

## GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

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<b>Project Name</b>	<b><u>HARBOR ISLAND</u></b>	<b>ProjectID:</b> 10-03
<b>Last Updated:</b>	11/15/03	
<b>City:</b>	Seattle	
<b>County:</b>	King	
<b>State:</b>	WA	
<b>Country:</b>	USA	
<b>Bodies of Water:</b>	Duwamish Waterway; Elliott Bay; Puget Sound	
<b>US EPA Region:</b>	X	
<b>Status (Active, Complete, or Monitoring Only):</b>	Active	
<b>Date On NPL:</b>	1983	
<b>ROD/ESD Date:</b>	1996 (Shipyard Sediment OUs); 1999 (ESD); 2002 (ESD for Lockheed Shipyard OU); 2003 (ESD for Lockheed Shipyard OU); 2003 (ESD for Todd Shipyard OU); 2003 (West Waterway OU)	
<b>Operable Unit:</b>	Four OUs for sediment areas, i.e., Lockheed Shipyard Sediment OU; Todd Shipyard Sediment OU; East and West Waterways OU	
<b>Areas of Concern (length or acres):</b>	As described in Reference A-727:  “The Todd Shipyard Sediment Operable Unit includes nearshore sediments at Todd Shipyard out to the edge of the steep slopes of Elliott Bay (to the north) and the West Waterway (to the west), which occur approximately at the minus 42 (-42) foot Mean Lower Low Water (MLLW) contour. The Lockheed Shipyard Sediment Operable Unit includes nearshore sediments at Lockheed Shipyard out to the edge of the steep slope of the West Waterway, which occurs at approximately the minus 36 (-36) foot MLLW contour. These sediments are distinct from other contaminated sediments at Harbor Island because they are predominantly contaminated with hazardous substances and shipyard wastes (primarily abrasive grit blast, AGB) released by shipbuilding and maintenance operations at Todd and Lockheed shipyards. Hazardous substances released from these shipyards include arsenic, copper, lead, mercury, tributyltin (TBT), and zinc, which were additives to marine paints used on ships. Other hazardous substances potentially associated with shipyard activities include polychlorinated biphenyls (PCBs) and polycyclic aromatic hydrocarbons (PAHs).”	
<b>Other Characteristics of Water Body:</b>	Refer to “Areas of Concern” and “Contaminated Area Physical Characteristics” fields. These areas are predominately contaminated with hazardous substances and shipyard wastes (primarily sandblast grit) released by shipbuilding and maintenance operations at Todd and Lockheed Shipyards.	
<b>Contaminants of Concern:</b>	PCBs (1248/1254); metals (primarily copper, lead, mercury, tributyltin (TBT), and zinc); PAHs	
<b>Source of Contamination:</b>	Potential sources of contamination on Harbor Island include: public and private storm drains, non-point surface runoff from contaminated soils, direct waste disposal, floating petroleum product on groundwater, and contaminated groundwater.	
<b>Contaminated Area Physical Characteristics:</b>	Harbor Island lies in an estuary at the mouth of the Duwamish River on the southern edge of Elliott Bay. The island was constructed between 1903 and 1905 from sediments dredged from the Duwamish River to create the East and West Waterways and the navigational channel of the upper Duwamish River. The island is about 430 acres in size and has been used for ship building and maintenance, lead smelting, and other industrial activities.  A complete investigation of sediments in the Duwamish River estuary is provided by a combination of EPA's work at the Harbor Island Superfund site and EPA's Site Inspection work in the Duwamish River. The Duwamish River studies are for the purpose of evaluating	

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sediments from the head of navigation (near the turning basin in Tukwila) in the Duwamish River down to the southern end of Harbor Island. The Harbor Island work has evaluated sediments from the southern end of Harbor Island (near Kellogg Island) north to Elliott Bay, including both the West and East Waterways.

