17	J	0.65	88	J	3.4	< 32	U	68	J	2.6	140	5.4	69	J	2.7	
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0	0.3	-25.3	-25.3	-25.6	8.7	--	290	J	--	8,100	J	230	J	12,000	J	25,000	J	22,000	J	--			
PIER18-SS	SSDU02-190424 (PIER18-SS-190424)	4/24/2019	FD	0	0.3	-25.3	-25.3	-25.6	7.5	--	150	J	--	6,100	J	180	J	8,800	J	17,000	J	16,000	J	--			
PIER18-SB	PIER18-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-25.3	-25.3	-26.3	7.7	--	140	J	--	2,800	J	< 270	UJ	3,600	J	7,200	J	7,500	J	--			
PIER18-SB	PIER18-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	13	--	< 640	U	--	310	J	140	J	790	J	1,600	J	2,600	J	--			
PIER18-SB	PIER18-SB-4TO5.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	15	--	99	J	--	210	J	120	J	510	J	880	J	1,500	J	--			
PIER18-SB	PIER18-SB-6.5TO8-190425	4/25/2019	N	6.5	8.0	-25.3	-31.8	-33.3	0.29	--	82	J	--	150	J	11	J	24	J	39	J	51	J	--			
PIER18-SB	PIER18-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-25.3	-34.3	-35.3	1.3	--	18	J	1.4	11	J	0.85	< 16	U	14	J	1.1	17	1.3	20	J	1.5	
PIER19-SS	PIER19-SS-190423	4/23/2019	N	0	0.3	-34.8	-34.8	-35.1	5.1	--	150	J	--	3,200	J	83	J	3,800	J	7,700	J	6,900	J	--			
PIER19-SB	PIER19-SB-0TO2-190426	4/26/2019	N	0.0	2.0	-34.8	-34.8	-36.8	5.9	--	< 180	U	--	38	J	32	J	83	J	200	J	400	J	--			
PIER19-SB	PIER19-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.8	-36.8	-37.8	6.0	--	< 190	U	--	190	J	30	J	310	J	650	J	740	J	--			
PIER19-SB	PIER19-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.8	-38.8	-39.8	2.8	--	< 160	U	< 5.7	23	J	0.82	17	J	54	J	1.9	140	5.0	160	J	5.7	
PIER19-SB	PIER19-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.8	-40.8	-41.8	1.9	--	< 66	U	< 3.5	7.3	J	0.38	< 33	U	15	J	0.79	25	J	1.3	54	J	2.8
PIER19-SB	PIER19-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.8	-43.8	-44.8	1.0	--	< 56	U	< 5.6	12	J	1.2	< 28	U	26	J	2.6	40	J	4.0	36	J	3.6

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Total Organic Carbon (%)	1-Methyl naphthalene µg/kg dw	2-Methylnaphthalene		Acenaphthene		Acenaphthylene µg/kg dw	Anthracene		Benz(a)anthracene		Benzo(a)pyrene						
				Top	Bottom	Top of Core	Sample Top	Sample Bottom			µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC		µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC					
				Remedial Action Level										16		--		--		--						
Apparent Effects Thresholds										500		--		--		--		--		--						
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0	0.3	-19.4	-19.4	-19.7	6.0	--	< 500	UU	--	--	100	J	3,100	J	--	6,100	J	--	5,700	J	--	
PIER20-SB	PIER20-SB-OTO1-190510	5/10/2019	N	0.0	1.0	-19.4	-19.4	-20.4	5.9	--	< 410	U	--	--	63	J	890	J	--	1,800	J	--	2,200	J	--	
PIER20-SB	SBDUP03-190510 (PIER20-SB-OTO1-190510)	5/10/2019	FD	0.0	1.0	-19.4	-19.4	-20.4	5.9	--	< 410	UU	--	--	51	J	480	J	--	1,000	J	--	1,300	J	--	
PIER20-SB	PIER20-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.4	-20.4	-21.4	19	--	< 550	U	--	--	230	J	520	J	--	1,100	J	--	3,000	J	--	
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0	0.5	-37.7	-37.7	-38.2	1.3	--	15	J	1.2	250	390	30	920	71	870	67						
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0	0.5	-39.8	-39.8	-40.2	2.2	--	14	J	0.64	230	410	19	950	43	850	39						
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0	0.7	-33.2	-33.2	-33.9	2.1	--	8.6	J	0.41	120	170	17	420	20	400	19						
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0	0.3	-19.7	-19.7	-20.0	2.0	--	13	J	0.65	45	190	9.5	390	20	240	12						
PIER24-SB	PIER24-SB-OTO1-190510	5/10/2019	N	0.0	1.0	-19.7	-19.7	-20.7	1.7	--	11	J	0.65	55	120	7.1	170	10	190	11						
PIER24-SB	PIER24-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.7	-20.7	-21.7	2.0	--	11	J	0.55	56	140	7.0	230	12	300	15						
PIER24-SB	PIER24-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-19.7	-21.7	-22.7	3.7	--	220	J	5.9	1,500	2,500	68	5,400	150	4,600	120						
PIER24-SB	PIER24-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-19.7	-23.7	-24.7	9.0	--	320	J	--	470	550	--	1,900	--	1,000	--						
PIER24-SB	PIER24-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-19.7	-25.7	-26.7	7.7	--	290	J	--	390	190	--	3,800	--	1,200	J	--					
EW10-SC57	EW10-SC57-0-2	3/2/2010	N	0.0	2.0	-40.3	-40.3	-42.3	0.649	20	J	23	J	3.5	180	28	160	370	57	840	130	1,200	180			
EW10-SC57	EW10-SC57-2-4	3/2/2010	N	2.0	4.0	-40.3	-42.3	-44.3	0.260	< 19	U	< 19	U	--	< 19	U	< 19	U	--	< 19	U	--	< 19	U	--	
EW10-SC58	EW10-SC58-0-1.8	3/2/2010	N	0.0	1.8	-34.7	-34.7	-36.5	1.30	31	J	44	J	3.4	86	6.6	170	1,200	92	2,600	200	3,500	270			
EW10-SC58	EW10-SC58-1.8-4	3/2/2010	N	1.8	4.0	-34.7	-36.5	-38.7	1.27	36	J	44	J	3.5	1,000	79	1,000	79	1,200	94	510	40				
EW10-SC58	EW10-SC58-6-8	3/2/2010	N	6.0	8.0	-34.7	-40.7	-42.7	0.61	9.6	16	2.6	7.7	1.3	< 4.8	U	13	2.1	12	2.0	10	1.6				
EW10-SC59	EW10-SC59-0-2	3/2/2010	N	0.0	2.0	-40.0	-40.0	-42.0	0.948	< 20	U	< 20	U	< 2.1	< 20	U	< 2.1	< 20	U	< 2.1	< 20	U	< 2.1	< 20	U	< 2.1
EW10-SC59	EW10-SC59-2-4	3/2/2010	N	2.0	4.0	-40.0	-42.0	-44.0	0.472	< 20	U	< 20	U	--	< 20	U	< 20	U	--	< 20	U	--	< 20	U	--	
EW10-SC60	EW10-SC60-0-0.8	3/2/2010	N	0.0	0.8	-42.0	-42.0	-42.8	1.74	16	J	19	J	1.1	57	3.3	44	220	13	350	20	830	48			
EW10-SC60	EW10-SC60-0.8-3	3/2/2010	N	0.8	3.0	-42.0	-42.8	-45.0	0.879	< 19	U	< 19	U	< 2.2	< 19	U	< 2.2	< 19	U	13	J	1.5	22	2.5	36	4.1
EW10-SC61	EW10-SC61-0-1	3/2/2010	N	0	1	-42.3	-42.3	-43.3	0.924	< 20	U	< 20	U	< 2.2	18	J	1.9	19	60	6.5	140	15	210	23		
EW10-SC61	EW10-SC61-1-3	3/2/2010	N	1	3	-42.3	-43.3	-45.3	1.2	< 19	U	< 19	U	< 1.6	15	J	1.3	< 19	U	26	2.2	42	3.5	48	4.0	
EW09-SS-213	EW09-SS-213-010	6/22/2009	N	0	0.5	-34.7	-34.7	-35.2	1.74	23	30	1.7	200	11	60	410	24	670	39	930	53					
EW09-SS-214	EW09-SS-214-010	6/22/2009	N	0	0.5	-41.5	-41.5	-42.1	1.09	21	27	2.5	95	8.7	67	270	25	430	39	720	66					
EW09-SS-215	EW09-SS-215-010	6/22/2009	N	0	0.4	-40.9	-40.9	-41.3	3.37	< 59	U	< 59	U	< 1.8	490	15	260	1,400	42	2,400	71	2,800	83			
36B-01	36B-01	11/17/2014	N	0	0.3	-37.0	-37.0	-37.3	2.12	--	190	9.0	3,700	170	680	5,800	J	270	13,000	610	15,000	J	710			
36B-02	36B-02	11/17/2014	N	0	0.3	-25.0	-25.0	-25.3	3.61	--	690	19	9,600	270	1,700	13,000	J	360	28,000	780	39,000	J	1,100			
36B-03	36B-03	11/17/2014	N	0	0.3	-34.0	-34.0	-34.3	3.64	--	310	J	8.5	4,000	110	250	5,100	J	140	9,400	260	12,000	J	330		
36B-04	36B-04	11/17/2014	N	0	0.3	-24.0	-24.0	-24.3	4.55	J	--	550	J	--	610	--	9,100	J	--	21,000	--	26,000	J	--		
36B-04	36B-24 (36B-04)	11/17/2014	FD	0	0.3	-24.0	-24.0	-24.3	2.64	J	--	310	J	12	7,200	270	690	9,000	J	340	22,000	830	27,000	J	1,000	
36B-05	36B-05	11/17/2014	N	0	0.3	-36.0	-36.0	-36.3	2.79	--	110	3.9	650	23	290	1,400	J	50	2,400	86	3,900	J	140			
36B-06	36B-06	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	2.47	--	1,600	65	21,000	850	770	27,000	J	1,100	48,000	1,900	51,000	J	2,100			
36B-07	36B-07	11/17/2014	N	0	0.3	-38.0	-38.0	-38.3	2.80	--	480	17	11,000	390	480	9,300	J	330	19,000	680	20,000	J	710			
36B-08	36B-08	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	6.15	--	700	--	19,000	--	510	19,000	J	--	41,000	--	44,000	J	--			

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Benzo(b) fluoranthene µg/kg dw	Benzo(k) fluoranthene µg/kg dw	Benzo(b+k) fluoranthene µg/kg dw	Total Benzofluoranthenes		Benzo(g,h,i) perylene		Chrysene		Dibenz(a,h)anthracene		Fluoranthene		
				Top	Bottom	Top of Core	Sample Top	Sample Bottom				µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	
				Remedial Action Level																	160	
Apparent Effects Thresholds																	1,700					
ECCA01	ECCA01-SS-011222	1/12/2022	N	0.0	0.4	-39.7	-39.7	-40.1	210	72	--	282	26	48	4.4	140	13	13	1.2	160	15	
ECCA01	ECCA01-43TO44-011222	1/12/2022	N	3.3	4.3	-39.7	-43.0	-44.0	51	15	--	66	--	13	--	28	--	3.1	--	51	--	
ECCA01	ECCA01-44TO45-011222	1/12/2022	N	4.3	5.3	-39.7	-44.0	-45.0	--	--	10 J	10	--	< 21 U	--	4.7	J	--	< 18 U	--	6.0 J	--
ECCA01	ECCA01-45TO46-011222	1/12/2022	N	5.3	6.3	-39.7	-45.0	-46.0	--	--	< 60 U	< 60	--	< 24 U	--	< 24 U	--	< 20 U	--	< 16 U	--	--
ECCA02	ECCA02-43TO44-010722	1/17/2022	N	1.2	2.2	-41.8	-43.0	-44.0	12	2.8	--	15	2.3	4.0	0.61	7.5	--	1.1	0.98	0.15	18	2.7
ECCA02	ECCA02-44TO45-010722	1/17/2022	N	2.2	3.2	-41.8	-44.0	-45.0	7.1	1.9	--	9.0	1.2	2.3	0.31	4.5	--	0.61	0.76	0.10	13	1.8
ECCA03	ECCA03-43TO44-010822	1/8/2022	N	2.1	3.1	-40.9	-43.0	-44.0	< 0.37 U	< 0.37 U	--	< 0.37 U	--	< 0.37 U	--	< 0.37 U	--	< 0.37 U	--	0.46	--	
ECCA03	ECCA03-44TO45-010822	1/8/2022	N	3.1	4.1	-40.9	-44.0	-45.0	< 0.37 U	< 0.37 U	--	< 0.37 U	--	< 0.37 U	--	< 0.37 U	--	< 0.37 U	--	0.41	--	
ECCA04	ECCA04-43TO44-010922	1/9/2022	N	1.8	2.8	-41.2	-43.0	-44.0	< 0.45 U	< 0.45 U	--	< 0.45	< 0.067	< 0.45 U	< 0.067	0.41 J	0.061	< 0.45 U	< 0.067	0.59	0.088	
ECCA04	ECCA04-44TO45-010922	1/9/2022	N	2.8	3.8	-41.2	-44.0	-45.0	< 0.43 U	< 0.43 U	--	< 0.43	< 0.054	< 0.43 U	< 0.054	0.20 J	0.025	< 0.43 U	< 0.054	0.71	0.089	
ECCA05	ECCA05-43TO44-011222	1/12/2022	N	2.2	3.2	-40.8	-43.0	-44.0	9.0	2.4	--	11.4	1.7	1.9	0.28	4.1	--	0.60	0.49	0.072	8.7	1.3
ECCA05	ECCA05-44TO45-011222	1/12/2022	N	3.2	4.2	-40.8	-44.0	-45.0	6.5	1.7	--	8.2	0.98	1.3	0.16	2.7	--	0.32	0.40 J	0.048	5.7	0.68
ECCA06	ECCA06-43TO44-011222	1/12/2022	N	12.3	13.3	-30.7	-43.0	-44.0	0.97	< 0.40 U	--	0.97	--	0.30 J	--	0.66	--	< 0.40 U	--	1.4	--	
ECCA06	ECCA06-44TO45-011222	1/12/2022	N	13.3	14.3	-30.7	-44.0	-45.0	< 0.42 U	< 0.42 U	--	< 0.42	--	< 0.42 U	--	0.20 J	--	< 0.42 U	--	< 0.42 U	--	
ECCA07	ECCA07-43TO44-010822	1/8/2022	N	1.4	2.4	-41.6	-43.0	-44.0	< 0.39 U	< 0.39 U	--	< 0.39	--	< 0.39 U	--	0.20 J	--	< 0.39 U	--	0.54	--	
ECCA07	ECCA07-44TO45-010822	1/8/2022	N	2.4	3.4	-41.6	-44.0	-45.0	< 0.39 U	< 0.39 U	--	< 0.39	--	< 0.39 U	--	0.19 J	--	< 0.39 U	--	0.42	--	
ECCA08	ECCA08-43TO44-010822	1/8/2022	N	1.1	2.1	-41.9	-43.0	-44.0	5.9	1.2	--	7.1	--	1.7	--	3.3	--	< 0.42 U	--	7.4	--	
ECCA08	ECCA08-44TO45-010822	1/8/2022	N	2.1	3.1	-41.9	-44.0	-45.0	1.4	0.11 J	--	1.5	--	0.39 J	--	0.65	--	< 0.42 U	--	1.4	--	
ECCA09	ECCA09-43TO44-010922	1/9/2022	N	2.5	3.5	-40.5	-43.0	-44.0	< 0.40 U	< 0.40 U	--	< 0.40	--	< 0.40 U	--	0.34 J	--	< 0.40 U	--	0.68	--	
ECCA09	ECCA09-44TO45-010922	1/9/2022	N	3.5	4.5	-40.5	-44.0	-45.0	< 0.44 U	< 0.44 U	--	< 0.44	< 0.077	< 0.44 U	< 0.077	0.65	0.11	< 0.44 U	< 0.077	0.96	0.17	
ECCA10	ECCA10-43TO44-011122	1/11/2022	N	2.4	3.4	-40.6	-43.0	-44.0	< 0.44 U	< 0.44 U	--	< 0.44	< 0.037	< 0.44 U	< 0.037	< 0.44 U	< 0.037	< 0.44 U	< 0.037	1.2	0.10	
ECCA10	ECCA10-44TO45-011122	1/11/2022	N	3.4	4.4	-40.6	-44.0	-45.0	< 0.44 U	< 0.44 U	--	< 0.44	< 0.037	0.29 J	0.024	1.6	0.13	0.35 J	0.029	1.8	0.15	
ECCA11	ECCA11-43TO44-011122	1/11/2022	N	8.5	9.5	-34.5	-43.0	-44.0	< 0.42 U	< 0.42 U	--	< 0.42	--	< 0.42 U	--	0.21 J	--	< 0.42 U	--	0.61	--	
ECCA11	ECCA11-44TO45-011122	1/11/2022	N	9.5	10.5	-34.5	-44.0	-45.0	< 0.40 U	< 0.40 U	--	< 0.40	--	< 0.40 U	--	0.19 J	--	< 0.40 U	--	0.52	--	
ECCA12	ECCA12-SS-011022	1/10/2022	N	0.0	0.4	-36.7	-36.7	-37.1	200	56	--	256	14	44	2.4	80	4.4	11	0.61	200	11	
ECCA12	ECCA12-43TO44-011022	1/10/2022	N	6.3	7.3	-36.7	-43.0	-44.0	< 0.39 U	< 0.39 U	--	< 0.39	--	< 0.39 U	--	0.22 J	--	< 0.39 U	--	0.89	--	
ECCA13	ECCA13-43TO44-010622	1/6/2022	N	1.6	2.6	-41.4	-43.0	-44.0	16	4.0	--	20	3.6	5.0	0.89	8.5	1.5	1.1	0.20	18	3.2	
ECCA13	ECCA13-44TO45-010622	1/6/2022	N	2.6	3.6	-41.4	-44.0	-45.0	1.7	0.27 J	--	2.0	0.34	0.50	0.085	1.0	0.17	< 0.44 U	< 0.075	2.4	0.41	
ECCA14	ECCA14-43TO44-010622	1/6/2022	N	1.3	2.3	-41.7	-43.0	-44.0	130	48	--	178	--	17	--	280	--	4.5	--	2,900	--	
ECCA14	ECCA14-44TO45-010622	1/6/2022	N	2.3	3.3	-41.7	-44.0	-45.0	630	190	--	820	--	55	--	1,300	--	18	--	12,000	--	
ECCA14	ECCA14-45TO46-010622	1/6/2022	N	3.3	4.3	-41.7	-45.0	-46.0	1.8	0.69	--	2.5	--	0.33 J	--	3.5	--	0.29 J	--	130	--	
ECCA14	ECCA14-46TO47-010622	1/6/2022	N	4.3	5.3	-41.7	-46.0	-47.0	0.14 J	< 0.43 UB	--	0.14	0.025	< 0.43 U	< 0.077	0.34 J	0.061	< 0.43 U	< 0.077	11	2.0	
ECCA14	ECCA14-47TO48-010622	1/6/2022	N	5.3	6.3	-41.7	-47.0	-48.0	< 0.43 U	< 0.43 U	--	< 0.43	< 0.075	< 0.43 U	< 0.075	0.37 J	0.065	< 0.43 U	< 0.075	4.1	0.72	
ECCA14	ECCA14-48TO49-010622	1/6/2022	N	6.3	7.3	-41.7	-48.0	-49.0	0.51	< 0.42 U	--	0.51	--	< 0.42 U	--	0.35 J	--	< 0.42 U	--	3.9	--	
ECCA14	ECCA14-49TO50-010622	1/6/2022	N	7.3	8.3	-41.7	-49.0	-50.0	0.37 J	< 0.41 U	--	0.37	0.073	< 0.41 U	< 0.080	0.19 J	0.037	< 0.41 U	< 0.080	4.1	0.80	
ECCA14	ECCA14-50TO51-010622	1/6/2022	N	8.3	9.3	-41.7	-50.0	-51.0	--	--	< 13 U	< 13	< 2.2	< 5.1 U	< 0.86	< 5.1 U	< 0.86	< 4.2 U	< 0.71	1.8 J	0.31	
ECCA14	ECCA14-51TO52-010622	1/6/2022	N	9.3	10.3	-41.7	-51.0	-52.0	--	--	< 13 U	< 13	--	< 5.3 U	--	< 5.3 U	--	< 4.4 U	--	2.0 J	--	
ECCA14	ECCA14-52TO53-010622	1/6/2022	N	10.3	11.3	-41.7	-52.0	-53.0	--	--	2.9 J	2.9	--	< 6.9 U	--	2.6 J	--	< 5.7 U	--	6.5	--	
ECCA14	ECCA14-53TO54-010622	1/6/2022	N	11.3	12.3	-41.7	-53.0	-54.0	--	--	< 18 U	< 18	--	< 7.1 U	--	< 7.1 U	--	< 5.9 U	--	3.5 J	--	
ECCA14	ECCA14-54TO55-010622	1/6/2022	N	12.3	13.3	-41.7	-54.0	-55.0	--	--	< 17 U	< 17	--	< 6.8 U	--	< 6.8 U	--	< 5.6 U	--	25	--	
ECCA14	ECCA14-55TO56-010622	1/6/2022	N	13.3	14.0	-41.7	-55.0	-55.7	--	--	< 18 U	< 18	< 3.6	< 7.2 U	< 1.4	< 7.2 U	< 1.4	< 6.0 U	< 1.2	4.8	0.96	
ECCA15	ECCA15-43TO44-010522	1/5/2022	N	2.8	3.8	-40.2	-43.0	-44.0	< 0.45 U	< 0.45 U	--	< 0.45	--	< 0.45 U	--	0.18 J	--	< 0.45 U	--	1.6	--	
ECCA15	DUP01-010522 (ECCA15-43TO44-010522)	1/5/2022	FD	2.8	3.8	-40.2	-43.0	-44.0	< 0.42 U	< 0.42 U	--	< 0.42	--	< 0.42 U	--	0.21 J	--	< 0.42 U	--	1.8	--	
ECCA15	ECCA15-44TO45-010522	1/5/2022	N	3.8	4.8	-40.2	-44.0	-45.0	< 2.3 U	< 2.3 U	--	< 2.3	--	< 2.3 U	--	< 2.3 U	--	< 2.3 U	--	2.6	--	
ECCA15	ECCA15-45TO46-010522	1/5/2022	N	4.8	5.8	-40.2	-45.0	-46.0	< 2.0 U	< 2.0 U	--	< 2.0	< 0.36	< 2.0 U	< 0.36	0.61 J	0.11	< 2.0 U	< 0.36	2.2	0.40	
ECCA15	ECCA15-46TO47-010522	1/5/2022	N	5.8	6.8	-40.2	-46.0	-47.0	< 1.9 U	< 1.9 U	--	< 1.9	--	< 1.9 U	--	< 1.9 U	--	< 1.9 U	--	< 1.9 U	--	
ECCA15	ECCA15-47TO48-010522	1/5/2022	N	6.8	7.8	-40.2	-47.0	-48.0	< 2.2 U	< 2.2 U	--	< 2.2	< 0.44	< 2.2 U	< 0.44	< 2.2 U	< 0.44	< 2.2 U	< 0.44	< 2.2 U	< 0.44	
ECCA15	ECCA15-48TO49-010522	1/5/2022	N	7.8	8.8	-40.2	-48.0	-49.0	< 0.41 U	< 0.41 U	--	< 0.41	< 0.079	< 0.41 U	< 0.079	0.15 J	0.029	< 0.41 U	< 0.079	0.65	0.13	
ECCA15	ECCA15-49TO50-010522	1/5/2022	N	8.8	9.8	-40.2	-49.0	-50.0	< 0.38 U	< 0.38 U	--	< 0.38	--	< 0.38 U	--	< 0.38 U	--	< 0.38 U	--	0.36 J	--	

