

GENERAL SITE INFORMATION, CHARACTERISTICS, AND STATUS

Project Name	<u>COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)</u>	ProjectID: 10-11
Last Updated:	07/21/04	
City:	Tacoma	
County:	Pierce	
State:	WA	
Country:	USA	
Bodies of Water:	Commencement Bay at southern end of Puget Sound; intertidal areas; 7 inland waterways	
US EPA Region:	X	
Status (Active, Complete, or Monitoring Only):	Active	
Date On NPL:	1983	
ROD/ESD Date:	1989; 1997 (ESD); 1999 (ESD); 2000 (ESD); 2002 (ESD)	
Operable Unit:	OU-1 (sediments); OU-5 (source control)	
Areas of Concern (length or acres):	Middle Waterway; 49 acres; approximately three quarters of a mile long by about 600 feet wide; 67 Sediment Management Units (SMUs) have been identified, distributed among three different segments in the Waterway designated as Areas A, B, and C; the most severe contamination is located at the mouth of Middle Waterway and in the subsurface sediments at the head of the waterway (Areas A and C).	
Other Characteristics of Water Body:	Not available	
Contaminants of Concern:	metals (mercury, copper); PAHs	
Source of Contamination:	Numerous industrial operations; stormwater runoff	
Contaminated Area Physical Characteristics:	The overall Commencement Bay Superfund site includes 10-12 square miles of shallow water, shoreline, and adjacent land, most of which is highly developed and industrialized. The upland boundaries of the site are defined according to the contours of localized drainage basins that flow into the marine waters. The marine boundary of the site is limited to the shoreline, intertidal areas, bottom sediments, and water of depths less than 60 feet below mean low water level. The nearshore portion of the site is defined as the area along the Ruston shoreline from the mouth of Thea Foss Waterway to Pt. Defiance. The tideflats portion of the site includes the Hylebos, Blair, Sitcum, Milwaukee, St. Paul, Middle, Wheeler-Osgood, and Thea Foss Waterways; the Puyallup River upstream to the Interstate-5 bridge; and the adjacent land areas. In 1996, EPA deleted the St. Paul and Blair Waterways from the NPL.	
Type of Regulatory Action:	Superfund. Final	
Overall Status Summary:	The Commencement Bay Nearshore/Tideflats (CB/NT) site was placed on the NPL in 1983 and an RI/FS at the site was completed in 1988. The RI/FS identified types and levels of chemicals of concern in sediments and developed priority areas based on the potential impact of these chemicals on humans and wildlife. In 1989, EPA issued a ROD that designated two OUs; source control (OU-5) to focus efforts on controlling upland sources and discharges to the Bay and sediment remediation (OU-1) to focus on cleanup of contaminated sediments at the CB/NT. The Washington Dept. of Ecology is the lead agency for source control and EPA is the lead agency for sediment remediation.	

In addition, the ROD selected the remedial actions to be used at eight of the nine contaminated sediment problem areas identified as being the most contaminated. These problem areas include: 1) Mouth of Hylebos Waterway, 2) Head of Hylebos Waterway, 3) Sitcum Waterway,

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4) St. Paul Waterway, 5) Middle Waterway, 6) Mouth of Thea Foss Waterway, 7) Head of Thea Foss Waterway, and 8) Wheeler-Osgood Waterway. The ninth problem area, an area offshore from the Asarco Smelter, is to be addressed by a separate ROD. Problem area (5) is this project, 10-11. Problem areas (1) and (2) are in this Database as Project ID 10-01; problem area (3) is in this Database as Project ID 10-05; problem areas (6), (7), and (8) are Project ID 10-08; and the ninth problem area is Project ID 10-15.

In EPA's August 2000 ESD, EPA selected Blair Slip 1, the St. Paul Nearshore Fill, and disposal at an existing upland regional landfill as approved disposal sites to contain contaminated sediments dredged from Hylebos, Thea Foss, Wheeler-Osgood, and Middle Waterways. Subsequently, the Middle Waterway Action Committee signed an agreement with the Port of Tacoma to use the Blair Slip 1 nearshore fill for disposal of contaminated sediments from Middle Waterway. Mitigation measures required for disposal in Blair Slip 1 are being addressed by the Port of Tacoma as part of the Hylebos Water cleanup (Project ID 10-01).

Source control associated with adjacent industries and sources has been completed for the Middle Waterway as of the end of 2000.

The total area of the Middle Waterway is approximately 49 acres. For purposes of remedial evaluation, 67 discrete areas (Sediment Management Units) have been designated in the Middle Waterway. As proposed in the 2001 ESD, which was a draft cleanup plan, about 10 acres would be dredged yielding an approximate disposal volume of 92,700 cubic yards, 1.5 acres would be dredged and backfilled, 0.24 acres would be capped, and 4 acres would be monitored for natural recovery and enhanced natural recovery. The estimated cost of this remedy, assuming disposal of dredged sediments at the Blair Slip 1 disposal site, is \$12.5 million. After a public comment period which ended October 9, 2001, the proposed cleanup plan was made official by issuance of an ESD in February 2002.

On August 14, 2003 two consent decrees were lodged in federal district court, defining the cleanup work to be performed in Middle Waterway. It was agreed that the Middle Waterway Action Committee (MWAC) would clean up both the mouth and middle portions of the waterway (estimated removal of 90,000 cy) and the Washington Department of Natural Resources with other parties would conduct a separate removal of 2,700 cy at the head of the waterway, in Sediment Management Unit 51a.