**Type of Regulatory Action:** Superfund. Final.

**Overall Status Summary:** The Harbor Island Superfund Site is divided into seven operable units (OU): (1) the petroleum storage tank facilities OU, (2) the Soil/Groundwater OU, (3) the Lockheed Shipyard OU, (4) the Lockheed Shipyard Sediment OU, (5) the Todd Shipyard Sediment OU, (6) the East Waterway Sediment OU, and (7) the West Waterway Sediment OU. This Database Project ID 10-03 covers the Lockheed Shipyard Sediment Operable Unit, the Todd Shipyard Sediment Operable Unit, and the East and West Waterways Operable Units.

A November 1996 ROD for the Shipyard Sediments Operable Unit called for dredging of contaminated sediments to the Washington State Sediment Management Standard Cleanup Screening Level (CSL) for each constituent. Dredging was to be followed by capping with 2' of clean sediments to meet Sediment Quality Standards (SQSS) as defined in the Sediment Management Standards. The 1996 ROD addressed shipyard sediments in the Todd and Lockheed Shipyards. Estimated sediment removal volumes were 116,000 cy at the Todd Shipyard and 18,000 cy at the Lockheed Shipyard. The volume of clean sand for cap materials was estimated at 91,000 cy. Sediment disposal most likely would be in a confined nearshore disposal or confined aquatic disposal (CAD) facility. The PCB dredging target level is 65 ppm; dredging target levels are also defined for individual metals and PAHs. In September 1998, additional sediment data collection commenced at Todd Shipyard to support the remedial design work.

The additional sediment data collection by Todd Shipyard was to identify sediment contamination exceeding state chemical criteria, conduct optional biological tests, and identify areas containing significant amounts of sandblast grit. The data show contamination present outside the ROD boundary. As a result, EPA collected samples outside of the ROD boundary to determine the extent of the contaminated sediments. In addition, Todd Shipyard collected bathymetric data to determine the contours and depths of the targeted cleanup area, identified additional areas containing sandblast grit and shipyard debris, and addressed other pre-design data gaps. As a result of this new information, EPA expanded and redefined the ROD boundary area. This change is outlined in a 1999 Explanation of Significant Differences (ESD) and expands the boundaries to encompass all of the potentially-contaminated sediments requiring remediation. The ESD also designated the Todd Shipyard site as an independent operable unit (the Todd Shipyard Sediment Operable Unit), separate from the Lockheed Shipyard Sediment Operable Unit.

In November 1999, the EPA issued a Proposed Plan for the marine sediments in the West Waterway Operable Unit. The West Waterway OU includes about 70 acres of estuarine sediments. The West Waterway is a dredged navigation channel used extensively for industrial and port purposes. EPA concluded that . . . "a no action decision is appropriate because environmental investigations and site-specific risk assessments found that concentrations of chemicals (including PCBs, tributyltin, and mercury) in marine sediments within the West Waterway Operable Unit do not pose unacceptable risks to human health and the environment. Further, environmental investigations did not identify any "hot spots" of contaminated sediments that warranted cleanup. (Note: Maximum concentrations measured in the West Waterway are 1.5 ppm PCBs, 88 ppm PCBs carbon-normalized, 15.3 ppm tributyltin, and 2.2 ppm mercury.) EPA believes that sediments with the highest concentrations of chemicals on the western side of Harbor Island are already targeted for clean up under EPA's Record of Decision

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for the "Shipyard Sediments" (Todd and Lockheed Shipyards). Finally, EPA believes that the majority of that contamination associated with the Harbor Island Site, including contamination that could have contributed to sediment problems in the West Waterway Operable Unit, is being addressed as part of the Shipyard Sediments cleanup, upland soil and groundwater cleanups, and upland source cleanups implemented to reduce contaminant inputs into the marine environment. Future work remains to address sediments in the East Waterway adjacent to Harbor Island." The no action decision for the West Waterway was confirmed by EPA in a September 2003 ROD.

For the Lockheed Shipyard Operable Unit, an ESD to the 1996 ROD was issued for public comment in December 2001 (and subsequently issued final in February 2002). In the ESD (Reference A-727), the reason for its issuance is described as follows:

"EPA's November 1996 ROD . . . selected a remedy involving five essential elements:

- (1) dredging to remove shipyard waste and contaminated sediments exceeding the cleanup screening level (CSL) of the State of Washington Sediment Management Standards (SMS);
- (2) capping contaminated sediments exceeding the sediment quality standards (SQS) of the SMS;
- (3) identification of acceptable disposal options;
- (4) specification of design criteria for acceptable habitat and to prevent future recontamination; and
- (5) institution of long-term monitoring and maintenance of the remedy."