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Benzo(b) fluoranthene	Benzo(k) fluoranthene	Benzo(b+k) fluoranthene	Total Benzofluoranthenes		Benzo(g,h,i) perylene		Chrysene		Dibenz(a,h)anthracene		Fluoranthene							
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	µg/kg dw	µg/kg dw	µg/kg dw	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC						
				Remedial Action Level																		160					
Apparent Effects Thresholds																		1,700									
EECA16	EECA16-43TO44-011122	1/11/2022	N	4.2	5.2	-38.8	-43.0	-44.0	< 0.42	U	< 0.42	U	< 0.42	< 0.057	0.17	J	0.024	0.87	0.12	< 0.42	U	< 0.060	2.5	0.36			
EECA16	DUP12-011122	1/11/2022	FD	4.2	5.2	-38.8	-43.0	-44.0	1.7		0.30	J	--	2.0	0.29	0.41	J	0.059	1.1	0.16	0.24	J	0.035	1.5	0.22		
EECA16	EECA16-44TO45-011122	1/11/2022	N	5.2	6.2	-38.8	-44.0	-45.0	< 0.45	U	< 0.45	U	--	< 0.45	< 0.078	0.12	J	0.021	0.37	J	0.064	0.23	J	0.040	0.75	0.13	
EECA17	EECA17-43TO44-010722	1/7/2022	N	5.2	6.2	-37.8	-43.0	-44.0	23	J+	6.5	--	--	30	5.6	11	2.0	20	J	3.7	4.1	--	0.76	43	J	8.0	
EECA17	EECA17-44TO45-010722	1/7/2022	N	6.2	7.2	-37.8	-44.0	-45.0	7.6	J+	1.4	--	--	9.0	--	2.6	--	5.5	J	--	0.77	--	14	J	--		
EECA18	EECA18-SS-011322	1/13/2022	N	0.0	0.4	-41.5	-41.5	-41.9	270		59	--	--	329	34	48	5.0	160	17	14	1.5	260	27				
EECA18	EECA18-43TO44-011322	1/13/2022	N	1.5	2.5	-41.5	-43.0	-44.0	410		97	--	--	507	32	73	4.6	290	18	22	1.4	380	24				
EECA19	EECA19-SS-010922	1/9/2022	N	0.0	0.4	-40.1	-40.1	-40.5	280		67	--	--	347	--	46	--	140	--	19	--	--	210	--			
EECA19	EECA19-43TO44-010922	1/9/2022	N	2.9	3.9	-40.1	-43.0	-44.0	95		22	--	--	117	13	19	2.1	35	3.9	5.5	0.62	67	7.5				
BERTH01-SB	BERTH01-SB-190423	4/23/2019	N	0	0.3	-34.9	-34.9	-35.3	4,900	J	2,000	J	--	6,900	--	2,000	J	--	4,500	J	--	510	J	--	6,300	J	--
BERTH01-SB	BERTH01-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-34.9	-34.9	-35.9	1,100		480	--	--	1,580	--	360	--	1,200	--	140	J	--	520	--			
BERTH01-SB	BERTH01-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-34.9	-35.9	-36.9	1,300	J	440	--	--	1,740	--	390	--	720	--	150	J	--	510	--			
BERTH01-SB	SBDUP-01-190426	4/26/2019	FD	1.0	2.0	-34.9	-35.9	-36.9	910	J	300	--	--	1,210	--	310	--	300	--	130	J	--	320	--			
BERTH01-SB	(BERTH01-SB-1TO2-190426)	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	790		290	--	--	1,080	--	220	--	540	--	100	--	--	550	--			
BERTH01-SB	BERTH01-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	790		290	--	--	1,080	--	220	--	540	--	100	--	--	550	--			
BERTH01-SB	BERTH01-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.9	-38.9	-39.9	670		370	--	--	1,040	--	150	--	840	--	56	--	--	2,100	--			
BERTH01-SB	BERTH01-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.9	-40.9	-41.9	83	J	62	J	--	145	4.4	79	J	2.4	110	J	3.3	54	J	1.6	260	J	7.9
BERTH01-SB	BERTH01-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.9	-43.9	-44.9	58	J	26	J	--	84	2.7	28	J	0.9	67	J	2.2	< 32	U	< 1.0	170	J	5.5
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0	0.3	-42.2	-42.2	-42.5	7,000	J	2,900	J	--	9,900	--	2,600	J	--	5,200	J	--	690	J	--	7,300	J	--
BERTH02-SB	BERTH02-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-42.2	-42.2	-43.2	240		100	--	--	340	31	110	10	210	19	39	3.5	370	34				
BERTH02-SB	BERTH02-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-42.2	-43.2	-44.2	92	J	37	J	--	129	21	44	7.1	85	14	19	J	3.1	150	24			
BERTH02-SB	BERTH02-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-42.2	-44.2	-45.2	62	J	28	J	--	90	14	26	J	4.1	49	J	7.8	< 31	UJ	< 4.9	98	J	16
BERTH02-SB	BERTH02-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-42.2	-46.2	-47.2	< 16	U	< 38	U	--	< 38	< 2.4	11	J	0.69	26	J	1.6	< 32	U	< 2.0	51	J	3.2
BERTH02-SB	BERTH02-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-42.2	-48.2	-49.2	< 34	U	< 81	U	--	< 81	< 5.4	< 81	U	< 5.4	< 81	U	< 5.4	< 68	U	< 4.5	16	J	1.1
BERTH02-SB	BERTH02-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-42.2	-51.2	-52.2	< 31	U	< 75	U	--	< 75	< 7.8	< 75	U	< 7.8	< 75	U	< 7.8	< 63	U	< 6.6	14	J	1.5
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0	0.3	-39.6	-39.6	-39.9	1,500	J	590	J	--	2,090	77	440	J	16	1,200	J	44	150	J	5.6	1,800	J	67
BERTH03-SB	BERTH03-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-39.6	-39.6	-40.6	110		48	J	--	158	24	52	J	7.8	76	11	25	J	3.7	120	18		
BERTH03-SB	BERTH03-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-39.6	-40.6	-41.6	160		57	J	--	217	22	71	7.1	120	12	26	J	2.6	170	17			
BERTH03-SB	BERTH03-SB-2TO3-190429	4/29/2019	N	2.0	3.0	-39.6	-41.6	-42.6	320		110	J	--	430	19	110	J	4.8	580	25	47	J	2.0	1,500	65		
BERTH03-SB	BERTH03-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-39.6	-43.6	-44.6	< 32	U	< 77	U	--	< 77	< 5.9	< 77	U	< 5.9	< 77	U	< 5.9	< 65	U	< 5.0	24	J	1.8
BERTH03-SB	BERTH03-SB-6TO7-190429	4/29/2019	N	6.0	7.0	-39.6	-45.6	-46.6	< 31	U	< 75	U	--	< 75	< 13	< 75	U	< 13	< 75	U	< 13	< 62	U	< 11	< 31	U	< 5.3
BERTH03-SB	BERTH03-SB-8TO9-190429	4/29/2019	N	8.0	9.0	-39.6	-47.6	-48.6	< 33	U	< 79	U	--	< 79	< 5.6	< 79	U	< 5.6	< 79	U	< 5.6	< 65	U	< 4.6	< 33	U	< 2.4
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0	0.3	-42.2	-42.2	-42.5	2,400		840	--	--	3,240	150	1,100	J	52	2,100	100	350	17	3,900	190			
BERTH04-SS	SSDUP03-190508 (BERTH04-SS-190508)	5/8/2019	FD	0	0.3	-42.2	-42.2	-42.5	2100		720	--	--	2,820	220	780	J	60	1,800	140	230	18	3,200	250			
BERTH04-SB	BERTH04-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-42.2	-42.2	-43.2	120		48	--	--	168	13	28	2.2	67	5.2	9.2	0.71	120	9.2				
BERTH04-SB	BERTH04-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-42.2	-43.2	-44.2	74		29	--	--	103	13	18	2.2	51	6.3	7.4	0.91	94	12				
BERTH04-SB	BERTH04-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-42.2	-44.2	-45.2	25	J	< 77	U	--	25	--	< 77	U	--	21	J	--	< 64	U	--	36	--	
BERTH04-SB	BERTH04-SB-3TO4-190509	5/9/2019	N	3.0	4.0	-42.2	-45.2	-46.2	< 33	U	< 78	U	--	< 78	--	< 78	U	--	< 65	U	--	< 64	U	--	12	J	--
BERTH04-SB	SBDUP02-190509 (BERTH04-SB-3TO4-190509)	5/9/2019	FD	3.0	4.0	-42.2	-45.2	-46.2	< 31	U	< 74	U	--	< 74	--	< 74	U	--	< 74	U	--	< 62	U	--	15	J	--
BERTH04-SB	BERTH04-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-42.2	-46.2	-47.2	< 31	U	< 75	U	--	< 75	--	< 75	U	--	< 75	U	--	< 62	U	--	6.9	J	--
BERTH04-SB	BERTH04-SB-6TO7-5-190509	5/9/2019	N	6.0	7.5	-42.2	-48.2	-49.7	< 33	U	< 78	U	--	< 78	--	< 78	U	--	< 65	U	--	< 62	U	--	< 33	U	--
BERTH04-SB	BERTH04-SB-8.5TO9.5-190509	5/9/2019	N	8.5	9.5	-42.2	-50.7	-51.7	< 33	U	< 79	U	--	< 79	< 9.6	< 79	U	< 9.6	< 79	U	< 9.6	< 66	U	< 8.0	< 33	U	< 4.0
BERTH05-SS	BERTH05-SS-190508	5/8/2019	N	0	0.3	-39.7	-39.7	-40.0	630		270	--	--	900	45	320	16	620	31	90	4.5	1,000	50				
BERTH05-SB	BERTH05-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-39.7	-39.7	-40.7	370	J	150	J	--	520	27	79	J	4.2	180	J	9.5	32	J	1.7	260	J	14
BERTH05-SB	BERTH05-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-39.7	-40.7	-41.7	17	J	9.4	J	--	26	2.7	4.2	J	0.44	9.4	J	0.99	< 20	UJ	< 2.1	18	J	1.9
BERTH05-SB	BERTH05-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-39.7	-41.7	-42.7	< 15	U	< 36	U	--	< 36	< 6.2	< 36	U	< 6.2	< 36	U	< 6.2	< 30	U	< 5.2	11	J	1.9
BERTH05-SB	BERTH05-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-39.7	-43.7	-44.7	< 2.7	U	< 6.5	U	--	< 6.5</													