"The ROD also identified eight remedial design objectives which are to:

- (1) identify sediment contamination exceeding the CSL and SQS;
- (2) conduct confirmatory biological effects tests (optional);
- (3) characterize dredged sediments;
- (4) evaluate armoring of any caps;
- (5) conduct habitat inventory;
- (6) evaluate potential disposal sites;
- (7) evaluate physical separation technologies for shipyard waste; and
- (8) determine the extent of dredging under-pier sediments."

"Additionally, the ROD notes that "(t)he extent of dredging of contaminated sediments and waste under piers at . . . Lockheed Shipyard will be determined during remedial design based on cost, benefit and technical feasibility."

"Therefore, prior to the start of 30 percent remedial design, additional data gathering and analyses are necessary to determine the extent of contamination and the appropriate remedial action."

"Also, the cost estimated in the ROD to implement the remedy is low. The cost estimate only included the cost of remediating the open water sediment management unit (SMU) and did not include costs for remediation of the majority of the Lockheed Shipyard Sediment Operable Unit . . ."

"In the 1996 ROD, EPA concluded that additional information is required to more fully define the dredge and cap remedies. For example, a more detailed understanding of the locations of CSL exceedances was needed before a dredging plan could be developed. Also, as stated in

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the ROD, the extent of under-pier remediation was not determined and was left to later in remedial design work based on consideration of cost, benefits, and technical feasibility.”

The additional data were collected and evaluated and documented in 1999-2000. The data showed that contamination beneath the Lockheed Shipyard pier exceeded the State standards at sediment depths down to 12.5 feet below the mudline and contamination in the open water exceeded the standards typically at sediment depths down to 5 feet below the mudline. EPA evaluated six remedial strategies for dredging and capping of the Lockheed Shipyard sediments, described in the 2002 ESD. All of the strategies assumed the removal of the Lockheed pier and its more than 6,000 pilings.

The selected remedy for the Lockheed Shipyard sediments, described in the 2002 ESD, is to remove pier and shipway decking and pilings; dredge to a depth sufficient to accommodate a cap in the under-pier, shipway, and enclosed water sediment management unit (SMU); and dredge to the sediment quality standards (SQS) in the open water SMU without capping. SQSs are established for arsenic, copper, mercury, lead, zinc, PAHs, and PCBs. The remedy includes estimates of removal of 6,000 piles, dredging of 46,600 cy of sediments, removal of 11,100 yards of surficial debris, and placement of 53,400 cy of cap material. Estimated cost is \$12 million. A 2003 ESD designated that disposal of dredged sediments would be at upland disposal facilities.

In a June 2002 Interim Remedial Design report (Reference A-936), the planned remediation of the Lockheed Shipyards sediments was described as follows:

- Approximately 130,000 square feet of existing pier superstructure and 2,800 timber piles, which support existing piers and crane ways, will be removed during demolition of piers; an additional 30,000 square feet of timber decking and approximately 3,000 timber piles will be removed from South, Middle, and North Shipways during demolition.
- Sediment dredging will be performed within the Channel and Slope Areas of the LSSOU and will remove about 131,000 cy of sediment and debris. “The objective of the proposed design is to remove contaminated sediment within the Channel Area while maintaining to the degree possible the existing elevations in the Slope Area. . . This was accomplished by designing the dredge prism below the depth of SQS exceedances within the Channel Area, and cutting stable slopes within the Slope Area to accommodate both the channel dredging and cap thickness.”
- Following dredging, a 5-foot-thick, three-layer sediment cap will be constructed within the slope area, by placement of about 54,000 cy of cap materials. “The cap is designed to provide the following: 1) chemical and physical isolation of the underlying sediment, 2) protection for burrowing organisms, 3) protection from erosive forces, 4) a final surface that is habitat compatible, and 5) restoration of critical habitat elevations above –10 feet MLLW.”