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Benzo(b) fluoranthene	Benzo(k) fluoranthene	Benzo(b+k) fluoranthene	Total Benzofluoranthenes		Benzo(g,h,i) perylene		Chrysene		Dibenz(a,h)anthracene		Fluoranthene																			
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	µg/kg dw	µg/kg dw	µg/kg dw	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC																		
				Remedial Action Level																			--	--	--	--	--	160											
Apparent Effects Thresholds																			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,700	--
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0	0.3	-40.6	-40.6	-40.9	380	140	J	520	--	170	J	390	--	< 230	U	--	630	--																	
BERTH06-SB	BERTH06-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-40.6	-40.6	-41.6	770	270	--	1,040	--	400	--	630	--	130	J	--	2,500	--																	
BERTH06-SB	BERTH06-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-40.6	-41.6	-42.6	760	280	--	1,040	33	260	8.1	730	23	97	J	3.0	990	31																	
BERTH06-SB	BERTH06-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-40.6	-42.6	-43.6	1,100	550	--	1,650	92	300	17	1,400	78	170	--	9.4	2,500	140																	
BERTH06-SB	BERTH06-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-40.6	-44.6	-45.6	57	24	J	81	16	< 37	U	< 7.1	120	23	< 31	U	< 6.0	850	160																
BERTH06-SB	BERTH06-SB-7TO8-190510	5/10/2019	N	7.0	8.0	-40.6	-47.6	-48.6	< 16	U	< 39	< 6.5	< 39	U	< 6.5	< 39	U	< 6.5	< 33	U	< 5.5	47	7.8																
BERTH06-SB	BERTH06-SB-8TO8.5-190510	5/10/2019	N	8.0	8.5	-40.6	-48.6	-49.1	< 14	U	< 35	< 3.9	< 35	U	< 3.9	< 35	U	< 3.9	< 29	U	< 3.2	32	3.6																
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0	0.33	-43.5	-43.5	-43.8	410	180	J	590	37	210	J	350	22	< 190	U	< 12	610	38																	
BERTH07-SB	BERTH07-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-43.5	-43.5	-44.5	1,300	460	--	1,760	--	320	--	1,400	--	110	U	--	4,300	--																	
BERTH07-SB	BERTH07-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-43.5	-44.5	-45.5	2,500	790	--	3,290	--	490	--	2,400	--	180	--	--	4,400	--																	
BERTH07-SB	BERTH07-SB-2TO3.5-190429	4/29/2019	N	2.0	3.5	-43.5	-45.5	-47.0	4,300	1,600	--	5,900	--	700	--	5,600	--	270	J	--	15,000	--																	
BERTH07-SB	BERTH07-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-43.5	-47.5	-48.5	250	97	--	347	19	48	J	2.7	490	27	17	J	0.94	3,100	170																
BERTH08-SS	BERTH08-SS-190508	5/8/2019	N	0	0.3	-39.9	-39.9	-40.2	470	190	--	660	39	230	14	470	28	52	3.1	860	51																		
BERTH08-SB	BERTH08-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-39.9	-39.9	-40.9	180	100	--	280	47	57	J	9.7	210	36	< 64	U	< 11	1,300	220																
BERTH08-SB	BERTH08-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	180	64	J	244	38	47	J	7.3	230	36	< 63	U	< 9.8	1,200	190																
BERTH08-SB	BERTH08-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	120	62	--	182	--	33	J	--	250	--	< 34	U	--	940	--																
BERTH08-SB	BERTH08-SB-4.5TO6-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	< 16	U	< 38	< 4.5	< 38	U	< 4.5	< 38	U	< 4.5	< 32	U	< 3.8	27	3.2																
BERTH08-SB	BERTH08-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	< 16	U	< 38	< 7.5	< 38	U	< 7.5	< 38	U	< 7.5	< 31	U	< 6.1	19	3.7																
BERTH09-SS	BERTH09-SS-190508	5/8/2019	N	0	0.3	-41.0	-41.0	-41.4	900	330	--	1,230	33	430	12	720	19	100	2.7	1,300	35																		
BERTH09-SB	BERTH09-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-41.0	-41.0	-42.0	1,500	490	--	1,990	110	270	15	490	27	120	6.7	1,100	61																		
BERTH09-SB	BERTH09-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-41.0	-42.0	-43.0	730	< 79	U	730	80	130	14	220	24	63	J	6.9	510	56																	
BERTH09-SB	BERTH09-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-41.0	-43.0	-44.0	290	J	98	J	388	62	91	J	14	120	J	19	44	J	7.0	190	J	30													
BERTH09-SB	BERTH09-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-41.0	-45.0	-46.0	19	J	< 74	U	19	1.6	< 74	U	< 6.2	< 74	U	< 6.2	< 62	U	< 5.2	36	3.0														
BERTH09-SB	BERTH09-SB-6TO7-190509	5/9/2019	N	6.0	7.0	-41.0	-47.0	-48.0	< 31	U	< 74	U	< 74	< 14	< 74	U	< 14	< 74	U	< 14	< 62	U	< 11	< 31	U	< 5.7													
BERTH09-SB	BERTH09-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-41.0	-49.0	-50.0	< 33	U	< 79	U	< 79	< 8.7	< 79	U	< 8.7	< 79	U	< 8.7	< 65	U	< 7.1	< 33	U	< 3.6													
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0	0.3	-41.0	-41.0	-41.3	840	J	310	J	1,150	68	270	J	16	750	J	44	89	J	5.2	1,100	J	65													
BERTH10-SB	BERTH10-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-41.0	-41.0	-42.0	23	9.7	J	33	3.0	8.2	J	0.74	12	J	1.1	7.4	J	0.67	28	2.5															
BERTH10-SB	BERTH10-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-41.0	-42.0	-43.0	17	J	8.2	J	25	2.9	5.8	J	0.67	6.0	J	0.69	< 19	UU	< 2.2	14	J	1.6													
BERTH10-SB	BERTH10-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-41.0	-43.0	-44.0	36	16	J	52	4.0	22	J	1.7	23	J	1.8	< 31	U	< 2.4	40	3.1															
BERTH10-SB	BERTH10-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-41.0	-45.0	-46.0	< 17	U	< 40	U	< 40	< 3.3	< 40	U	< 3.3	< 40	U	< 3.3	< 33	U	< 2.8	13	J	1.1													
BERTH10-SB	BERTH10-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-41.0	-47.0	-48.0	< 15	U	< 36	U	< 36	< 6.0	< 36	U	< 6.0	< 36	U	< 6.0	< 30	U	< 5.0	< 15	U	< 2.5													
BERTH10-SB	BERTH10-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-41.0	-49.0	-50.0	< 18	U	< 44	U	< 44	--	< 44	U	--	< 44	U	--	< 36	U	--	< 18	U	--													
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0	0.3	-41.4	-41.4	-41.7	1,500	J	460	J	1,960	68	490	J	17	1,300	J	45	160	J	5.5	1,800	J	62													
BERTH11-SS	SSDUP01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0	0.3	-41.4	-41.4	-41.7	1,800	J	600	J	2,400	80	560	J	19	1,300	J	43	160	J	5.3	1,800	J	60													
BERTH11-SB	BERTH11-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-41.4	-41.4	-42.4	74	28	J	102	12	37	J	4.3	55	6.3	17	J	2.0	93	11																
BERTH11-SB	BERTH11-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-41.4	-42.4	-43.4	45	14	J	59	10	22	J	3.9	26	J	4.6	12	J	2.1	46	8.1															
BERTH11-SB	BERTH11-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-41.4	-43.4	-44.4	25	11	J	36	5.1	10	J	1.4	25	J	3.6	< 30	U	< 4.3	36	5.1															
BERTH11-SB	BERTH11-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-41.4	-45.4	-46.4	17	J	< 81	U	17	1.5	< 81	U	< 7.4	< 68	U	< 7.4	< 68	U	< 6.2	20	J	1.8													
BERTH11-SB	BERTH11-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-41.4	-47.4	-48.4	25	J	< 77	U	25	1.6	< 77	U	< 4.8	21	J	1.3	< 64	U	< 4.0	34	2.1														
BERTH11-SB	BERTH11-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-41.4	-50.4	-51.4	< 31	U	< 74	U	< 74	< 4.9	< 74	U	< 4.9	< 74	U	< 4.9	< 62	U	< 4.1	< 31	U	< 2.1													
BERTH12-SS	BERTH12-SS-190423	4/23/2019	N	0	0.3	-34.5	-34.5	-34.8	6,600	J	2,400	J	9,000	--	2,500	J	--	5,300	J	--	610	J	--	7,600	J	--													
BERTH12-SB	BERTH12-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-34.5	-34.5	-35.5	1,400	740	--	2,140	--	700	--	1,000	--	220	J	--	1,600	--																	
BERTH12-SB	BERTH12-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-34.5	-35.5	-36.5	530	190	J	720	23	190	J	6.1	200	J	6.5	< 190	U	< 6.1	230	7.4															
BERTH12-SB	BERTH12-SB-2TO4-190425	4/25/2019	N	2.0	4.0	-34.5	-36.5	-38.5	700	250	--	950	56	320	19	640	38	120	7.1	890	52																		
BERTH12-SB	BERTH12-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-34.5	-38.5	-39.5	820	340	--	1,160	--	390	--	560	--	83	--	--	730	--																	
BERTH12-SB	BERTH12-SB-7TO7.9-190425	4/25/2019	N	7.0	7.9	-34.5	-41.5	-42.4	190	84	--	274	--	91	--	130	--	36	--	--	140	--																	

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Benzo(b) fluoranthene µg/kg dw	Benzo(k) fluoranthene µg/kg dw	Benzo(b+k) fluoranthene µg/kg dw	Total Benzofluoranthenes		Benzo(g,h,i) perylene		Chrysene		Dibenz(a,h)anthracene		Fluoranthene									
				Top	Bottom	Top of Core	Sample Top	Sample Bottom				µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC								
				Remedial Action Level																--	--	--	--	160					
Apparent Effects Thresholds																--	--	--	--	--	--	--	--	--	--	--	--	1,700	--
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0	0.3	-31.7	-31.7	-32.1	4,400	1,500	--	5,900	--	1,800	J	--	4,000	--	570	--	5,000	--							
PIER13-SB	PIER13-SB-0T01-190509	5/9/2019	N	0.0	1.0	-31.7	-31.7	-32.7	3,400	1,400	--	4,800	--	1,400	--	3,000	--	320	--	4,100	--								
PIER13-SB	PIER13-SB-1T02-190509	5/9/2019	N	1.0	2.0	-31.7	-32.7	-33.7	2,700	1,000	--	3,700	--	970	--	1,800	--	410	--	2,500	--								
PIER13-SB	PIER13-SB-2T03-190425	4/25/2019	N	2.0	3.0	-31.7	-33.7	-34.7	1,900	790	J	2,690	--	850	J	--	2,100	J	160	J	2,400	J							
PIER13-SB	PIER13-SB-4T05-190425	4/25/2019	N	4.0	5.0	-31.7	-35.7	-36.7	2,600	910	--	3,510	--	980	--	2,000	--	280	--	1,900	--								
PIER13-SB	PIER13-SB-7T07.8-190425	4/25/2019	N	7.0	7.8	-31.7	-38.7	-39.5	2,500	930	--	3,430	--	830	--	2,400	--	290	--	1,000	--								
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0	0.3	-21.7	-21.7	-22.1	46,000	15,000	J	61,000	--	20,000	J	--	47,000	J	5,800	J	75,000	J							
PIER14-SB	PIER14-SB-0T01-190425	4/25/2019	N	0.0	1.0	-21.7	-21.7	-22.7	1,100	400	J	1,500	--	320	J	--	530	J	150	J	370	J							
PIER14-SB	PIER14-SB-1T02-190425	4/25/2019	N	1.0	2.0	-21.7	-22.7	-23.7	2,200	820	J	3,020	--	610	J	--	1,300	--	260	J	540	--							
PIER14-SB	PIER14-SB-2T03-190425	4/25/2019	N	2.0	3.0	-21.7	-23.7	-24.7	2,500	1,100	J	3,600	--	670	J	--	2,800	J	310	J	1,800	J							
PIER14-SB	PIER14-SB-4T05-190425	4/25/2019	N	4.0	5.0	-21.7	-25.7	-26.7	3,200	1,200	J	4,400	--	600	J	--	3,000	J	260	J	2,800	J							
PIER14-SB	PIER14-SB-6T07-190425	4/25/2019	N	6.0	7.0	-21.7	-27.7	-28.7	5,000	2,200	J	7,200	--	1,100	J	--	4,700	J	630	J	3,900	J							
PIER14-SB	PIER14-SB-9T010-190425	4/25/2019	N	9.0	10.0	-21.7	-30.7	-31.7	2,800	1,100	J	3,900	--	790	--	2,500	--	280	--	4,400	--								
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0	0.3	-32.9	-32.9	-33.2	20,000	6,500	J	26,500	--	8,000	J	--	20,000	J	2,000	J	38,000	J							
PIER15-SB	PIER15-SB-0T01-190426	4/26/2019	N	0.0	1.0	-32.9	-32.9	-33.9	780	340	--	1,120	--	290	--	280	--	110	J	340	--								
PIER15-SB	PIER15-SB-1T02-190426	4/26/2019	N	1.0	2.0	-32.9	-33.9	-34.9	300	150	--	450	17	130	4.8	150	5.6	41	J	1.5	220	8.1							
PIER15-SB	PIER15-SB-2T03-190426	4/26/2019	N	2.0	3.0	-32.9	-34.9	-35.9	590	230	--	820	29	190	J	6.8	380	14	78	J	2.8	1,000	36						
PIER15-SB	PIER15-SB-4T05-190426	4/26/2019	N	4.0	5.0	-32.9	-36.9	-37.9	640	230	--	870	--	160	J	--	1,100	--	< 190	U	5,500	--							
PIER15-SB	PIER15-SB-6T07-190426	4/26/2019	N	6.0	7.0	-32.9	-38.9	-39.9	31	< 75	U	31	1.4	13	J	0.59	22	J	1.0	< 62	U	< 2.8	7.8	3.5					
PIER15-SB	PIER15-SB-9T010-190426	4/26/2019	N	9.0	10.0	-32.9	-41.9	-42.9	< 15	< 37	U	< 37	< 2.8	< 37	U	< 2.8	< 37	U	< 2.8	< 31	U	< 2.4	6.8	J	0.52				
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0	0.3	-22.9	-22.9	-23.3	43,000	18,000	J	61,000	--	23,000	J	--	51,000	J	6,900	J	87,000	J							
PIER16-SB	PIER16-SB-0T01-190509	5/9/2019	N	0.0	1.0	-22.9	-22.9	-23.9	13,000	5,100	J	18,100	--	5,900	J	--	11,000	J	1,800	J	18,000	J							
PIER16-SB	PIER16-SB-1T02-190509	5/9/2019	N	1.0	2.0	-22.9	-23.9	-24.9	2,600	990	J	3,590	--	920	J	--	1,100	J	370	J	1,300	J							
PIER16-SB	PIER16-SB-2T03-190425	4/25/2019	N	2.0	3.0	-22.9	-24.9	-25.9	8,500	3,700	--	12,200	--	2,500	--	7,300	--	840	--	10,000	--								
PIER16-SB	PIER16-SB-4T05-190425	4/25/2019	N	4.0	5.0	-22.9	-26.9	-27.9	4,200	1,600	--	5,800	--	850	--	2,700	--	280	--	1,700	--								
PIER16-SB	PIER16-SB-6T07-190425	4/25/2019	N	6.0	7.0	-22.9	-28.9	-29.9	920	320	--	1,240	--	270	--	480	--	110	--	710	--								
PIER16-SB	PIER16-SB-9T010-190425	4/25/2019	N	9.0	10.0	-22.9	-31.9	-32.9	270	130	J	400	14	93	J	3.2	340	12	< 170	U	< 5.9	450	16						
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0	0.3	-22.3	-22.3	-22.6	20,000	7,400	J	27,400	--	8,200	J	--	15,000	J	2,500	J	29,000	J							
PIER17-SB	PIER17-SB-0T02-190426	4/26/2019	N	0.0	2.0	-22.3	-22.3	-24.3	1,700	850	--	2,550	--	590	--	2,200	--	160	J	4,600	--								
PIER17-SB	PIER17-SB-2T03-190426	4/26/2019	N	2.0	3.0	-22.3	-24.3	-25.3	1,300	560	--	1,860	--	400	--	930	--	120	J	420	--								
PIER17-SB	PIER17-SB-4T05-190426	4/26/2019	N	4.0	5.0	-22.3	-26.3	-27.3	330	130	J	460	--	150	J	--	270	--	62	J	440	--							
PIER17-SB	PIER17-SB-6T07-190426	4/26/2019	N	6.0	7.0	-22.3	-28.3	-29.3	270	110	J	380	12	110	J	3.3	290	J	8.8	< 350	U	< 11	930	28					
PIER17-SB	PIER17-SB-9T010-190426	4/26/2019	N	9.0	10.0	-22.3	-31.3	-32.3	97	45	J	142	5.5	32	J	1.2	140	5.4	20	J	0.77	650	25						
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0	0.3	-25.3	-25.3	-25.6	24,000	8,900	J	32,900	--	12,000	J	--	26,000	J	3,200	J	49,000	J							
PIER18-SS	SSDUP02-190424 (PIER18-SS-190424)	4/24/2019	FD	0	0.3	-25.3	-25.3	-25.6	17,000	7,600	J	24,600	--	8,900	J	--	19,000	J	2,500	J	35,000	J							
PIER18-SB	PIER18-SB-0T01-190510	5/10/2019	N	0.0	1.0	-25.3	-25.3	-26.3	8,800	3,000	J	11,800	--	4,100	J	--	8,200	J	1,300	J	13,000	J							
PIER18-SB	PIER18-SB-1T02-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	4,000	1,400	--	5,400	--	1,300	--	2,100	--	390	J	2,400	--								
PIER18-SB	PIER18-SB-4T05.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	2,000	620	--	2,620	--	480	--	980	--	220	--	1,800	--								
PIER18-SB	PIER18-SB-6.5T08-190425	4/25/2019	N	6.5	8.0	-25.3	-31.8	-33.3	73	27	J	100	--	24	J	--	35	--	22	J	46	--							
PIER18-SB	PIER18-SB-9T010-190425	4/25/2019	N	9.0	10.0	-25.3	-34.3	-35.3	26	10	J	36	2.8	14	J	1.1	12	J	0.92	< 31	U	< 2.4	23	1.8					
PIER19-SS	PIER19-SS-190423	4/23/2019	N	0	0.3	-34.8	-34.8	-35.1	8,000	2,700	J	10,700	--	3,200	J	--	7,900	J	800	J	13,000	J							
PIER19-SB	PIER19-SB-0T02-190426	4/26/2019	N	0.0	2.0	-34.8	-34.8	-36.8	620	200	J	820	--	180	J	--	210	--	59	J	280	--							
PIER19-SB	PIER19-SB-2T03-190426	4/26/2019	N	2.0	3.0	-34.8	-36.8	-37.8	950	330	--	1,280	--	360	--	650	--	88	J	1,100	--								
PIER19-SB	PIER19-SB-4T05-190426	4/26/2019	N	4.0	5.0	-34.8	-38.8	-39.8	230	85	J	315	11	81	J	2.9	130	J	4.6	< 160	U	< 5.7	180	6.4					
PIER19-SB	PIER19-SB-6T07-190426	4/26/2019	N	6.0	7.0	-34.8	-40.8	-41.8	67	19	J	86	4.5	25	J	1.3	47	J	2.5	< 66	U	< 3.5	60	3.2					
PIER19-SB	PIER19-SB-9T010-190426	4/26/2019	N	9.0	10.0	-34.8	-43.8	-44.8	64	< 67	U	64	6.4	18	J	1.8	61	J	6.1	13	J	1.3	110	11					

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Benzo(b) fluoranthene µg/kg dw	Benzo(k) fluoranthene µg/kg dw	Benzo(b+k) fluoranthene µg/kg dw	Total Benzofluoranthenes		Benzo(g,h,i) perylene		Chrysene		Dibenz(a,h)anthracene		Fluoranthene												
				Top	Bottom	Top of Core	Sample Top	Sample Bottom				µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC											
				Remedial Action Level																--	--	--	--	--	160							
Apparent Effects Thresholds																--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1,700	--
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0	0.3	-19.4	-19.4	-19.7	6,500	J	2,800	J	--	9,300	--	3,000	J	--	6,800	J	--	770	J	--	12,000	J	--					
PIER20-SB	PIER20-SB-OTO1-190510	5/10/2019	N	0.0	1.0	-19.4	-19.4	-20.4	2,700	J	1,100	--	--	3,800	--	1,100	--	--	2,000	--	--	330	J	--	3,200	J	--					
PIER20-SB	SBDUP03-190510 (PIER20-SB-OTO1-190510)	5/10/2019	FD	0.0	1.0	-19.4	-19.4	-20.4	1,800	J	660	J	--	2,460	--	650	J	--	1,000	J	--	< 410	UJ	--	1,900	J	--					
PIER20-SB	PIER20-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.4	-20.4	-21.4	4,300	--	1,300	--	--	5,600	--	1,300	--	--	1,300	--	--	510	J	--	1,100	--	--					
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0	0.5	-37.7	-37.7	-38.2	1,000	--	350	--	--	1,350	100	350	27	930	72	100	7.7	1.500	120	--	--	--						
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0	0.5	-39.8	-39.8	-40.2	920	--	400	--	--	1,320	60	360	16	950	43	110	5.0	1,600	73	--	--	--						
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0	0.7	-33.2	-33.2	-33.9	450	J	190	J	--	640	30	180	J	8.6	430	J	20	48	J	2.3	720	34	--					
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0	0.3	-19.7	-19.7	-20.0	340	--	160	--	--	500	25	130	6.5	580	29	53	J	2.6	470	24	--	--						
PIER24-SB	PIER24-SB-OTO1-190510	5/10/2019	N	0.0	1.0	-19.7	-19.7	-20.7	270	--	110	--	--	380	22	65	3.8	220	13	20	J	1.2	430	25	--	--						
PIER24-SB	PIER24-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.7	-20.7	-21.7	480	J	180	J	--	660	33	80	J	4.0	360	J	18	31	J	1.6	480	J	24					
PIER24-SB	PIER24-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-19.7	-21.7	-22.7	4,200	--	2,700	--	--	6,900	190	2,000	54	6,300	170	630	17	9,200	250	--	--	--						
PIER24-SB	PIER24-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-19.7	-23.7	-24.7	1,500	--	650	--	--	2,150	--	570	J	--	2,100	--	460	J	--	4,500	--	--	--					
PIER24-SB	PIER24-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-19.7	-25.7	-26.7	2,200	--	750	J	--	2,950	--	700	--	3,400	--	--	< 470	U	--	11,000	--	--	--					
EW10-SC57	EW10-SC57-0-2	3/2/2010	N	0.0	2.0	-40.3	-40.3	-42.3	--	--	2200	--	--	2,200	340	200	31	1,100	92	14	1,900	290	--	--	--	--						
EW10-SC57	EW10-SC57-2-4	3/2/2010	N	2.0	4.0	-40.3	-42.3	-44.3	--	--	< 19	U	< 19	< 19	U	--	< 19	U	--	< 6.0	U	--	< 19	UJ	--	--	--					
EW10-SC58	EW10-SC58-0-1.8	3/2/2010	N	0.0	1.8	-34.7	-34.7	-36.5	--	--	7800	--	--	7,800	600	590	45	4,000	310	330	25	1,400	110	--	--	--						
EW10-SC58	EW10-SC58-1.8-4	3/2/2010	N	1.8	4.0	-34.7	-36.5	-38.7	--	--	1200	--	--	1,200	94	59	4.6	1,400	110	32	2.5	6,400	J	500	--	--	--					
EW10-SC58	EW10-SC58-6-8	3/2/2010	N	6.0	8.0	-34.7	-40.7	-42.7	--	--	20	--	--	20	3.3	8.6	1.4	18	3.0	< 4.8	U	< 0.79	24	3.9	--	--						
EW10-SC59	EW10-SC59-0-2	3/2/2010	N	0.0	2.0	-40.0	-40.0	-42.0	--	--	< 20	U	< 20	< 2.1	< 20	U	< 2.1	< 20	U	< 2.1	< 6.0	UJ	< 0.63	< 20	U	< 2.1	--					
EW10-SC59	EW10-SC59-2-4	3/2/2010	N	2.0	4.0	-40.0	-42.0	-44.0	--	--	< 20	U	< 20	< 20	U	--	< 20	U	--	< 6.1	UJ	--	< 20	U	--	--						
EW10-SC60	EW10-SC60-0-0.8	3/2/2010	N	0.0	0.8	-42.0	-42.0	-42.8	--	--	1500	--	--	1,500	86	160	9.2	730	42	100	5.7	560	J	32	--	--						
EW10-SC60	EW10-SC60-0.8-3	3/2/2010	N	0.8	3.0	-42.0	-42.8	-45.0	--	--	56	--	--	56	6.4	13	J	1.5	31	3.5	< 6.2	U	< 0.71	26	J	3.0						
EW10-SC61	EW10-SC61-0-1	3/2/2010	N	0	1	-42.3	-42.3	-43.3	--	--	380	--	--	380	41	59	6.4	210	23	33	3.6	340	J	37	--	--						
EW10-SC61	EW10-SC61-1-3	3/2/2010	N	1	3	-42.3	-43.3	-45.3	--	--	66	--	--	66	5.5	18	J	1.5	46	3.8	7.8	0.65	98	J	8.2	--						
EW09-SS-213	EW09-SS-213-010	6/22/2009	N	0	0.5	-34.7	-34.7	-35.2	780	--	780	--	--	1,560	89.7	240	14	930	53	100	5.7	1,200	69	--	--	--						
EW09-SS-214	EW09-SS-214-010	6/22/2009	N	0	0.5	-41.5	-41.5	-42.1	650	--	650	--	--	1,300	119	180	17	670	61	77	7.1	780	72	--	--	--						
EW09-SS-215	EW09-SS-215-010	6/22/2009	N	0	0.4	-40.9	-40.9	-41.3	2,500	--	2,500	--	--	5,000	148	700	21	3,800	110	340	10	4,300	130	--	--	--						
36B-01	36B-01	11/17/2014	N	0	0.3	-37.0	-37.0	-37.3	--	--	24,000	--	--	24,000	1,100	6,100	290	16,000	750	4,200	200	24,000	1,100	--	--	--						
36B-02	36B-02	11/17/2014	N	0	0.3	-25.0	-25.0	-25.3	--	--	63,000	--	--	63,000	1,700	14,000	390	40,000	1,100	9,300	260	48,000	1,300	--	--	--						
36B-03	36B-03	11/17/2014	N	0	0.3	-34.0	-34.0	-34.3	--	--	19,000	--	--	19,000	520	4,200	120	11,000	300	3,100	85	18,000	490	--	--	--						
36B-04	36B-04	11/17/2014	N	0	0.3	-24.0	-24.0	-24.3	--	--	39,000	--	--	39,000	--	5,800	--	25,000	--	4,900	--	39,000	--	--	--	--						
36B-04	36B-24 (36B-04)	11/17/2014	FD	0	0.3	-24.0	-24.0	-24.3	--	--	42,000	--	--	42,000	1,600	4,900	190	27,000	1,000	4,600	170	40,000	1,500	--	--	--						
36B-05	36B-05	11/17/2014	N	0	0.3	-36.0	-36.0	-36.3	--	--	8,700	--	--	8,700	310	1,200	43	3,900	140	800	29	4,900	180	--	--	--						
36B-06	36B-06	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	--	--	78,000	--	--	78,000	3,200	23,000	930	54,000	2,200	12,000	490	100,000	4,000	--	--	--						
36B-07	36B-07	11/17/2014	N	0	0.3	-38.0	-38.0	-38.3	--	--	32,000	--	--	32,000	1,100	5,500	200	23,000	820	4,600	160	39,000	1,400	--	--	--						
36B-08	36B-08	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	--	--	68,000	--	--	68,000	--	19,000	--	45,000	--	8,600	--	79,000	--	--	--	--						

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Fluorene		Indeno (1,2,3-cd) pyrene		Naphthalene	Phenanthrene		Pyrene		Total HPAH		Total LPAH			
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC
				Remedial Action Level								31	23	--	--	--	100	--	--	--	--	--	--
Apparent Effects Thresholds								540	--	--	--	--	1,500	--	--	--	--	--	--	--	--	--	--
EECA01	EECA01-SS-011222	1/12/2022	N	0.0	0.4	-39.7	-39.7	-40.1	31	2.8	73	6.6	97	160	15	310	28	1,300	120	410	37		
EECA01	EECA01-43TO44-011222	1/12/2022	N	3.3	4.3	-39.7	-43.0	-44.0	8.5	--	19	--	18	43	--	93	--	340	--	100	37		
EECA01	EECA01-44TO45-011222	1/12/2022	N	4.3	5.3	-39.7	-44.0	-45.0	2.2	J	--	4.8	J	--	6.6	J	6.7	J	14	J	46	17	
EECA01	EECA01-45TO46-011222	1/12/2022	N	5.3	6.3	-39.7	-45.0	-46.0	< 9.9	U	--	< 16	U	--	2.9	J	--	< 24	U	--	< 60	6.5	
EECA02	EECA02-43TO44-010722	1/12/2022	N	1.2	2.2	-41.8	-43.0	-44.0	3.1	--	0.47	5.5	--	0.83	7.6	16	2.4	30	4.5	99	15	38	
EECA02	EECA02-44TO45-010722	1/12/2022	N	2.2	3.2	-41.8	-44.0	-45.0	1.6	--	0.22	3.7	--	0.50	5.2	11	1.5	19	2.6	65	8.8	24	
EECA03	EECA03-43TO44-010822	1/8/2022	N	2.1	3.1	-40.9	-43.0	-44.0	< 0.37	U	--	< 0.37	U	--	0.29	J	0.58	--	0.49	--	1.3	--	
EECA03	EECA03-44TO45-010822	1/8/2022	N	3.1	4.1	-40.9	-44.0	-45.0	< 0.37	U	--	< 0.37	U	--	0.81	--	0.51	--	1.3	--	2.1	--	
EECA04	EECA04-43TO44-010922	1/9/2022	N	1.8	2.8	-41.2	-43.0	-44.0	0.44	J	0.066	< 0.45	U	< 0.067	0.52	2.1	0.31	0.75	0.11	2.5	0.37	3.1	
EECA04	EECA04-44TO45-010922	1/9/2022	N	2.8	3.8	-41.2	-44.0	-45.0	0.62	--	0.078	< 0.43	U	< 0.054	0.48	2.8	0.35	0.76	0.095	2.1	0.27	4.3	
EECA05	EECA05-43TO44-011222	1/12/2022	N	2.2	3.2	-40.8	-43.0	-44.0	1.0	--	0.15	3.1	--	0.46	1.7	8.3	1.2	11	1.6	53	7.9		
EECA05	EECA05-44TO45-011222	1/12/2022	N	3.2	4.2	-40.8	-44.0	-45.0	0.92	--	0.11	2.1	4.2	0.25	1.5	6.1	0.73	7.2	0.86	37	4.4		
EECA06	EECA06-43TO44-011222	1/12/2022	N	12.3	13.3	-30.7	-43.0	-44.0	14	--	0.41	--	290	9.2	--	2.5	--	6.9	--	150	--		
EECA06	EECA06-44TO45-011222	1/12/2022	N	13.3	14.3	-30.7	-44.0	-45.0	0.73	--	--	< 0.42	U	--	150	1.7	--	0.65	--	1.2	--		
EECA07	EECA07-43TO44-010822	1/8/2022	N	1.4	2.4	-41.6	-43.0	-44.0	< 0.39	U	--	< 0.39	U	--	0.72	2.2	--	1.0	--	2.2	--		
EECA07	EECA07-44TO45-010822	1/8/2022	N	2.4	3.4	-41.6	-44.0	-45.0	< 0.39	U	--	< 0.39	U	--	1.1	2.1	--	0.55	--	1.6	--		
EECA08	EECA08-43TO44-010822	1/8/2022	N	1.1	2.1	-41.9	-43.0	-44.0	0.72	--	--	2.2	--	1.4	7.9	--	9.1	--	40	--			
EECA08	EECA08-44TO45-010822	1/8/2022	N	2.1	3.1	-41.9	-44.0	-45.0	0.44	--	--	0.66	--	< 0.42	U	2.2	--	2.0	--	8.4	--		
EECA09	EECA09-43TO44-010922	1/9/2022	N	2.5	3.5	-40.5	-43.0	-44.0	< 0.40	U	--	< 0.40	U	--	2.5	3.6	--	1.7	--	3.4	--		
EECA09	EECA09-44TO45-010922	1/9/2022	N	3.5	4.5	-40.5	-44.0	-45.0	0.41	J	0.072	< 0.44	U	< 0.077	0.50	3.1	0.54	2.3	0.40	4.7	0.82		
EECA10	EECA10-43TO44-011122	1/11/2022	N	2.4	3.4	-40.6	-43.0	-44.0	< 0.44	U	< 0.037	< 0.44	U	< 0.037	3.0	6.7	0.56	1.4	0.12	2.6	0.22		
EECA10	EECA10-44TO45-011122	1/11/2022	N	3.4	4.4	-40.6	-44.0	-45.0	< 0.44	U	< 0.037	< 0.44	U	< 0.037	1.1	14	1.2	2.3	0.19	7.7	0.65		
EECA11	EECA11-43TO44-011122	1/11/2022	N	8.5	9.5	-34.5	-43.0	-44.0	0.39	J	--	< 0.42	U	--	1.3	2.5	--	1.0	--	2.2	--		
EECA11	EECA11-44TO45-011122	1/11/2022	N	9.5	10.5	-34.5	-44.0	-45.0	0.26	J	--	< 0.40	U	--	1.5	1.5	--	2.0	--	3.2	--		
EECA12	EECA12-SS-011022	1/10/2022	N	0.0	0.4	-36.7	-36.7	-37.1	44	2.4	61	3.4	140	180	44	510	28	1,400	140	76	510		
EECA12	EECA12-43TO44-011022	1/10/2022	N	6.3	7.3	-36.7	-43.0	-44.0	< 0.39	U	--	< 0.39	U	--	1.2	10	1.1	--	1.9	--	3.8	--	
EECA13	EECA13-43TO44-010622	1/6/2022	N	1.6	2.6	-41.4	-43.0	-44.0	2.3	--	0.41	6.7	1.2	10	17	3.0	62	11	140	25			
EECA13	EECA13-44TO45-010622	1/6/2022	N	2.6	3.6	-41.4	-44.0	-45.0	0.81	--	0.14	0.66	0.11	1.8	2.7	0.46	5.7	0.97	14	2.4			
EECA14	EECA14-43TO44-010622	1/6/2022	N	1.3	2.3	-41.7	-43.0	-44.0	770	--	27	--	600	5,000	--	1,900	--	5,700	--	7,400	--		
EECA14	EECA14-44TO45-010622	1/6/2022	N	2.3	3.3	-41.7	-44.0	-45.0	4,500	--	100	--	510	20,000	--	7,100	--	23,000	--	30,000	--		
EECA14	EECA14-45TO46-010622	1/6/2022	N	3.3	4.3	-41.7	-45.0	-46.0	23	--	0.45	--	50	120	--	96	--	240	--	230	--		
EECA14	EECA14-46TO47-010622	1/6/2022	N	4.3	5.3	-41.7	-46.0	-47.0	11	--	2.0	< 0.43	U	< 0.077	150	18	3.2	5.9	1.1	18	3.2		
EECA14	EECA14-47TO48-010622	1/6/2022	N	5.3	6.3	-41.7	-47.0	-48.0	8.9	1.6	0.41	< 0.43	U	< 0.075	93	17	3.0	2.4	0.42	7.2	1.3		
EECA14	EECA14-48TO49-010622	1/6/2022	N	6.3	7.3	-41.7	-48.0	-49.0	16	--	0.42	U	--	170	J-	21	--	3.0	--	8.6	--		
EECA14	EECA14-49TO50-010622	1/6/2022	N	7.3	8.3	-41.7	-49.0	-50.0	7.5	1.5	0.41	< 0.41	U	< 0.080	110	17	3.3	2.7	0.53	8.0	1.6		
EECA14	EECA14-50TO51-010622	1/6/2022	N	8.3	9.3	-41.7	-50.0	-51.0	2.2	0.37	< 3.4	U	< 0.58	58	5.8	2.08	1.3	J	0.22	3.1	0.53		
EECA14	EECA14-51TO52-010622	1/6/2022	N	9.3	10.3	-41.7	-51.0	-52.0	4.2	--	0.45	U	--	58	6.5	--	1.4	J	--	3.4	--		
EECA14	EECA14-52TO53-010622	1/6/2022	N	10.3	11.3	-41.7	-52.0	-53.0	6.7	--	0.46	U	--	110	14	--	5.2	J	--	19	--		
EECA14	EECA14-53TO54-010622	1/6/2022	N	11.3	12.3	-41.7	-53.0	-54.0	25	--	0.47	U	--	280	< 7.1	U	--	2.4	J	--	5.9	--	
EECA14	EECA14-54TO55-010622	1/6/2022	N	12.3	13.3	-41.7	-54.0	-55.0	33	--	0.45	U	--	150	80	--	14	--	39	--			
EECA14	EECA14-55TO56-010622	1/6/2022	N	13.3	14.0	-41.7	-55.0	-55.7	13	2.6	< 4.8	U	< 0.96	67	17	3.4	3.0	J	0.60	7.8	1.6		
EECA15	EECA15-43TO44-010522	1/5/2022	N	2.8	3.8	-40.2	-43.0	-44.0	< 0.45	U	--	< 0.45	U	--	0.64	2.4	--	1.3	--	3.6	--		
EECA15	DUP01-010522 (EECA15-43TO44-010522)	1/5/2022	FD	2.8	3.8	-40.2	-43.0	-44.0	0.46	--	--	< 0.42	U	--	0.84	2.3	--	1.6	--	4.1	--		
EECA15	EECA15-44TO45-010522	1/5/2022	N	3.8	4.8	-40.2	-44.0	-45.0	1.1	J	--	< 2.3	U	--	1.2	J	4.4	--	3.0	--			
EECA15	EECA15-45TO46-010522	1/5/2022	N	4.8	5.8	-40.2	-45.0	-46.0	0.89	J	0.16	< 2.0	U	< 0.36	1.3	J	4.7	--	0.86	2.0			
EECA15	EECA15-46TO47-010522	1/5/2022	N	5.8	6.8	-40.2	-46.0	-47.0	0.28	J	--	< 1.9	U	--	1.1	J	1.7	J	--	0.37	--		
EECA15	EECA15-47TO48-010522	1/5/2022	N	6.8	7.8	-40.2	-47.0	-48.0	0.54	J	0.11	< 2.2	U	< 0.44	1.1	J	3.2	0.64	0.70	J			
EECA15	EECA15-48TO49-010522	1/5/2022	N	7.8	8.8	-40.2	-48.0	-49.0	0.24	J	0.046	< 0.41	U	< 0.079	0.51	2.6	0.50	< 0.41	U	< 0.079			
EECA15	EECA15-49TO50-010522	1/5/2022	N	8.8	9.8	-40.2	-49.0	-50.0	< 0.38	U	--	< 0.38	U	--	2.4	0.73	--	< 0.38	U	--			