In mid-2003 two proposed consent decrees (one for the Lockheed Shipyard sediments and one for the Todd Shipyard sediments) were issued for public comment by the U.S. DOJ. These two consent decrees proposed the following remedies – for the Lockheed Shipyard: remove pier, including 6,000 piles; dredge 130,000 cy of contaminated sediments; and cap four acres of contaminated sediments; - for the Todd Shipyard: remove two piers, including 3,000 piles; dredge 200,000 cy of contaminated sediments; and cap contaminated sediments under remaining piers. (It has not been determined why the dredging volumes described in Reference A-936 and subsequently proposed in the two consent decrees are so much larger than those estimated in the 1999 and 2002 ESDs.)

The Lockheed Shipyard sediment remedial work began in Summer 2003 and is targeted for

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completion in February 2004. TRC Companies (Windsor, CT) is the construction contractor. The Todd Shipyard sediment remedial work also started in Summer 2003, with pier and pile removal work targeted for completion by the end of 2003; dredging is targeted to start in August 2004; and all cleanup work is scheduled to be completed by February 2006.

For the East Waterway operable unit, a proposed plan described in an Engineering Evaluation/Cost Analysis was issued for public comment in August 2003. The plan proposes cleanup of a 20-acre area in the East Waterway, that is contaminated with PCBs above State of Washington standards, by dredging about 200,000 cy of contaminated sediments with disposal in a commercial landfill and about 59,000 cy of clean sediment (to improve navigation) with disposal in an Elliot Bay disposal area. Construction can only take place from August to the middle of February, due to a "fish window." Work is expected to take two in-water construction seasons. Estimated cost is \$17 million.

**Remedial Action Planned:**

☐

**Risk Assessment:**

☒

**Remedial Action Implemented:**

☐

**Status of Dredging**

☐

**PRPs:**

☒

**Contacts:**

☒

**References:**

☒

**Modeling:**

☐

**Fishing Advisory:**

☐

**Key Conditions:**

capping, confined disposal facility, dredging, fish spawning limitations, navigational dredging component, tidal fluctuations

## ***RISK ASSESSMENT***

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***Project Name***      ***HARBOR ISLAND***

***ProjectID:*** 10-03

***Last Updated:*** 10/15/98

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***RA Type:*** Human Health

***RA Status:*** Complete

***RA Objectives:*** Evaluate the potential adverse human health effects associated with regular consumption of recreationally harvested seafood from Puget Sound.

***Company***

***Performing RA:***

***RA Reference Report:***

***RA Summary and Conclusions:*** (Source: 1996 ROD) "A 1988 EPA report titled, "Health Risk Assessment of Chemical Contamination in Puget Sound Seafood", which was based on data collected during the EBAP study, evaluated the potential adverse human health effects associated with regular consumption of recreationally harvested seafood from Puget Sound. The most significant human health risk identified in this study was an elevated cancer risk due to high concentrations of PCBs in fish (English sole) captured in the Elliott Bay/Duwamish River area. Among the trawling locations sampled for English sole in this area, two of them were immediately adjacent to the Shipyard Sediment OU. While the results of this study are not specific to the Shipyard Sediment OU, it is likely that high concentrations of PCBs in sediment at Todd Shipyards contribute to the elevated cancer risk identified in this study."

"The average risk from consumption of Elliott Bay fish was found to be 3 in 10,000 (3.0E-04), and high risk was found to be 4 in 1,000 (4.0E-03). Both these risk levels exceeded the acceptable excess cancer risk of 1 in 10,000 (1.0E-04) identified in the National Contingency Plan (NCP)."