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Fluorene		Indeno (1,2,3-cd) pyrene		Naphthalene	Phenanthrene		Pyrene		Total HPAH		Total LPAH						
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC			
				Remedial Action Level								--	23	--	--	--	100	--	--	--	--	--	--	--		
								Apparent Effects Thresholds								540	--	1,500	--	--	--	--	--	--	--	--
EECA16	EECA16-43TO44-011122	1/11/2022	N	4.2	5.2	-38.8	-43.0	-44.0	0.75	0.11	< 0.42	U	< 0.060	2.4	3.5	0.50	3.0	0.43	7.6	1.1	8.1	1.2				
EECA16	DUP12-011122	1/11/2022	FD	4.2	5.2	-38.8	-43.0	-44.0	0.67	0.097	0.59		0.086	2.1	3.2	0.46	1.9	0.28	9.1	1.3	7.2	1.0				
EECA16	(EECA16-43TO44-011122)	1/11/2022	N	5.2	6.2	-38.8	-44.0	-45.0	0.47	0.081	< 0.45	U	< 0.078	1.6	2.7	0.47	0.74	0.13	2.8	0.49	4.8	0.82				
EECA17	EECA17-43TO44-010722	1/7/2022	N	5.2	6.2	-37.8	-43.0	-44.0	12	2.2	12		2.2	34	49	J	9.1	68	J	13	230	43	140	26		
EECA17	EECA17-44TO45-010722	1/7/2022	N	6.2	7.2	-37.8	-44.0	-45.0	4.1	--	3.8		--	9.7	18	J	--	20	J	--	68	--	44	--		
EECA18	EECA18-SS-011322	1/13/2022	N	0.0	0.4	-41.5	-41.5	-41.9	31	3.2	78		8.1	77	170	18	280	29	1,500	150	400	42				
EECA18	EECA18-43TO44-011322	1/13/2022	N	1.5	2.5	-41.5	-43.0	-44.0	53	3.3	120		7.5	110	300	19	450	28	2,300	140	650	40				
EECA19	EECA19-SS-010922	1/9/2022	N	0.0	0.4	-40.1	-40.1	-40.5	29	--	82		--	76	180	--	330	--	1,500	--	390	--				
EECA19	EECA19-43TO44-010922	1/9/2022	N	2.9	3.9	-40.1	-43.0	-44.0	15	1.7	30		3.4	64	60	6.7	150	17	520	69	180	20				
BERTH01-SB	BERTH01-SB-190423	4/23/2019	N	0	0.3	-34.9	-34.9	-35.3	530	J	--	2,700	J	--	74	J	4,100	J	--	7,500	J	--	39,000	--	7,400	--
BERTH01-SB	BERTH01-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-34.9	-34.9	-35.9	84	J	--	520	--	110	J	280	J	--	2,500	--	8,400	--	930	--		
BERTH01-SB	BERTH01-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-34.9	-35.9	-36.9	72	J	--	480	--	96	J	270	J	--	3,000	--	8,400	--	830	--		
BERTH01-SB	SBDUP-01-190426	4/26/2019	FD	1.0	2.0	-34.9	-35.9	-36.9	48	J	--	340	--	76	J	130	J	--	2,300	--	5,700	--	500	--		
BERTH01-SB	(BERTH01-SB-1TO2-190426)	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	61	--	270		--	72	420	--	2,300	--	6,100	--	840	--				
BERTH01-SB	BERTH01-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.9	-36.9	-37.9	61	--	270		--	72	420	--	2,300	--	6,100	--	840	--				
BERTH01-SB	BERTH01-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.9	-38.9	-39.9	70	--	210		--	53	250	--	2,800	--	8,500	--	730	--				
BERTH01-SB	BERTH01-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.9	-40.9	-41.9	89	2.7	71		2.2	120	250	J	7.6	220	J	6.7	1,100	34	670	20		
BERTH01-SB	BERTH01-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.9	-43.9	-44.9	42	1.4	36		1.2	210	110	3.5	150	4.8	650	21	460	15				
BERTH02-SS	BERTH02-SS-190423	4/23/2019	N	0	0.3	-42.2	-42.2	-42.5	700	J	--	3,600	J	--	100	J	4,900	J	--	8,100	J	--	48,000	--	9,000	--
BERTH02-SB	BERTH02-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-42.2	-42.2	-43.2	37	3.4	150		14	14	J	240	22	490	45	2,100	190	430	39			
BERTH02-SB	BERTH02-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-42.2	-43.2	-44.2	22	3.5	59		9.5	13	J	89	14	200	32	830	130	190	31			
BERTH02-SB	BERTH02-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-42.2	-44.2	-45.2	10	J	1.6	33	J	5.2	< 15	UU	46	J	7.3	140	J	22	530	84	91	14
BERTH02-SB	BERTH02-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-42.2	-46.2	-47.2	7.3	J	0.46	16	J	1.0	4.9	J	26	J	1.6	71	4.4	220	14	57	3.6	
BERTH02-SB	BERTH02-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-42.2	-48.2	-49.2	< 34	U	< 2.3	< 54	U	< 3.6	< 34	U	< 81	U	< 5.4	16	J	1.1	39	2.6	< 81	< 5.4
BERTH02-SB	BERTH02-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-42.2	-51.2	-52.2	< 31	U	< 3.2	< 50	U	< 5.2	< 31	U	< 75	U	< 7.8	14	J	1.5	28	2.9	< 75	< 7.8
BERTH03-SS	BERTH03-SS-190424	4/24/2019	N	0	0.3	-39.6	-39.6	-39.9	150	J	5.6	710	J	26	21	J	1,200	J	44	1,900	J	70	11,000	400	2,100	79
BERTH03-SB	BERTH03-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-39.6	-39.6	-40.6	27	J	4.0	60		9.0	28	J	87	13	350	52	1,000	150	210	31		
BERTH03-SB	BERTH03-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-39.6	-40.6	-41.6	42	4.2	89		8.9	310	100	10	510	51	1,400	140	560	56				
BERTH03-SB	BERTH03-SB-2TO3-190429	4/29/2019	N	2.0	3.0	-39.6	-41.6	-42.6	890	39	140		6.1	660	2,400	100	1,600	70	5,100	220	4,900	210				
BERTH03-SB	BERTH03-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-39.6	-43.6	-44.6	< 32	U	< 2.5	< 52	U	< 4.0	< 32	U	< 77	U	< 5.9	28	J	2.2	52	4.0	< 77	< 5.9
BERTH03-SB	BERTH03-SB-6TO7-190429	4/29/2019	N	6.0	7.0	-39.6	-45.6	-46.6	< 31	U	< 5.3	< 50	U	< 8.5	< 31	U	< 75	U	< 13	< 75	U	< 13	< 75	< 13	< 75	< 13
BERTH03-SB	BERTH03-SB-8TO9-190429	4/29/2019	N	8.0	9.0	-39.6	-47.6	-48.6	< 33	U	< 2.4	< 52	U	< 3.7	< 33	U	< 79	U	< 5.6	< 79	U	< 5.6	< 79	< 5.6	< 79	< 5.6
BERTH04-SS	BERTH04-SS-190508	5/8/2019	N	0	0.3	-42.2	-42.2	-42.5	370	J	18	1,300	62	77	2,800	J	130	4,400	210	21,000	990	5,000	240			
BERTH04-SS	SBDUP03-190508	5/8/2019	FD	0	0.3	-42.2	-42.2	-42.5	210	J	16	990	76	42	1,800	J	140	4,200	320	18,000	1,400	3,200	250			
BERTH04-SB	(BERTH04-SS-190508)	5/8/2019	N	0.0	1.0	-42.2	-42.2	-43.2	22	1.7	36		2.8	120	91	7	380	29	970	74	300	23				
BERTH04-SB	BERTH04-SB-0TO1-190509	5/9/2019	N	1.0	2.0	-42.2	-43.2	-44.2	7.2	0.89	26		3.2	40	54	6.7	170	21	580	72	140	17				
BERTH04-SB	BERTH04-SB-1TO2-190509	5/9/2019	N	2.0	3.0	-42.2	-44.2	-45.2	< 32	U	--	20	J	--	< 32	U	19	J	--	57	J	--	210	--	19	--
BERTH04-SB	BERTH04-SB-3TO4-190509	5/9/2019	N	3.0	4.0	-42.2	-45.2	-46.2	< 33	U	--	< 52	U	--	30	J	< 78	U	--	12	J	--	24	--	30	--
BERTH04-SB	SBDUP02-190509	5/9/2019	FD	3.0	4.0	-42.2	-45.2	-46.2	< 31	U	--	< 49	U	--	31	< 74	U	--	18	J	--	40	--	31	--	
BERTH04-SB	(BERTH04-SB-3TO4-190509)	5/9/2019	N	4.0	5.0	-42.2	-46.2	-47.2	< 31	U	--	< 50	U	--	39	< 75	U	--	< 75	U	--	6.9	--	47	--	
BERTH04-SB	BERTH04-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-42.2	-46.2	-47.2	< 31	U	--	< 50	U	--	39	< 75	U	--	< 75	U	--	6.9	--	47	--	
BERTH04-SB	BERTH04-SB-6TO7.5-190509	5/9/2019	N	6.0	7.5	-42.2	-48.2	-49.7	< 33	U	--	< 52	U	--	41	< 78	U	--	< 78	U	--	< 78	--	59	--	
BERTH04-SB	BERTH04-SB-8.5TO9.5-190509	5/9/2019	N	8.5	9.5	-42.2	-50.7	-51.7	< 33	U	< 4.0	< 53	U	< 6.5	< 33	U	< 79	U	< 9.6	< 79	U	< 9.6	< 79	< 9.6	< 79	< 9.6
BERTH05-SS	BERTH05-SS-190508	5/8/2019	N	0	0.3	-39.7	-39.7	-40.0	77	3.8	370		18	27	640	32	1,200	60	5,700	280	1,200	58				
BERTH05-SB	BERTH05-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-39.7	-39.7	-40.7	34	J	1.8	130	J	6.8	40	J	140	J	7.4	1,300	J	68	2,900	150	360	19
BERTH05-SB	BERTH05-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-39.7	-40.7	-41.7	4.6	J	0.48	7.1	J	0.75	< 9.9	UU	14	J	1.5	65	J	6.8	150	16	31	3.3
BERTH05-SB	BERTH05-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-39.7	-41.7	-42.7	< 15	U	< 2.6	< 24	U	< 4.1	31	9.8	J	1.7	27	J	4.7	38	6.6	62	11	
BERTH05-SB	BERTH05-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-39.7	-43.7	-44.7	6.2	--	--	< 4.3	U	--	28	8.1	J	--	6.1	J	--	12	--	58	--	
BERTH0																										

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Fluorene		Indeno (1,2,3-cd) pyrene		Naphthalene	Phenanthrene		Pyrene		Total HPAH		Total LPAH						
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC			
				Remedial Action Level																						
Apparent Effects Thresholds																										
									46	J	--	160	J	--	< 110	U	280	--	640	--	3,100	--	560	--		
BERTH06-SS	BERTH06-SS-190424	4/24/2019	N	0	0.3	-40.6	-40.6	-40.9	270	J	--	460	J	--	34	J	1,200	--	1,900	--	8,300	--	2,100	--		
BERTH06-SB	BERTH06-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-40.6	-40.6	-41.6	100	J	3.1	370	J	12	44	J	800	25	1,600	50	6,200	190	1,500	46		
BERTH06-SB	BERTH06-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-40.6	-41.6	-42.6	300	J	17	320	J	18	630	J	390	22	5,500	310	14,000	760	1,800	100		
BERTH06-SB	BERTH06-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-40.6	-42.6	-43.6	1,700	J	330	20	J	3.8	2,900	J	2,100	400	520	100	1,800	340	8,500	1,600		
BERTH06-SB	BERTH06-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-40.6	-44.6	-45.6	1,800	J	300	< 26	U	< 4.3	15,000	J	1,600	270	37	J	6.2	84	14	20,000	3,300	
BERTH06-SB	BERTH06-SB-7TO8-190510	5/10/2019	N	7.0	8.0	-40.6	-47.6	-48.6	1,600	J	180	< 23	U	< 2.6	24,000	J	1,300	140	34	J	3.8	66	7.3	28,000	3,200	
BERTH06-SB	BERTH06-SB-8TO8.5-190510	5/10/2019	N	8.0	8.5	-40.6	-48.6	-49.1	1,600	J	180	< 23	U	< 2.6	24,000	J	1,300	140	34	J	3.8	66	7.3	28,000	3,200	
BERTH07-SS	BERTH07-SS-190424	4/24/2019	N	0	0.33	-43.5	-43.5	-43.8	66	J	4.1	240	J	15	< 95	U	380	24	700	44	3,400	210	650	41		
BERTH07-SB	BERTH07-SB-0TO1-190429	4/29/2019	N	0.0	1.0	-43.5	-43.5	-44.5	1,900	J	--	450	J	--	2,800	J	5,900	--	6,300	--	17,000	--	14,000	--		
BERTH07-SB	BERTH07-SB-1TO2-190429	4/29/2019	N	1.0	2.0	-43.5	-44.5	-45.5	370	J	--	810	J	--	350	J	930	--	12,000	--	26,000	--	2,600	--		
BERTH07-SB	BERTH07-SB-2TO3.5-190429	4/29/2019	N	2.0	3.5	-43.5	-45.5	-47.0	920	J	--	1,100	J	--	1,700	J	1,600	--	33,000	--	70,000	--	6,800	--		
BERTH07-SB	BERTH07-SB-4TO5-190429	4/29/2019	N	4.0	5.0	-43.5	-47.5	-48.5	270	J	15	63	J	3.5	1,700	J	470	26	2,700	150	7,400	410	3,100	170		
BERTH08-SS	BERTH08-SS-190508	5/8/2019	N	0	0.3	-39.9	-39.9	-40.2	66	J	3.9	270	J	16	22	J	590	35	970	57	4,400	260	1,000	60		
BERTH08-SB	BERTH08-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-39.9	-39.9	-40.9	310	J	53	73	J	12	150	J	1,300	220	1,200	200	3,500	590	3,100	530		
BERTH08-SB	BERTH08-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-39.9	-40.9	-41.9	180	J	28	54	J	8.4	180	J	360	56	1,200	190	3,300	520	1,200	190		
BERTH08-SB	BERTH08-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-39.9	-41.9	-42.9	370	J	--	39	J	--	110	J	490	--	750	--	2,500	--	2,200	--		
BERTH08-SB	BERTH08-SB-4.5TO6-190509	5/9/2019	N	4.5	6.0	-39.9	-44.4	-45.9	27	J	3.2	< 25	U	< 2.9	47	J	77	9.1	33	J	3.9	60	7.1	350	41	
BERTH08-SB	BERTH08-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-39.9	-47.9	-48.9	100	J	20	< 25	U	< 4.9	650	J	94	18	26	J	5.1	45	8.8	1,200	240	
BERTH09-SS	BERTH09-SS-190508	5/8/2019	N	0	0.3	-41.0	-41.0	-41.4	110	J	3.0	470	J	13	73	J	760	21	2,200	59	7,900	210	1,500	40		
BERTH09-SB	BERTH09-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-41.0	-41.0	-42.0	86	J	4.8	360	J	20	180	J	260	14	6,200	340	12,000	660	890	50		
BERTH09-SB	BERTH09-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-41.0	-42.0	-43.0	60	J	6.6	180	J	20	72	J	160	18	3,500	380	6,000	660	500	55		
BERTH09-SB	BERTH09-SB-2TO3-190509	5/9/2019	N	2.0	3.0	-41.0	-43.0	-44.0	68	J	11	120	J	19	76	J	150	24	1,400	220	2,600	420	400	64		
BERTH09-SB	BERTH09-SB-4TO5-190509	5/9/2019	N	4.0	5.0	-41.0	-45.0	-46.0	8.6	J	0.72	< 50	U	< 4.2	< 31	U	25	J	2.1	130	11	200	17	34	2.8	
BERTH09-SB	BERTH09-SB-6TO7-190509	5/9/2019	N	6.0	7.0	-41.0	-47.0	-48.0	< 31	U	< 5.7	< 49	U	< 9.1	< 31	U	< 74	U	< 14	17	J	3.1	17	3.1	< 74	< 14
BERTH09-SB	BERTH09-SB-8TO9-190509	5/9/2019	N	8.0	9.0	-41.0	-49.0	-50.0	< 33	U	< 3.6	< 52	U	< 5.7	< 33	U	< 79	U	< 8.7	10	J	1.1	10	1.1	< 79	< 8.7
BERTH10-SS	BERTH10-SS-190424	4/24/2019	N	0	0.3	-41.0	-41.0	-41.3	110	J	6.5	420	J	25	13	J	750	J	44	1,200	J	71	6,400	370	1,400	83
BERTH10-SB	BERTH10-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-41.0	-41.0	-42.0	4.6	J	0.42	10	J	0.91	4.9	J	20	J	1.8	70	6.4	200	18	42	3.8	
BERTH10-SB	BERTH10-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-41.0	-42.0	-43.0	3.9	J	0.45	8.2	J	0.94	< 9.7	UJ	12	J	1.4	30	J	3.4	120	14	21	2.5
BERTH10-SB	BERTH10-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-41.0	-43.0	-44.0	13	J	1.0	22	J	1.7	24	J	29	J	2.2	73	5.6	290	22	100	8.0	
BERTH10-SB	BERTH10-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-41.0	-45.0	-46.0	< 17	U	< 1.4	< 27	U	< 2.2	17	J	12	J	1.0	31	J	2.6	44	3.7	29	2.4
BERTH10-SB	BERTH10-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-41.0	-47.0	-48.0	< 15	U	< 2.5	< 24	U	< 4.0	23	J	8.6	J	1.4	< 36	U	< 6.0	< 36	< 6.0	32	5.3
BERTH10-SB	BERTH10-SB-8TO9-190510	5/10/2019	N	8.0	9.0	-41.0	-49.0	-50.0	< 18	U	--	< 29	U	--	23	J	11	J	--	< 44	U	--	< 44	--	34	--
BERTH11-SS	BERTH11-SS-190423	4/23/2019	N	0	0.3	-41.4	-41.4	-41.7	160	J	5.5	710	J	24	25	J	1,200	J	41	1,900	J	66	11,000	370	2,200	75
BERTH11-SS	SSDUP01-190423 (BERTH11-SS-190423)	4/23/2019	FD	0	0.3	-41.4	-41.4	-41.7	150	J	5.0	790	J	26	25	J	1,200	J	40	1,900	J	63	12,000	380	2,200	72
BERTH11-SB	BERTH11-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-41.4	-41.4	-42.4	13	J	1.5	46	J	5.3	10	J	62	7.1	130	15	600	68	130	15		
BERTH11-SB	BERTH11-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-41.4	-42.4	-43.4	7.1	J	1.2	32	J	5.6	6.2	J	33	J	5.8	70	12	330	57	68	12	
BERTH11-SB	BERTH11-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-41.4	-43.4	-44.4	6.2	J	0.89	17	J	2.4	3.8	J	23	J	3.3	69	9.9	230	33	50	7.2	
BERTH11-SB	BERTH11-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-41.4	-45.4	-46.4	< 34	U	< 3.1	< 54	U	< 4.9	< 34	U	< 81	U	< 7.4	32	J	2.9	81	7.4	12	1.1
BERTH11-SB	BERTH11-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-41.4	-47.4	-48.4	< 32	U	< 2.0	22	J	1.4	< 32	U	22	J	1.4	42	J	2.6	190	12	35	2.2
BERTH11-SB	BERTH11-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-41.4	-50.4	-51.4	< 31	U	< 2.1	< 49	U	< 3.3	< 31	U	< 74	U	< 4.9	< 74	U	< 4.9	< 74	< 4.9	< 74	< 4.9
BERTH12-SS	BERTH12-SS-190423	4/23/2019	N	0	0.3	-34.5	-34.5	-34.8	760	J	--	3,600	J	--	100	J	5,100	J	--	8,800	J	--	47,000	--	9,400	--
BERTH12-SB	BERTH12-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-34.5	-34.5	-35.5	130	J	--	810	J	--	58	J	940	--	2,400	--	11,000	--	1,800	--		
BERTH12-SB	BERTH12-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-34.5	-35.5	-36.5	< 94	U	< 3.0	280	J	9.0	29	J	160	J	5.2	1,000	32	3,200	100	300	9.6	
BERTH12-SB	BERTH12-SB-2TO4-190425	4/25/2019	N	2.0	4.0	-34.5	-36.5	-38.5	120	J	7.1	410	J	24	45	J	680	40	1,500	88	6,100	360	1,300	78		
BERTH12-SB	BERTH12-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-34.5	-38.5	-39.5	64	J	--	450	J	--	26	J	470	--	1,200	--	5,800	--	910	--		
BERTH12-SB	BERTH12-SB-7TO7.9-190425	4/25/2019	N	7.0	7.9	-34.5	-41.5	-42.4	22	J	--	110	J	--	29	J	76	--	700	--	1,800	--	210	--		

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Fluorene		Indeno (1,2,3-cd) pyrene		Naphthalene	Phenanthrene		Pyrene		Total HPAH		Total LPAH								
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC					
				Remedial Action Level																								
Apparent Effects Thresholds																												
									470		23					100												
									540					1,500														
PIER13-SS	PIER13-SS-190423	4/23/2019	N	0	0.3	-31.7	-31.7	-32.1	470	J	--	--	70	J	3,500	J	--	5,600	J	--	32,000	J	6,500					
PIER13-SB	PIER13-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-31.7	-31.7	-32.7	330	J	--	1,700	J	46	J	2,600	J	--	5,100	J	--	26,000	J	4,700				
PIER13-SB	PIER13-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-31.7	-32.7	-33.7	230	J	--	1,300	J	47	J	1,600	J	--	3,900	J	--	18,000	J	3,000				
PIER13-SB	PIER13-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-31.7	-33.7	-34.7	190	J	--	990	J	35	J	1,500	J	--	3,100	J	--	16,000	J	2,800				
PIER13-SB	PIER13-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-31.7	-35.7	-36.7	150	J	--	1,200	J	62	J	1,000	J	--	3,700	J	--	17,000	J	2,100				
PIER13-SB	PIER13-SB-7TO7.8-190425	4/25/2019	N	7.0	7.8	-31.7	-38.7	-39.5	160	J	--	900	J	490	J	500	J	--	9,000	J	--	21,000	J	2,000				
PIER14-SS	PIER14-SS-190424	4/24/2019	N	0	0.3	-21.7	-21.7	-22.1	7,000	J	--	23,000	J	1,500	J	49,000	J	--	95,000	J	--	410,000	J	88,000				
PIER14-SB	PIER14-SB-0TO1-190425	4/25/2019	N	0.0	1.0	-21.7	-21.7	-22.7	72	J	--	430	J	37	J	250	J	--	4,000	J	--	8,400	J	660				
PIER14-SB	PIER14-SB-1TO2-190425	4/25/2019	N	1.0	2.0	-21.7	-22.7	-23.7	92	J	--	830	J	82	J	380	J	--	7,400	J	--	16,000	J	1,200				
PIER14-SB	PIER14-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-21.7	-23.7	-24.7	470	J	--	790	J	560	J	1,300	J	--	20,000	J	--	34,000	J	4,000				
PIER14-SB	PIER14-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-21.7	-25.7	-26.7	310	J	--	890	J	340	J	940	J	--	3,100	J	--	20,000	J	2,900				
PIER14-SB	PIER14-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-21.7	-27.7	-28.7	520	J	--	1,500	J	540	J	1,400	J	--	39,000	J	--	65,000	J	4,400				
PIER14-SB	PIER14-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-21.7	-30.7	-31.7	260	J	--	1,000	J	130	J	1,600	J	--	16,000	J	--	33,000	J	3,200				
PIER15-SS	PIER15-SS-190423	4/23/2019	N	0	0.3	-32.9	-32.9	-33.2	2,600	J	--	9,700	J	300	J	20,000	J	--	39,000	J	--	180,000	J	35,000				
PIER15-SB	PIER15-SB-0TO1-190426	4/26/2019	N	0.0	1.0	-32.9	-32.9	-33.9	62	J	--	410	J	63	J	230	J	--	2,300	J	--	5,700	J	570				
PIER15-SB	PIER15-SB-1TO2-190426	4/26/2019	N	1.0	2.0	-32.9	-33.9	-34.9	48	J	1.8	160	J	5.9	100	J	190	J	7.0	1,500	J	56	3,100	J	110	480	18	
PIER15-SB	PIER15-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-32.9	-34.9	-35.9	41	J	1.5	220	J	7.9	80	J	220	J	7.9	3,000	J	110	6,600	J	230	490	18	
PIER15-SB	PIER15-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-32.9	-36.9	-37.9	140	J	--	200	J	--	250	J	--	4,600	J	--	14,000	J	--	1,600	J	--	--	
PIER15-SB	PIER15-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-32.9	-38.9	-39.9	15	J	0.68	26	J	1.2	53	J	25	J	1.1	110	J	5.0	320	J	14	130	5.8	
PIER15-SB	PIER15-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-32.9	-41.9	-42.9	< 15	U	< 1.2	< 25	U	< 1.9	6.6	J	< 37	U	< 2.8	7.2	J	0.55	14	J	1.1	6.6	0.51	
PIER16-SS	PIER16-SS-190424	4/24/2019	N	0	0.3	-22.9	-22.9	-23.3	6,700	J	--	24,000	J	--	690	J	55,000	J	--	98,000	J	--	440,000	J	96,000	J	--	--
PIER16-SB	PIER16-SB-0TO1-190509	5/9/2019	N	0.0	1.0	-22.9	-22.9	-23.9	1,800	J	--	7,800	J	--	330	J	12,000	J	--	22,000	J	--	110,000	J	--	23,000	J	--
PIER16-SB	PIER16-SB-1TO2-190509	5/9/2019	N	1.0	2.0	-22.9	-23.9	-24.9	170	J	--	1,100	J	--	< 310	UJ	780	J	--	6,200	J	--	17,000	J	--	1,800	J	--
PIER16-SB	PIER16-SB-2TO3-190425	4/25/2019	N	2.0	3.0	-22.9	-24.9	-25.9	1,200	J	--	3,300	J	--	320	J	7,200	J	--	26,000	J	--	76,000	J	--	14,000	J	--
PIER16-SB	PIER16-SB-4TO5-190425	4/25/2019	N	4.0	5.0	-22.9	-26.9	-27.9	210	J	--	1,200	J	--	58	J	1,200	J	--	5,500	J	--	23,000	J	--	2,800	J	--
PIER16-SB	PIER16-SB-6TO7-190425	4/25/2019	N	6.0	7.0	-22.9	-28.9	-29.9	84	J	--	330	J	--	89	J	430	J	--	4,900	J	--	9,200	J	--	970	J	--
PIER16-SB	PIER16-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-22.9	-31.9	-32.9	140	J	4.8	120	J	4.1	870	J	270	J	9.3	1,300	J	45	3,200	J	110	1,700	58	
PIER17-SS	PIER17-SS-190423	4/23/2019	N	0	0.3	-22.3	-22.3	-22.6	3,300	J	--	10,000	J	--	510	J	23,000	J	--	32,000	J	--	160,000	J	--	40,000	J	--
PIER17-SB	PIER17-SB-0TO2-190426	4/26/2019	N	0.0	2.0	-22.3	-22.3	-24.3	180	J	--	700	J	--	250	J	1,400	J	--	8,900	J	--	23,000	J	--	2,700	J	--
PIER17-SB	PIER17-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-22.3	-24.3	-25.3	78	J	--	450	J	--	57	J	250	J	--	5,100	J	--	11,000	J	--	720	J	--
PIER17-SB	PIER17-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-22.3	-26.3	-27.3	43	J	--	180	J	--	39	J	280	J	--	1,400	J	--	3,500	J	--	530	J	--
PIER17-SB	PIER17-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-22.3	-28.3	-29.3	47	J	1.4	130	J	3.9	< 180	U	170	J	5.2	1,600	J	48	3,900	J	120	360	11	
PIER17-SB	PIER17-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-22.3	-31.3	-32.3	56	J	2.2	46	J	1.8	46	J	150	J	5.8	700	J	27	1,900	J	75	410	16	
PIER18-SS	PIER18-SS-190424	4/24/2019	N	0	0.3	-25.3	-25.3	-25.6	4,500	J	--	14,000	J	--	480	J	35,000	J	--	53,000	J	--	240,000	J	--	60,000	J	--
PIER18-SB	SSDUP02-190424 (PIER18-SS-190424)	4/24/2019	FD	0	0.3	-25.3	-25.3	-25.6	3,100	J	--	9,300	J	--	250	J	25,000	J	--	39,000	J	--	170,000	J	--	43,000	J	--
PIER18-SB	PIER18-SB-0TO1-190510	5/10/2019	N	0.0	1.0	-25.3	-25.3	-26.3	1,500	J	--	5,300	J	--	260	J	11,000	J	--	16,000	J	--	74,000	J	--	19,000	J	--
PIER18-SB	PIER18-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-25.3	-26.3	-27.3	230	J	--	2,000	J	--	79	J	1,600	J	--	7,100	J	--	25,000	J	--	3,100	J	--
PIER18-SB	PIER18-SB-4TO5.5-190425	4/25/2019	N	4.0	5.5	-25.3	-29.3	-30.8	200	J	--	580	J	--	110	J	790	J	--	9,300	J	--	18,000	J	--	1,900	J	--
PIER18-SB	PIER18-SB-6.5TO8-190425	4/25/2019	N	6.5	8.0	-25.3	-31.8	-33.3	45	J	--	28	J	--	800	J	38	J	--	320	J	--	670	J	--	1,100	J	--
PIER18-SB	PIER18-SB-9TO10-190425	4/25/2019	N	9.0	10.0	-25.3	-34.3	-35.3	11	J	0.85	13	J	1.0	41	J	17	J	1.3	73	J	5.6	210	J	16	94	7.2	
PIER19-SS	PIER19-SS-190423	4/23/2019	N	0	0.3	-34.8	-34.8	-35.1	1,700	J	--	4,200	J	--	190	J	11,000	J	--	14,000	J	--	68,000	J	--	20,000	J	--
PIER19-SB	PIER19-SB-0TO2-190426	4/26/2019	N	0.0	2.0	-34.8	-34.8	-36.8	< 89	U	--	250	J	--	41	J	160	J	--	1,800	J	--	4,200	J	--	350	J	--
PIER19-SB	PIER19-SB-2TO3-190426	4/26/2019	N	2.0	3.0	-34.8	-36.8	-37.8	140	J	--	400	J	--	93	J	900	J	--	3,000	J	--	8,300	J	--	1,700	J	--
PIER19-SB	PIER19-SB-4TO5-190426	4/26/2019	N	4.0	5.0	-34.8	-38.8	-39.8	< 82	U	< 2.9	110	J	3.9	28	J	90	J	3.2	790	J	28	1,900	J	68	210	7.6	
PIER19-SB	PIER19-SB-6TO7-190426	4/26/2019	N	6.0	7.0	-34.8	-40.8	-41.8	11	J	0.58	28	J	1.5	6.8	J	33	J	1.7	270	J	14	600	J	31	73	3.8	
PIER19-SB	PIER19-SB-9TO10-190426	4/26/2019	N	9.0	10.0	-34.8	-43.8	-44.8	19	J	1.9	32	J	3.2	9.4	J	60	J	6.0	380	J	38	750	J	75	130	13	

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Location Code	Sample Name	Sample Date	Sample Type	Sample Depth Interval (feet bss)		Elevation (feet MLLW)			Fluorene		Indeno (1,2,3-cd) pyrene		Naphthalene	Phenanthrene		Pyrene		Total HPAH		Total LPAH						
				Top	Bottom	Top of Core	Sample Top	Sample Bottom	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC	µg/kg dw	mg/kg OC			
				Remedial Action Level																						
Apparent Effects Thresholds																										
									1,200	J	--	--	--	--	100	--	--	--	--	--	--	--				
PIER20-SS	PIER20-SS-190424	4/24/2019	N	0	0.3	-19.4	-19.4	-19.7	420	J	--	3,700	J	140	J	7,700	J	--	13,000	J	--	60,000	--	14,000	--	
PIER20-SB	PIER20-SB-OTO1-190510	5/10/2019	N	0.0	1.0	-19.4	-19.4	-20.4	420	J	--	1,600	J	100	J	2,600	J	--	5,000	J	--	21,000	--	4,900	--	
PIER20-SB	SBDUP03-190510 (PIER20-SB-OTO1-190510)	5/10/2019	FD	0.0	1.0	-19.4	-19.4	-20.4	170	J	--	990	J	< 200	UJ	1,200	J	--	3,500	J	--	13,000	--	2,200	--	
PIER20-SB	PIER20-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.4	-20.4	-21.4	< 280	U	--	1,700	--	120	J	670	--	12,000	--	--	28,000	--	1,800	--		
PIER21-SS	PIER21-SS-190508	5/8/2019	N	0	0.5	-37.7	-37.7	-38.2	130	--	10	460	--	35	33	990	76	1,700	130	8,200	630	1,800	140			
PIER22-SS	PIER22-SS-190508	5/8/2019	N	0	0.5	-39.8	-39.8	-40.2	120	--	5.5	490	22	25	1,100	50	1,800	82	8,400	380	1,900	87				
PIER23-SS	PIER23-SS-190508	5/8/2019	N	0	0.7	-33.2	-33.2	-33.9	62	J	3.0	230	J	11	18	J	420	J	20	< 47	U	< 2.2	3,100	150	810	38
PIER24-SS	PIER24-SS-190508	5/8/2019	N	0	0.3	-19.7	-19.7	-20.0	40	--	2.0	160	8.0	22	J	230	12	560	28	3,100	150	550	27			
PIER24-SB	PIER24-SB-OTO1-190510	5/10/2019	N	0.0	1.0	-19.7	-19.7	-20.7	42	--	2.5	110	6.5	24	J	350	21	580	34	2,200	130	600	35			
PIER24-SB	PIER24-SB-1TO2-190510	5/10/2019	N	1.0	2.0	-19.7	-20.7	-21.7	42	J	2.1	140	J	7.0	J	280	J	14	1,200	J	60	3,500	170	570	28	
PIER24-SB	PIER24-SB-2TO3-190510	5/10/2019	N	2.0	3.0	-19.7	-21.7	-22.7	870	--	24	2,500	68	280	J	6,700	180	12,000	320	50,000	1,300	12,000	320			
PIER24-SB	PIER24-SB-4TO5-190510	5/10/2019	N	4.0	5.0	-19.7	-23.7	-24.7	360	--	750	--	340	J	890	J	--	4,700	--	18,000	--	2,600	--			
PIER24-SB	PIER24-SB-6TO7-190510	5/10/2019	N	6.0	7.0	-19.7	-25.7	-26.7	390	J	--	830	--	810	J	1,300	--	10,000	--	34,000	--	4,200	--			
EW10-SC57	EW10-SC57-0-2	3/2/2010	N	0.0	2.0	-40.3	-40.3	-42.3	150	--	23	200	31	120	J	1,200	180	3,500	540	11,200	1,730	2,200	340			
EW10-SC57	EW10-SC57-2-4	3/2/2010	N	2.0	4.0	-40.3	-42.3	-44.3	< 19	U	--	< 19	U	--	< 19	U	--	15	J	--	15	--	< 19	--		
EW10-SC58	EW10-SC58-0-1.8	3/2/2010	N	0.0	1.8	-34.7	-34.7	-36.5	130	--	10	630	48	76	J	690	53	6,500	500	27,400	2,110	2,400	180			
EW10-SC58	EW10-SC58-1.8-4	3/2/2010	N	1.8	4.0	-34.7	-36.5	-38.7	930	--	73	64	5.0	240	J	3,600	280	4,900	390	15,800	1,240	6,800	540			
EW10-SC58	EW10-SC58-6-8	3/2/2010	N	6.0	8.0	-34.7	-40.7	-42.7	11	--	1.8	6.7	1.1	12	J	48	7.9	22	3.6	121	19.9	92	15			
EW10-SC59	EW10-SC59-0-2	3/2/2010	N	0.0	2.0	-40.0	-40.0	-42.0	< 20	U	< 2.1	< 20	U	< 2.1	U	< 20	U	< 2.1	12	J	1.3	12	1.3	< 20	< 2.1	
EW10-SC59	EW10-SC59-2-4	3/2/2010	N	2.0	4.0	-40.0	-42.0	-44.0	< 20	U	--	< 20	U	--	< 20	U	--	< 20	U	--	< 20	--	< 20	--		
EW10-SC60	EW10-SC60-0-8	3/2/2010	N	0.0	0.8	-42.0	-42.0	-42.8	69	--	4.0	180	10	70	J	340	20	2,200	130	6,600	380	800	46			
EW10-SC60	EW10-SC60-0.8-3	3/2/2010	N	0.8	3.0	-42.0	-42.8	-45.0	< 19	U	< 2.2	13	J	1.5	< 19	U	21	2.4	93	11	290	33	34	3.9		
EW10-SC61	EW10-SC61-0-1	3/2/2010	N	0	1	-42.3	-42.3	-43.3	22	--	2.4	64	6.9	15	J	160	17	340	37	1,780	190	290	31			
EW10-SC61	EW10-SC61-1-3	3/2/2010	N	1	3	-42.3	-43.3	-45.3	13	J	1.1	17	J	1.4	< 19	U	95	7.9	120	10	460	38	149	12		
EW09-SS-213	EW09-SS-213-010	6/22/2009	N	0	0.5	-34.7	-34.7	-35.2	140	--	8.0	290	17	100	J	800	46	2,300	130	8,200	470	1,710	98			
EW09-SS-214	EW09-SS-214-010	6/22/2009	N	0	0.5	-41.5	-41.5	-42.1	84	--	7.7	200	18	120	J	370	34	2,700	250	7,100	650	1,010	93			
EW09-SS-215	EW09-SS-215-010	6/22/2009	N	0	0.4	-40.9	-40.9	-41.3	340	--	10	820	24	86	J	2,400	71	4,400	130	24,600	730	5,000	150			
36B-01	36B-01	11/17/2014	N	0	0.3	-37.0	-37.0	-37.3	2,000	--	94	7,200	340	470	J	12,000	570	27,000	1,300	136,500	6,400	24,650	1,200			
36B-02	36B-02	11/17/2014	N	0	0.3	-25.0	-25.0	-25.3	5,800	--	160	19,000	530	1,200	J	30,000	830	69,000	1,900	329,300	9,100	61,300	1,700			
36B-03	36B-03	11/17/2014	N	0	0.3	-34.0	-34.0	-34.3	2,000	--	55	5,700	160	640	J	13,000	360	22,000	600	104,400	2,900	24,990	690			
36B-04	36B-04	11/17/2014	N	0	0.3	-24.0	-24.0	-24.3	4,000	--	--	13,000	--	1,100	J	26,000	--	48,000	--	221,700	--	49,010	--			
36B-04	36B-24 (36B-04)	11/17/2014	FD	0	0.3	-24.0	-24.0	-24.3	3,400	--	130	13,000	490	490	J	24,000	910	51,000	1,900	231,500	8,800	44,780	1,700			
36B-05	36B-05	11/17/2014	N	0	0.3	-36.0	-36.0	-36.3	430	--	15	1,700	61	240	J	3,700	130	9,300	330	36,800	1,300	6,710	240			
36B-06	36B-06	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	12,000	--	490	25,000	1,000	2,700	J	87,000	3,500	100,000	4,000	491,000	20,000	150,470	6,100			
36B-07	36B-07	11/17/2014	N	0	0.3	-38.0	-38.0	-38.3	5,000	--	180	10,000	360	710	J	27,000	960	38,000	1,400	191,100	6,800	53,490	1,900			
36B-08	36B-08	11/17/2014	N	0	0.3	-28.0	-28.0	-28.3	8,700	--	--	22,000	--	880	J	56,000	--	83,000	--	409,600	--	104,090	--			

Table 6
PAH Concentrations in Sediment
Action Memorandum for the Non-Time Critical Removal Action at Slip 36
Harbor Island Superfund Site, East Waterway Operable Unit, Seattle, Washington

Notes:

1. Chemical parameters listed on a mg/kg OC basis represent concentrations normalized, or expressed, on a TOC basis. To normalize to TOC, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent TOC content of the sediment. OC-normalized concentrations from samples collected during the 2019 Site Investigation are based on the total organic carbon results, adjusted using total solids measured at 110 degrees Celsius (AECOM 2020). OC-normalized concentrations are presented for samples with TOC between 0.5 and 4 percent.
2. Yellow shading indicates result is above the remedial action level. For samples with TOC less than 0.5 percent or above 4 percent and remedial action levels that are on an OC-normalized basis, the dry weight concentrations were compared to the apparent effects threshold.
3. Gray shading means sample is shallower than -43 feet MLLW and will be removed as part of the Slip 36 berth expansion and deepening (-43 feet MLLW) to accommodate operational needs.
4. Underlined values indicate the analyte was not detected with a reporting limit that is above the associated screening level.
5. Bold values indicate the analyte was detected at a concentration greater than the method detection limit.
6. Total HPAHs, LPAHs, and benzofluoranthenes are calculated and presented for consistency with other East Waterway Operable Unit documents. Values are not screened because there are not RALs established.
7. Total HPAHs are calculated as the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, total benzofluoranthenes, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene. For analytes that were not detected, a value of one-half the reporting limit was used in the calculation. If all analytes were not detected, the summation is reported as a non-detect at the highest individual reporting limit.
8. Total LPAHs were calculated as the sum of acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene. For LPAHs reported as not detected, a value of one-half the reporting limit was used in the calculation.
9. Total benzofluoranthenes were calculated as the sum of benzo(b)fluoranthene and benzo(k)fluoranthene. If both analytes were not detected, the summation is reported as a non-detect at the highest individual reporting limit. Results shown for benzo(b+k)fluoranthene were reported by the lab as a single value.
10. The sediment elevation of surface samples from 2019 are assumed to be the same as subsurface samples collected at the same location. The surface elevation of locations without subsurface samples (PIER21, PIER22, and PIER23) was estimated from the tide and water levels recorded at the time of sampling.