***POTENTIALLY RESPONSIBLE PARTIES***

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***Project Name*** **HARBOR ISLAND**

***ProjectID:*** 10-03

***PRP Name:*** PRP INFORMATION NOT RELEASED

***PRPID:***

***Street Address:***

***City:***

***State:***

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## **KEY CONTACTS**

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***Project Name*** **HARBOR ISLAND**

***ProjectID:*** 10-03

***Last Name:*** KEY CONTACT INFORMATION NOT RELEASED

***Contact ID:***

***First Name:***

***Title:***

***Company:***

***Address:***

***City:***

***State:***

***Postal Code:***

***Work Phone # :***

***Other Phone #:***

***Fax # :***

***Email Address:***

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## REFERENCES

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** A

**ReferenceID:** 70

**Title:** *Superfund Record of Decision: Harbor Island (Lead), Seattle, WA  
First Remedial Action*

**Location:** AEM

**Category:** ROD/Proposed Plan/Action Memo/Decision Document

**Prepared by/Author:** US EPA Region X

**Preparer/Author Address:** 1200 Sixth Avenue  
Seattle, WA 98101

**Prepared For:** General Public

**Date Published:** September 30, 1993

**Key Words and Phrases:**

---

**Reference Type:** A

**ReferenceID:** 71

**Title:** *Record of Decision Declaration, Decision Summary, and  
Responsiveness Summary for the Shipyard Sediment Operable  
Unit  
Harbor Island, Seattle, WA*

**Location:** AEM

**Category:** ROD/Proposed Plan/Action Memo/Decision Document

**Prepared by/Author:** US EPA Region X

**Preparer/Author Address:** 1200 Sixth Avenue  
Seattle, WA 98101

**Prepared For:** General Public

**Date Published:** November 1996

**Key Words and Phrases:**

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## REFERENCES

---

**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** A

**ReferenceID:** 484

**Title:** (1) *Fact Sheet: West Waterway Operable Unit*  
(2) *Proposed Plan for the West Waterway Operable Unit, Harbor Island Superfund Site, Seattle, WA*

**Location:** AEM

**Category:** Remedial Design

**Prepared by/Author:** US EPA Region X

**Preparer/Author Address:** 1200 Sixth Avenue  
Seattle, WA

**Prepared For:** General Public

**Date Published:** November 1999

**Key Words and Phrases:**

---

**Reference Type:** A

**ReferenceID:** 485

**Title:** *Fact Sheet: Shipyard Sediments Unit*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** US EPA Region X

**Preparer/Author Address:** 1200 Sixth Avenue  
Seattle, WA

**Prepared For:** General Public

**Date Published:** December 1999

**Key Words and Phrases:**

---

**Reference Type:** A

**ReferenceID:** 486

**Title:** *Explanation of Significant Difference: to the Harbor Island - Todd Shipyards Portion of the Shipyard Sediments Operable Unit Record of Decision, Seattle, WA*

**Location:** AEM

**Category:** ROD/Proposed Plan/Action Memo/Decision Document

**Prepared by/Author:** US EPA Region X

**Preparer/Author Address:** 1200 Sixth Avenue  
Seattle, WA

**Prepared For:** General Public

**Date Published:** December 27, 1999

**Key Words and Phrases:**

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## REFERENCES

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** A

**ReferenceID:** 612

**Title:** *The Proposed Plan - Shipyard Sediments Operable Unit - Harbor Island*

**Location:** AEM

**Category:** ROD/Proposed Plan/Action Memo/Decision Document

**Prepared by/Author:** US EPA Region X

**Preparer/Author Address:** 1200 Sixth Avenue  
Seattle, WA 98101

**Prepared For:** General Public

**Date Published:** October 31, 1995

**Key Words and Phrases:**

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**Reference Type:** A

**ReferenceID:** 727

**Title:** *Explanation of Significant Differences: for Shipyard Sediment Operable Unit: Harbor Island Superfund Site (Public Review Draft)*

**Location:** AEM

**Category:** ROD/Proposed Plan/Action Memo/Decision Document

**Prepared by/Author:** US EPA Region X

**Preparer/Author Address:**

**Prepared For:** General Public

**Date Published:** December 2001

**Key Words and Phrases:**

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**Reference Type:** A

**ReferenceID:** 729

**Title:** *Fact Sheet: Comments Requested on the Harbor Island Lockheed Shipyard Sediments Cleanup Proposal*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** US EPA Region X