Symbols, Acronyms, and Abbreviations:

% = percent
< = compound was not detected, value presented is the reporting limit
– = not analyzed/not applicable
bss = below sediment surface
FD = field duplicate
HPAHs = high molecular weight polynuclear aromatic hydrocarbons
LPAHs = low molecular weight polynuclear aromatic hydrocarbons
µg/kg dw = micrograms per kilogram dry weight
mg/kg OC = milligrams per kilogram organic carbon
MLLW = mean lower low water
N = parent sample
OC = organic carbon
RAL = remedial action level
TOC = total organic carbon

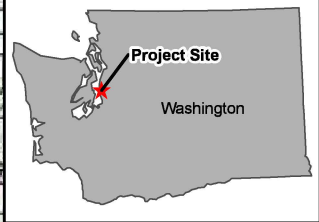
Qualifiers:

J = Estimated value.
J- Estimated value, low bias.
J+ = Estimated value, high bias.
U = Analyte not detected above reporting limit.
UB = The analyte was found in an associated blank as well as the sample.
UJ = Compound was analyzed for but not detected above the reporting limit shown. Reporting limit is an estimated value.

Reference:

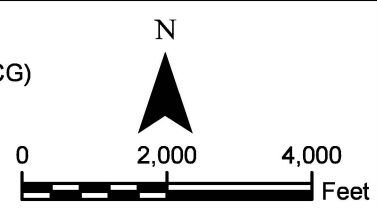
AECOM. 2020. Site Investigation Report, Pier 36, United States Coast Guard Base Seattle, Washington. October 20.

Figures



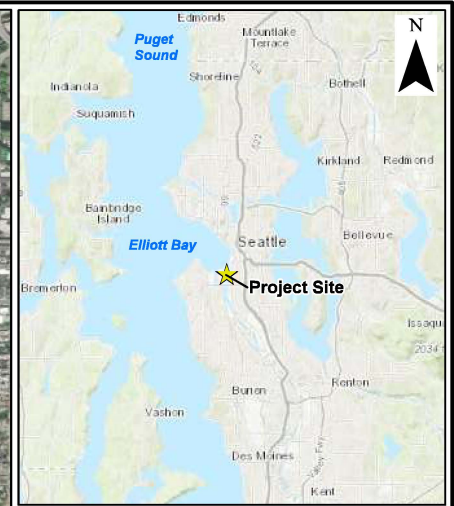
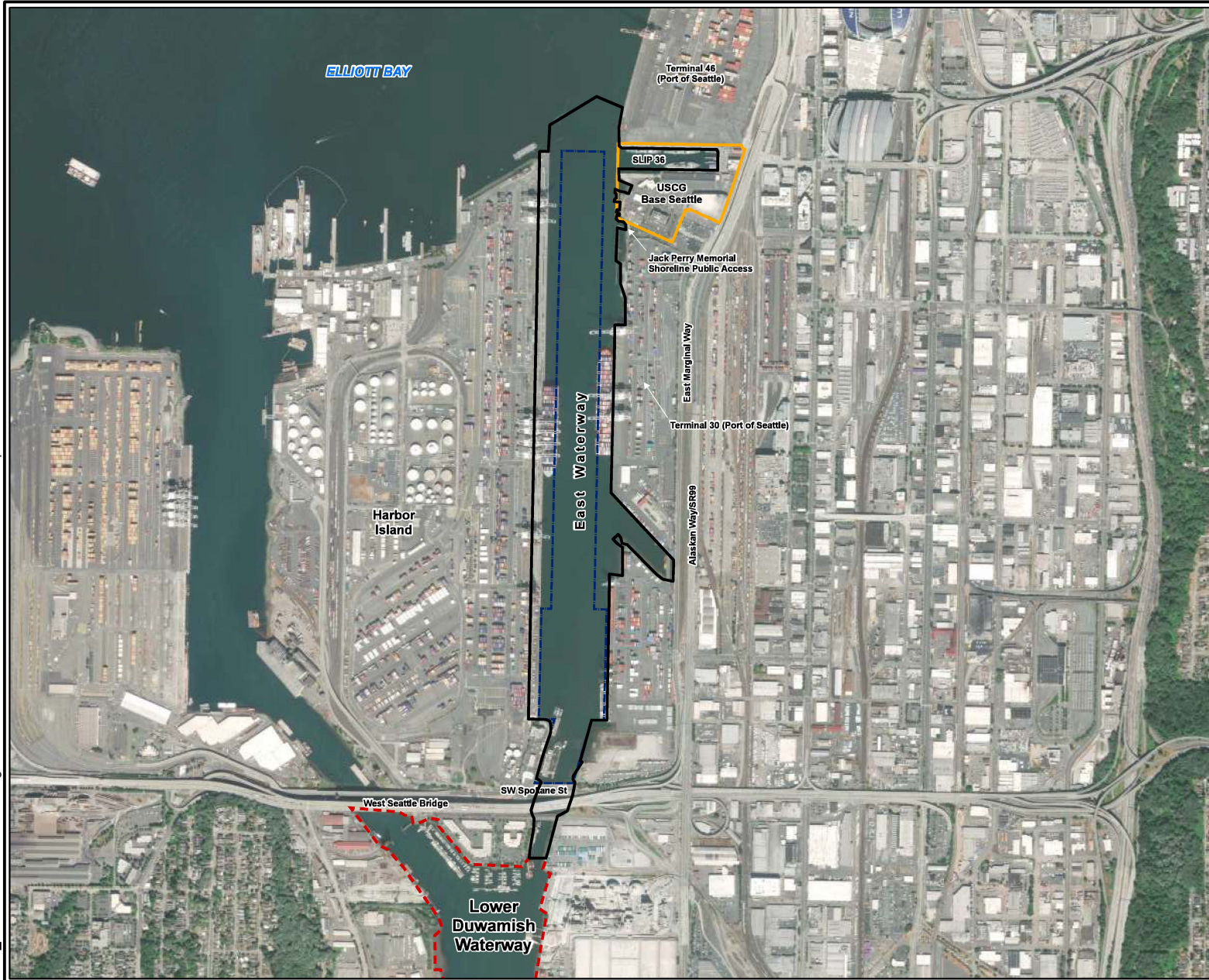
LEGEND:

-  United States Coast Guard (USCG) Base Seattle



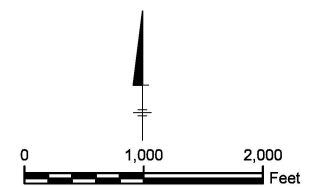
UNITED STATES COAST GUARD BASE SEATTLE SEATTLE, WASHINGTON
SITE VICINITY MAP
FIGURE 1

Base Map: Seattle South Quadrangle, Washington – King County, 7.5-Minute Series, U.S. Department of the Interior, U.S. Geological Survey, 2020.



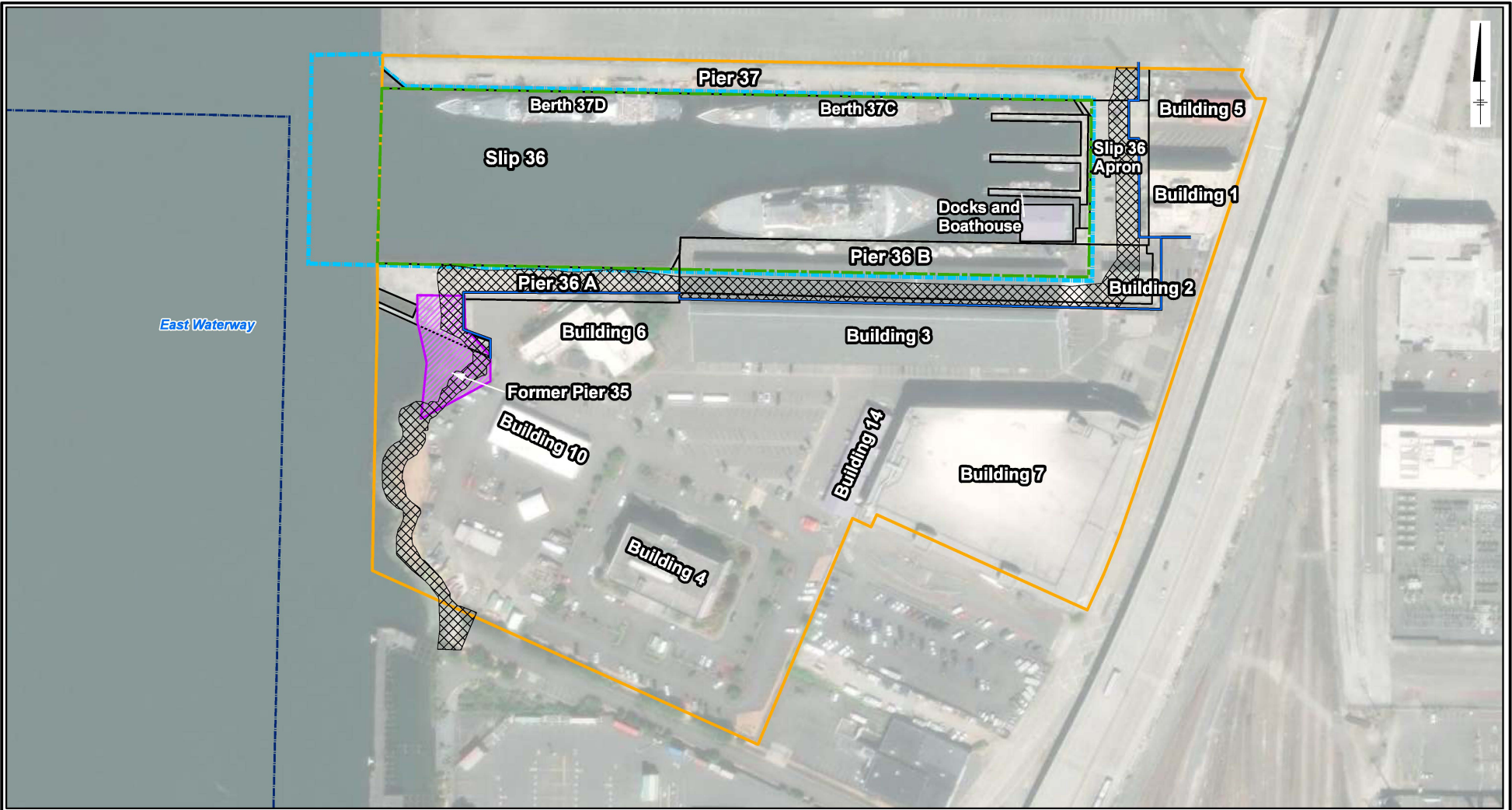
LEGEND:

- East Waterway Operable Unit
- United States Coast Guard (USCG) Base Seattle
- Federal Navigation Channel
- Lower Duwamish Waterway Superfund Site



UNITED STATES COAST GUARD
BASE SEATTLE
SEATTLE, WASHINGTON

SITE LOCATION MAP



LEGEND:

-  Bulkhead
-  Riprap
-  Intertidal Area
-  Anticipated Future Slip 36 Extent
-  United States Coast Guard Base Seattle
-  Existing Shoreline Structure
-  Federal Navigation Channel
-  Approximate NTCRA Boundary

Notes:

1. The extents and dimensions of pier structures are approximate and aligned based on aerial imagery.
2. Coordinates are referenced to the North American Datum of 1983 State Plane, Washington North Zone.
3. Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.
4. The approximate NTCRA boundary is shown based on the future Slip 36 extent with the addition of the area west of the slip, including the approach from the north of Slip 36. The boundary does not include the federal navigation channel or its side slopes. The NTCRA boundary may be extended underneath Pier 37, depending on the presence of sediment in that area.

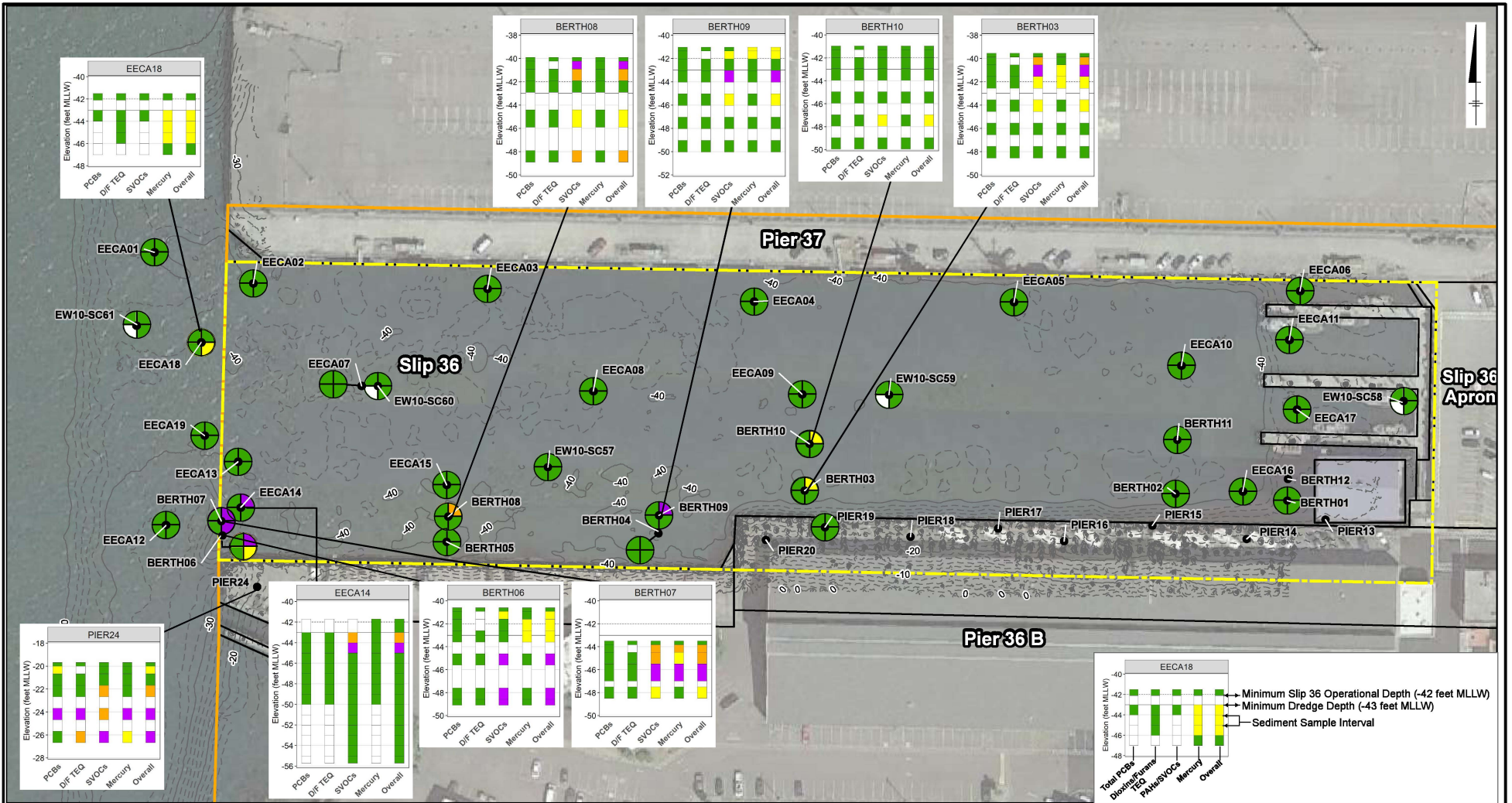
Acronyms

NTCRA = non-time-critical removal action
MLLW = mean lower low water



UNITED STATES COAST GUARD
BASE SEATTLE
SEATTLE, WASHINGTON

BASE SEATTLE SITE PLAN



LEGEND:

- Existing Sediment Surface Elevation (MLLW, 10-foot intervals)
- Existing Sediment Surface Elevation (MLLW, 2-foot intervals)
- United States Coast Guard Base Seattle
- Existing Shoreline Structure

SEDIMENT SAMPLE RESULTS LEGEND

Total PCBs	PAHs/SVOCs	Factors of Exceedance
Dioxin/Furans	Mercury	>5x RAL
TEQ		2-5x RAL
		1-2x RAL
		≤1x RAL
		No Data

Notes:

- Quadrants summarize the maximum factor of exceedance in subsurface data below -43 feet MLLW.
- Results were screened against the East Waterway Operable Unit RALs. Samples with TOC less than 0.5% or greater than 4% are compared to AETs on a dry weight basis.
- The extents and dimensions of pier structures are approximate and aligned based on aerial imagery.
- Bathymetric survey completed on April 23, 2019, by Gravity Marine Services.
- Coordinates are referenced to the North American Datum of 1983 State Plane, Washington North Zone.
- Elevations are referenced to the MLLW at National Oceanic and Atmospheric Administration Tide Station 9447130 Seattle.

Acronyms:

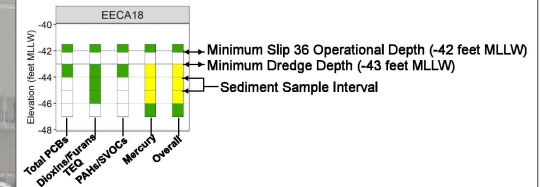
- AET = aquatic effects threshold
- RALs = remedial action levels
- PAHs = polycyclic aromatic hydrocarbons
- PCBs = polychlorinated biphenyls
- SVOCs = semivolatile organic compounds
- MLLW = mean lower low water
- TEC = Total organic carbon
- TEQ = toxic equivalent

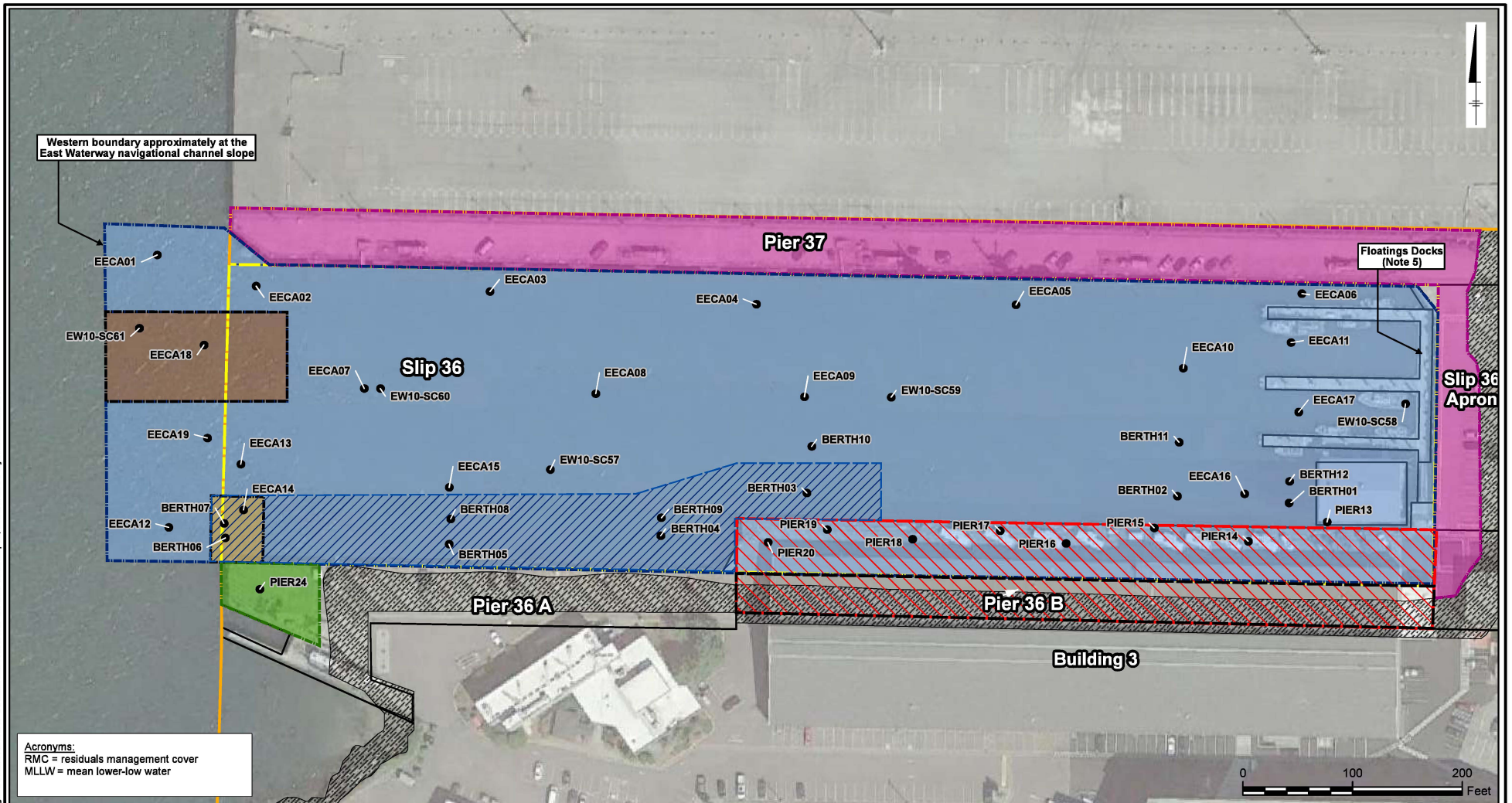


UNITED STATES COAST GUARD
BASE SEATTLE
SEATTLE, WASHINGTON

**OVERALL SUBSURFACE SEDIMENT
DELINEATION (BELOW -43 FEET MLLW) PLAN**

FIGURE
4





Western boundary approximately at the East Waterway navigational channel slope

Floating Docks (Note 5)

Acronyms:
 RMC = residuals management cover
 MLLW = mean lower-low water

- Legend:**
- United States Coast Guard Base Seattle
 - Existing Shoreline Structure
 - Anticipated Future Slip 36 Extent
 - Sediment Core Sample Locations
 - Demolition of Pier 36B, Removal of Creosote Piling
 - Approximate Replacement Pier 36B Structure Limits
 - Riprap

- Area A - Removal to -43 feet MLLW, with In-Situ Treatment (9-inch thick) or RMC
- Area B - Removal to -46 feet MLLW, with RMC
- Area C - In-Situ Treatment, 3-inch amendment layer
- Area D - Removal to -44 feet MLLW, with In-Situ Treatment (18-inch thick)
- Area E - Limited Access In-Situ Treatment
- Open Water In-Situ Treatment Extent

- Notes:**
1. The extents and dimensions of pier structures are approximate and aligned based on aerial imagery.
 2. Coordinates are referenced to the North American Datum of 1983 State Plane, Washington North Zone.
 3. Elevations are referenced to the MLLW at National Oceanic and Atmospheric Administration Tide Station 9447130 Seattle.
 4. The removal action extents shown are preliminary and may be refined in the design including but not limited to determining structural offsets and slopes.
 5. Portions of the floating docks, including the eastern and northern docks, are expected to remain in place during construction.
 6. Following dredging, in-situ treatment or a RMC layer will be placed. The in-situ treatment extents are shown. A RMC layer will be placed in the remaining portions of open water areas in Area A and all of Area B.
 7. In-situ treatment under Pier 37 and the Slip Apron will only be implemented where riprap is not present. The extent of existing riprap will be confirmed during remedial design.

UNITED STATES COAST GUARD BASE SEATTLE SEATTLE, WASHINGTON
REMOVAL ACTION PLAN
FIGURE 5

Appendix A

Applicable or Relevant and Appropriate Requirements

ARARs/TBCs for the East Waterway Operable Unit of the Harbor Island Superfund Site

Statute/Regulation/Guidance/Policy	Description of Requirement/Approach	Rationale for Including	Recognized Status
Surface Water			
<p>Clean Water Act Section 304(a) 33 U.S.C. § 1314(a)</p> <p>Recommended water quality criteria and other information is published at https://www.epa.gov/wac/national-recommended-water-quality-criteria-tables</p>	<p>EPA develops and publishes recommended water quality criteria and other information which may be used for the establishment of state water quality standards to protect, restore, and maintain surface water.</p>	<p>The recommended water quality criteria and other information are important to follow if doing so during dredging and other remedial activities will improve water quality.</p>	<p>To be Considered</p>
<p>State Water Quality Standards for Surface Waters WAC 173-201A-010(1)(c), 173-201A-010(2), 173-201A-210, 173-201A-240, 173-201A-260(1), 173-201A-260(2), 173-201A-300(2)(d), 173-201A-300(2)(e)(1), 173-201A-310, 173-201A-400(2)</p>	<p>Provides State promulgated water quality standards for surface waters in the state of Washington.</p>	<p>State standards need to be followed for discharges into surface water of the EW OU and other activities that impact surface water of the EW OU during remedial action.</p>	<p>Relevant and Appropriate</p>
<p>Clean Water Act Sections 303(a)-(c) 33 U.S.C. §§ 1313(a)-(c)</p> <p>40 CFR § 131.45</p>	<p>In the absence of timely and acceptable State water quality standards or criteria for toxic pollutants, EPA establishes federal standards or criteria that apply to surface waters in the state of Washington.</p>	<p>During remedial activities, EPA established federal standards and criteria prohibit a discharge into surface water of the EW OU which fail to comport with such standards and criteria.</p>	<p>Relevant and Appropriate</p>
<p>Clean Water Act Sections 402(a) and 404(a)-(b), 33 U.S.C. §§ 1342(a) & 1344(a)-(b)</p> <p>Rivers and Harbors Act of 1899, 33 U.S.C. § 401, Section 10</p> <p>40 CFR §§ 230.1, 230.2, 230.6, 230.10, 230.11, 230.12, 230.20, 232.21, 230.22, 230.23, 230.24, 230.25, 230.30, 230.21, 230.32, 230.41, 230.42, 230.43, 230.44, 230.45, 230.51, 230.52, 230.53, 230.60, 230.61, 230.70, 230.71, 230.72, 230.73, 230.74, 230.75, 230.76, 230.77, 230.91, 230.92, 230.93, 230.94, 230.95, 230.96, 230.97, 230.98</p>	<p>Addresses the discharge of pollutants and dredged or fill material into navigable waters. Based on Section 121(e)(1) of CERCLA, 42 U.S.C. § 9621(e)(1), neither a permit nor certification is required for a discharge which occurs as part of the on-site remedial action, but it is nonetheless important to adhere to substantive conditions, requirements, and guidelines for the discharge as developed by EPA in conjunction with the United States Army Corps of Engineers to carry out provisions of the Clean Water Act.</p>		<p>Applicable</p>
<p>State Antidegradation and Designated Use Policies WAC 173-204-120</p>	<p>Provides for best management practices during activities that may impact sediment quality.</p>	<p>To the extent practicable employ these best management practices during performance of the remedial action.</p>	<p>To be Considered</p>
<p>Toxic Substances Control Act Section 6(e) 15 U.S.C. § 2605(e)</p> <p>40 CFR §§ 761.61(a)(4), 761.61(a)(5); or § 761.61(b)</p>	<p>Authorizes cleanup and disposal of sediments contaminated by polychlorinated biphenyls (PBCs).</p>	<p>Provides requirements for cleanup and disposal of PCB-contaminated sediments.</p>	<p>Applicable</p>

State Hydraulic Code Rules WAC 220-660-330, Table 4; 220-660-360; 220-660-370; 220-660-410; 220-660-450(1), (2), (3)(b), (3)(c).	State law provides for authorized work times, construction techniques, shoreline stabilization requirements, and test boring requirements in saltwater areas of the state of Washington.	Adhere to the directions in these provisions of State law during implementation of the remedial action.	Applicable
Rivers and Harbors Act of 1899 Section 14(a) 33 U.S.C. § 408(a)	Assures that alteration or use of a federal civil works project will not impair the usefulness of that project or be injurious to the public.	Should it be determined that any portion of the remedial action may impair the usefulness of a structure or project of the United States Army Corps of Engineers, there will be consultation with the Corps to determine how to best avoid or mitigate such impairment.	Applicable
Solid and Dangerous Waste			
Resource Conservation and Recovery Act a.k.a. Solid Waste Disposal Act Sections 3002, 3003, 3004 42 U.S.C. §§ 6922, 6923, 6924 40 C.F.R. Part 262, Subparts A-D, L, M (generators) 40 C.F.R. Part 263, Subparts A-C (transporters) 40 C.F.R. Parts 264 to 270 (owners and operators)	Provides regulatory requirements for generators and transporters of hazardous waste. Also provides regulatory standards for owners and operators of hazardous waste treatment, storage or disposal facilities.	Comply with the generator and transporter requirements for all hazardous waste generated and transported as part of the remedial action. Confirm there is compliance with owner and operator regulations for each hazardous waste treatment, storage, or disposal facility which is to receive hazardous waste as a result of implementation of the remedial action. See, also, Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), which requires that each treatment, storage or disposal facility which is to receive hazardous waste must first be deemed to be in compliance with the Solid Waste Disposal Act.	Applicable as to onsite generator and transporter requirements, and otherwise CERCLA requires that a receiving facility be in compliance with the owner and operator standards of RCRA.
State Dangerous or Extremely Hazardous Waste Regulations WAC 173-303-010, 173-303-016, 173-303-020, 174-303-040, 173-303-060, 173-303-070, 173-303-071, 173-303-072, 173-303-073, 173-303-075, 173-303-077, 173-303-080, 173-303-081, 173-303-082, 173-303-083, 173-303-090, 173-303-100, 173-303-140, 173-303-141, 173-303-145, 173-303-150, 173-303-160, 173-303-161, 173-303-169, 173-303-170, 173-303-171, 173-303-172, 173-303-173, 173-303-174, 173-303-180, 173-303-190, 173-303-200, 173-303-201, 173-303-210, 173-303-220, 173-303-230, 173-303-240, 174-303-250, 173-303-260, 173-303-270, 173-303-355, 173-303-630, 173-303-280(6)	Provides requirements for handling, management, transport, and disposal of dangerous waste and extremely hazardous waste.	Comply with these regulations to the extent they are more stringent than federal Resource Conservation and Recovery Act requirements for the designated waste.	Applicable
State Solid Waste Handling Standards WAC 173-350-300	Provides requirements for onsite storage, collections and transportation of solid waste.	Adhere to these requirements during performance of the remedial action.	Applicable
Air/Noise			
State Noise Control RCW 70A.20.010, 70A.20.020	Establishes maximum permissible noise levels in identified environments at specified times.	Protect workers and others from experiencing excessive noise during remedial activities.	Applicable

WAC 173-60-010, 173-60-020, 173-60-030, 173-60-040, 173-60-050, 173-60-120		
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Archaeologically or Historically Sensitive Resources			
<p>Native American Graves Protection and Repatriation Act 25 U.S.C. §§ 3001-3006, 3009, 3011</p> <p>American Indian Religious Freedom Act 42 U.S.C. § 1996</p>	<p>Requires federal agencies which have possession of or control over Native American cultural items (including human remains, associated and unassociated funerary objects, sacred objects and objects of cultural patrimony) located on federal land or tribal lands to compile an inventory of such items and consult with affected tribes. Prescribes when federal agencies must return such Native American cultural items.</p> <p>It is the policy of the United States protect and preserve for American Indians certain rights, including but not limited to, access to sites and use and possession of sacred objects.</p>	<p>Should Native American items be discovered during remedial activities, an inventory will be created to document these items and, if possible, the items will be secured. In addition, upon such discovery, the Muckleshoot and Suquamish Tribes and Yakama Nation will be informed of the discovery and consulted as to the handling and disposition of such items.</p> <p>Should American Indian sacred objects to discovered at the EW OU, an effort will be made to safely secure these objects, and the Muckleshoot and Suquamish Tribes and Yakama Nation will be notified of the discovery and provided an opportunity to obtain possession of the objects.</p>	<p>Relevant and Appropriate</p> <p>To be Considered</p>
<p>National Historic Preservation Act 16 U.S.C. § 470f</p> <p>36 CFR §§ 60.2(a), 60.3, 60.4, 800.2(c)(1)(i), 800.2(c)(2)(ii), 800(c)(3), 800(c)(4), 800(c)(5), 800.2(d), 800.3(c), 800.3(e), 800.3(f), 800.3(g), 800.4(d)(2), 800.5(a), 800.6(a), 800.6(b)</p>	<p>Requires a federal agency to: (1) identify historic properties potentially affected by an agency undertaking; (2) assess the potential effects on such properties from the undertaking; (3) provide the Advisory Council on Historic Preservation an opportunity to comment on the agency decision regarding the properties; and (4) consider ways to avoid, minimize or mitigate potential effects on the properties. Historic properties include any district, site, building, structure, archaeological site, traditional cultural landscape, traditional cultural property, or object included in or eligible for the National Register of Historic Places, including artifacts, records, and material remains related to such properties.</p>	<p>Although no historic properties have been identified at the EW OU, should such properties be encountered during remedial activities, assess the potential effects on the properties from the remedial activities, provide the Advisory Council on Historic Preservation or its designee (often the State Historic Preservation Officer), and perhaps other interested parties, an opportunity to comment on the potential effects, and decide how to proceed in a way that, if possible, avoids, minimizes or mitigates the potential effects on the properties.</p>	<p>Applicable</p>
Sensitive Habitats and Protect Species			
<p>U.S. Fish and Wildlife Service Mitigation Policy, as revised 81 FR 83440 (November 21, 2016)</p>	<p>Provides for obtaining recommendation from U.S. Fish and Wildlife Service on avoiding, minimizing, and mitigating adverse impacts of land and water development projects on fish, wildlife, plants, and habitats.</p>	<p>Consult with U.S. Fish and Wildlife Service in order to obtain recommendations on ways to avoid, minimize, and mitigate damage to natural resources, including fish, wildlife, plants, and habitats, during implementation of the remedial action.</p>	<p>To be Considered</p>
<p>U.S. Fish and Wildlife Coordination Act 16 U.S.C. §§ 661, 662(a)</p>	<p>Provides U.S. Fish and Wildlife Service with authority to investigate and report on proposed federal action that affects a stream or other body of water, and to provide recommendations to minimize impacts to fish and wildlife resources. Channel deepening or other modifications to a body of water are subject to this law.</p>	<p>Consult with U.S. Fish and Wildlife Service and obtain its recommendations on how to conserve wildlife resources and prevent loss or damage to such resources during implementation of the remedial action.</p>	<p>Applicable</p>
<p>Migratory Bird Treaty Act of 1918, as amended. 16 U.S.C. §§ 703, 704, 705</p> <p>50 CFR § 10.13 (provides list of protected migratory bird species)</p>	<p>Prohibits the killing, capturing, selling, trading or transporting of protected migratory bird species without prior authorization of the U.S. Fish and Wildlife Service. Applies to migratory birds native to the U.S. or U.S. territories, and to any part, nest, egg, or product associated with such migratory birds.</p>	<p>Consult with U.S. Fish and Wildlife Service to identify protected migratory bird species and their nests which may be present during implementation of the remedial action, and to obtain recommendations for protecting such species and their nests.</p>	<p>Applicable</p>
<p>Endangered Species Act of 1973 Sections 2(c), 3, 7(a)(1)-(4), 7(b)(1)(A), 7(b)(3), 7(b)(4), 7(c), 9 16 U.S.C. §§ 1531(c), 1532, 1536(a)(1)-(4), 1536(b)(1)(A), 1536(b)(3), 1536(b)(4), 1536(c), 1538</p> <p>50 CFR §§ 17.3, 17.11, 17.12, 17.21(c), 17.21(d), 17.31, 17.51, 17.61(c), 17.71(a), 17.71(c)</p>	<p>Provides a program for conservation of threatened and endangered plants and animals and their habitats. Requires consultation by a federal agency with U.S. Fish and Wildlife Service and National Oceanic Atmospheric Administration Fisheries Service to ensure action taken by such agency is not likely to jeopardize the continued existence of listed endangered or threatened species or result in destruction or adverse modification of their critical habitat.</p>	<p>Consult with U.S. Fish and Wildlife Service and National Oceanic Atmospheric Administration Fisheries Service to ensure remedial action does not jeopardize threatened or endangered species or destroy or adversely modify the habitat of such species. May include the preparation of a biological assessment which assesses such remedial action and its effects on protected species and their habitats.</p>	<p>Applicable</p>

<p>Magnuson-Stevens Fishery Conservation and Management Act Sections 305(b)(1)(D); 305(b)(2-4) 16 U.S.C. §§ 1855(b)(1)(D), 1855 (b)(2-4)</p> <p>50 CFR § 600.920</p>	<p>Promotes the protection of essential fish habitat through coordination and consultation between the National Marine Fisheries Service, the Regional Fishery Management Council, and each federal agency whose action or proposed actions may adversely affect such habitat.</p>	<p>Provide notice to the National Marine Fisheries Service and Regional Fishery Management Council of the planned remedial action and consider their comments and recommendations for conserving essential fish habitat. Implement measures to conform to the recommendations designed to avoid, mitigate, or otherwise offset any adverse effects on essential fish habitat or provide reasons for not following the recommendations.</p>	<p>Applicable</p>
<p><i>Coast and Shoreline</i></p>			
<p>Shoreline Management Act of 1971 WAC 173-18-020, -030, -040 WAC 173-27-060</p> <p>King County Shoreline Management Master Program Ordinance 3688 Sections 325, 412, 413, 414</p>	<p>Establishes regulations, goals, policies and objectives for protecting and enhancing state of Washington shoreline areas.</p>	<p>Consider the implications of the King County preferred practices and restrictions in undertaking remedial action that may impact shoreline areas.</p>	<p>To be Considered</p>
<p>Executive Order 11988—Floodplain management 42 Fed. Reg. 26951, 3 CFR 1977 Comp. p. 77</p>	<p>Federal agencies need to evaluate actions and impacts on flood plains and mitigate such impacts. Criteria established for best management of flood prone areas.</p>	<p>If EW OU is determined to be within a floodplain or flood prone area, actions should be take to prevent the risk of floods due to remedial activities.</p>	<p>To be Considered</p>