**Preparer/Author Address:** 1200 Sixth Avenue  
Seattle, WA 98101

**Prepared For:** General Public

**Date Published:** December 2001

**Key Words and Phrases:**

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## REFERENCES

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** A

**ReferenceID:** 936

**Title:** *Interim Remedial Design Submittal - Lockheed Shipyard No. 1 - Sediment Operable Unit - Harbor Island, Seattle, Washington*

**Location:** AEM

**Category:** Remedial Design

**Prepared by/Author:** Hart Crowser

**Preparer/Author  
Address:**

**Prepared For:** Lockheed Martin

**Date Published:** June 21, 2002

**Key Words and  
Phrases:**

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**Reference Type:** A

**ReferenceID:** 985

**Title:** *Superfund Fact Sheet - Harbor Island - Cleanup Plan Selected for Contaminated Sediments*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** US EPA Region X

**Preparer/Author  
Address:** 1200 Sixth Avenue  
Seattle, WA 98101

**Prepared For:** General Public

**Date Published:** January 14, 1997

**Key Words and  
Phrases:**

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**Reference Type:** A

**ReferenceID:** 986

**Title:** *Fact Sheet: Comments Requested on Harbor Island East Waterway Sediment Cleanup*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** US EPA Region X

**Preparer/Author  
Address:**

**Prepared For:** General Public

**Date Published:** August 2003

**Key Words and  
Phrases:**

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## REFERENCES

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** A

**ReferenceID:** 987

**Title:** *Fact Sheet: Major Cleanup of Shipyard Sediment Has Begun!*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** US EPA Region X

**Preparer/Author  
Address:**

**Prepared For:** General Public

**Date Published:** August 2003

**Key Words and  
Phrases:**

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**Reference Type:** A

**ReferenceID:** 988

**Title:** *Fact Sheet: Comments Requested on Two Proposed Agreements for Harbor Island Cleanups: Todd and Lockheed Shipyard Sediments*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** US EPA Region X

**Preparer/Author  
Address:**

**Prepared For:** General Public

**Date Published:** June 2003

**Key Words and  
Phrases:**

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**Reference Type:** A

**ReferenceID:** 989

**Title:** *Explanation of Significant Differences: Lockheed Shipyard Sediment Operable Unit: Harbor Island Superfund Site*

**Location:** AEM

**Category:** ROD/Proposed Plan/Action Memo/Decision Document

**Prepared by/Author:** US EPA Region X

**Preparer/Author  
Address:**

**Prepared For:** General Public

**Date Published:** February 2002

**Key Words and  
Phrases:**

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## REFERENCES

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** A

**ReferenceID:** 990

**Title:** *Explanation of Significant Differences to the Harbor Island - Shipyard Sediment Operable Unit: Todd Shipyard Sediments, Seattle, Washington: Selected Remedial Action*

**Location:** AEM

**Category:** ROD/Proposed Plan/Action Memo/Decision Document

**Prepared by/Author:** US EPA Region X

**Preparer/Author  
Address:**

**Prepared For:** General Public

**Date Published:** March 31, 2003

**Key Words and  
Phrases:**

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**Reference Type:** A

**ReferenceID:** 991

**Title:** *Explanation of Significant Differences to the Harbor Island - Shipyard Sediment Operable Unit: Lockheed Shipyard Sediments, Seattle, Washington: Selected Remedial Action*

**Location:** AEM

**Category:** ROD/Proposed Plan/Action Memo/Decision Document

**Prepared by/Author:** US EPA Region X

**Preparer/Author  
Address:**

**Prepared For:** General Public

**Date Published:** March 31, 2003

**Key Words and  
Phrases:**

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## REFERENCES

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** A

**ReferenceID:** 992

**Title:** ***Record of Decision: Harbor Island Superfund Site: West Waterway Operable Unit: Seattle, Washington***

**Location:** AEM

**Category:** ROD/Proposed Plan/Action Memo/Decision Document

**Prepared by/Author:** US EPA Region X

**Preparer/Author Address:**

**Prepared For:** General Public

**Date Published:** September 11, 2003

**Key Words and Phrases:**

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**Reference Type:** C

**ReferenceID:** 32

**Title:** ***Harbor Island soil cleanup to get 1998 bid***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author Address:**

**Prepared For:** Superfund Week

**Date Published:** April 25, 1997

**Key Words and Phrases:**

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**Reference Type:** C

**ReferenceID:** 102

**Title:** ***\$24 Million to be Spent on Natural Resource Damages in Seattle***

**Location:** AEM

**Category:** Natural Resource Damages

**Prepared by/Author:**

**Preparer/Author Address:**

**Prepared For:** The Hazardous Waste Consultant

**Date Published:** March/April 1992

**Key Words and Phrases:**

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## REFERENCES

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**Project Name** **HARBOR ISLAND**

**ProjectID:** 10-03

**Reference Type:** C

**ReferenceID:** 188

**Title:** *Harbor Island thermal design solicited*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** August 25, 1995

**Key Words and  
Phrases:**

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**Reference Type:** C

**ReferenceID:** 189

**Title:** *Harbor Island sediment dredge ROD near*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** April 12, 1996

**Key Words and  
Phrases:**

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**Reference Type:** C

**ReferenceID:** 190

**Title:** *Harbor Island dredge ROD coming*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** September 13, 1996

**Key Words and  
Phrases:**

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## REFERENCES

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**Project Name** **HARBOR ISLAND**

**ProjectID:** 10-03

**Reference Type:** C

**ReferenceID:** 191

**Title:** *Harbor Island SVE, air sparging pondered*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** October 4, 1996

**Key Words and  
Phrases:**

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**Reference Type:** C

**ReferenceID:** 192

**Title:** *Harbor Island gets dredging, capping ROD*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** December 20, 1996

**Key Words and  
Phrases:**

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**Reference Type:** C

**ReferenceID:** 276

**Title:** *PRPs launch \$30M Harbor Island project*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author**

**Address:**

**Prepared For:** Superfund Week

**Date Published:** February 27, 1998

**Key Words and  
Phrases:**

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## REFERENCES

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** C

**ReferenceID:** 525

**Title:** *Work Continues at Harbor Island, But West Waterway Gets Nothing*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author  
Address:**

**Prepared For:** Superfund Week

**Date Published:** November 19, 1999

**Key Words and  
Phrases:**

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**Reference Type:** C

**ReferenceID:** 550

**Title:** *Superfund Just One Aspect of Harbor Island; More Sediment Work Possible*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author  
Address:**

**Prepared For:** Superfund Week

**Date Published:** January 28, 2000

**Key Words and  
Phrases:**

---

**Reference Type:** C

**ReferenceID:** 748

**Title:** *RSR Corp. Locks Horns With EPA, Insurance Carrier Over Seattle Site*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author  
Address:**

**Prepared For:** Hazardous Waste/Superfund Week

**Date Published:** October 8, 2001

**Key Words and  
Phrases:**

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## REFERENCES

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** C

**ReferenceID:** 823

**Title:** *Six Remedies for Lockheed Shipyard Proposed; Each Call for Dredging*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author  
Address:**

**Prepared For:** Hazardous Waste/Superfund Week

**Date Published:** January 14, 2002

**Key Words and  
Phrases:**

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**Reference Type:** C

**ReferenceID:** 938

**Title:** *Design Work at Todd Pacific Shipyard On Soils, Ground Water Moves Along*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author  
Address:**

**Prepared For:** Hazardous Waste/Superfund Week

**Date Published:** April 15, 2002

**Key Words and  
Phrases:**

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**Reference Type:** C

**ReferenceID:** 1013

**Title:** *TRC Wins \$26.7-Million Superfund Contract*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author  
Address:**

**Prepared For:** Environmental Business Journal

**Date Published:** December 12 - 18, 2002

**Key Words and  
Phrases:**

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** C

**ReferenceID:** 1021

**Title:** *Court Cases: Insurance Company Must Cover RSR Corp.'s Cleanup Expenses*

**Location:** AEM

**Category:** Legal

**Prepared by/Author:**

**Preparer/Author  
Address:**

**Prepared For:** Hazardous Waste/Superfund Week

**Date Published:** September 24, 2001

**Key Words and  
Phrases:**

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**Reference Type:** C

**ReferenceID:** 1148

**Title:** *Sediment Cleanups Proposed for Harbor Island Site, Wash.*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author  
Address:**

**Prepared For:** Hazardous Waste/Superfund Week

**Date Published:** June 16, 2003

**Key Words and  
Phrases:**

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**Reference Type:** C

**ReferenceID:** 1149

**Title:** *EPA Calls for Dredging, Disposal to Remove Contamination*

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:**

**Preparer/Author  
Address:**

**Prepared For:** Hazardous Waste/Superfund Week

**Date Published:** August 25, 2003

**Key Words and  
Phrases:**

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## REFERENCES

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** D  
**Title:** *Piling by oily piling, the cleanup proceeds*  
**Location:** AEM  
**Category:** Site Update  
**Prepared by/Author:** Lisa Stiffler  
**Preparer/Author Address:**  
**Prepared For:** Seattle (WA) Post-Intelligencer  
**Date Published:** August 16, 2003  
**Key Words and Phrases:**

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**ReferenceID:** 461

**Reference Type:** E  
**Title:** *Nearshore Confined Disposal in a Tidally - Influenced Environment -- Design and Operation Experience in Puget Sound.*  
**Location:** AEM  
**Category:** Dredging: Miscellaneous  
**Prepared by/Author:** (1) Douglas A. Hotchkiss, Environmental Management Specialist; (2) Charles D. Boatman, Principal Scientist.  
**Preparer/Author Address:** (1) Port of Seattle  
Seattle, WA 98111;  
(2) Converse Consultants NW  
Seattle, WA 98119.  
**Prepared For:** Dredging 1994 - Proceedings of the Second International Conference on Dredging and Dredged Material Placement  
Volumes 1 & 2  
**Date Published:** 1994  
**Key Words and Phrases:**

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**ReferenceID:** 12

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**Project Name** **HARBOR ISLAND**

**ProjectID:** 10-03

**Reference Type:** L

**ReferenceID:** 26

**Title:** ***Duwamish Waterway (Harbor Island)***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** AEM, Inc.

**Preparer/Author  
Address:** Malvern, PA 19355

**Prepared For:** Internal file

**Date Published:** April 9, 1992

**Key Words and  
Phrases:**

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**Reference Type:** M

**ReferenceID:** 28

**Title:** ***Interim Results for the Duwamish Waterway Capping  
Demonstration Project***

**Location:** AEM

**Category:** Site Update

**Prepared by/Author:** Clifford L. Truitt, Civil Engineer

**Preparer/Author  
Address:** U.S. Army Corps of Engineers  
U.S. Army Engineer Waterways Experiment Station  
Department of the Army  
P.O. Box 631  
Vicksburg, MS 39181-0631

**Prepared For:** Manuscript

**Date Published:** October 1985

**Key Words and  
Phrases:**

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**Project Name** HARBOR ISLAND

**ProjectID:** 10-03

**Reference Type:** M

**ReferenceID:** 261

**Title:** *Environmental Dredging: An Evaluation of Its Effectiveness in Controlling Risks*

**Location:** AEM

**Category:** Contaminated Sediments: Overview of Issues

**Prepared by/Author:** (1) Blasland, Bouck & Lee, Inc. and (2) Applied Environmental Management, Inc.

**Preparer/Author Address:** (1) 6723 Towpath Road  
P.O. Box 66  
Syracuse, NY 13214  
(2) Malvern, PA 19355

**Prepared For:** General Electric Company

**Date Published:** August 2000

**Key Words and Phrases:**

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**Reference Type:** S

**ReferenceID:** 27

**Title:** *ARCO Consent Decree*

**Location:** AEM

**Category:** Legal

**Prepared by/Author:** Washington State Department of Ecology

**Preparer/Author Address:**

**Prepared For:** ARCO Products Company

**Date Published:** Undated (1998 circa)

**Key Words and Phrases:**

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