Dredging in the mouth and middle portions of the waterway began in mid-August 2003 along with other cleanup work including piling removal and capping and was completed in early 2004. A total of 107,700 cy was removed, primarily by mechanical dredging. The dredged sediments were disposed in Blair Slip 1.

Preparatory work at the head of the waterway has included removal of two derelict barges to improve habitat conditions. Design documents for removal of a now-estimated 4,000 cy of sediments are being prepared. This work is scheduled to begin in August 2004.

Remedial Action Planned: ☒

Risk Assessment: ☐

Remedial Action Implemented: ☐

Status of Dredging ☐

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<i>Last Updated:</i>	07/21/04	

<i>PRPs:</i>	<input type="checkbox"/>
<i>Contacts:</i>	<input checked="" type="checkbox"/>
<i>References:</i>	<input checked="" type="checkbox"/>
<i>Modeling:</i>	<input type="checkbox"/>
<i>Fishing Advisory:</i>	<input type="checkbox"/>
<i>Key Conditions:</i>	capping, confined disposal facility, dredging, natural recovery, tidal fluctuations

REMEDIAL ACTION PLANNED

Project Name	<u>COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)</u>	ProjectID: 10-11
Last Updated:	02/15/02	
Target Sediment Cleanup Standards (TSCS):	Not identified	
How TSCS Established:	<p>The 1989 ROD established cleanup levels, called Sediment Quality Objectives (SQOs), for several problem chemicals in each waterway judged to be causing adverse effects to human health and the environment. For developing SQOs for the site, EPA relied heavily on the 1989 Puget Sound Water Quality Management Plan (PSWMP) which specified goals and policies applicable to the CB/NT area.</p> <p>Two elements of the PSWMP cited in the 1989 ROD as being of particular importance to the development of SQOs were 1) standards for classifying sediments having adverse effects (Element P-2) and 2) guidelines for sediment cleanup decisions (Element S-7). The PSWMP provided (in Element P-2) a conceptual target condition, called a Sediment Quality Goal (SQG), that was intended as a long-term goal for the Puget Sound area and was to be achieved through numerous actions over a period of years. The SQG was defined as “the absence of acute or chronic adverse effects on biological resources or significant human health risk.” The SQOs were developed as discrete and measurable target levels for specifically targeted chemicals that, when obtained in the CB/NT, would assist in meeting the SQGs for the Puget Sound area.</p> <p>In addition to SQO, the ROD also established Sediment Remedial Action Levels (SRALs), developed using mathematical modeling and below which chemical concentrations would be expected to reach SQOs levels within 10 years through natural recovery processes. It appears that SRALs were developed as an upper boundary chemical concentration in sediment, to be used as a basis for the selection of natural recovery as a remedial option.</p> <p>The ROD also stipulated that biological test results be used as a measure to attain the CB/NT cleanup objective for chemicals for which SQOs were not developed. The ROD allows for conclusions based on chemical data to be overridden by conclusions based on biological data (except for PCBs for which SQOs were derived based on potential human health risks).</p>	
Target Bank and Floodplain Cleanup Levels (if applicable):	N/A	
Other Target:		
Environmental Sample Data References:	<ul style="list-style-type: none">• <i>Sediment:</i>• <i>Water:</i>• <i>Fish:</i>	
Estimated Target Volume:	Removal: 92,700 cy from ten acres; capping: 0.24 acres; natural recovery for 4 acres	
Planned Disposal Method:	Into a new nearshore confined disposal facility (CDF) yet to be constructed. The CDF, the Blair Slip 1, located at the mouth of the Blair Waterway, will involve constructing a berm across the front of an existing slip, depositing dredged material behind the berm, then adding a 7-foot sand cap, which will convert aquatic land to upland.	
Estimated Calendar Time to Implement Remedy:	undefined	

REMEDIAL ACTION PLANNED

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Last Updated:	02/15/02	
Estimated Time to Implement Remedy:	undefined	
Estimated Cost to Implement Remedy:	\$12.5 million (2001 ESD)	
Stated Remedial Action Objectives (and Source):	<p>Source: 1997 ESD: "The cleanup goal for the Commencement Bay problem areas is reduction of contaminant concentrations in sediments to levels that will support a healthy marine environment and will protect the health of people eating seafood from the Bay. The ROD designated biological test requirements and associated sediment chemical concentrations referred to as Sediment Quality Objectives (SQOs) in order to achieve this goal. The goal is established to allow a diverse range of uses in the bay including industrial, commercial, navigation, fisheries, and recreation."</p> <p>"SQOs for all problem chemicals were set based on an evaluation of the ecological and human health risks posed by these chemicals. The SQO for PCBs was based on the human health risk assessment. SQOs for all other chemicals were based on the ecological risk assessment, because the ecologically-based cleanup levels were determined to be also protective of human health."</p>	
Measures of Success to be Used:	not identified	
Planned Monitoring and Restoration:	<p>Not completely identified. Per the 2001 ESD, "regular monitoring will be conducted . . . as part of the long-term monitoring plan that will be developed as part of the remedial design." One mitigation measure, described in the 2000 ESD, highlights the interconnected nature of the cleanups in the Middle Waterway, Thea Foss Waterway (Project ID 10-08), and Hylebos Waterway (Project ID 10-01), i.e., "The St. Paul Nearshore Fill will consist of a containment berm and dike of clean dredge material and/or select fill material across the mouth of the waterway. New intertidal habitat will be constructed on the face of the berm . . . The creation of the nearshore fill will result in the loss of approximately 13.6 acres of littoral and subtidal aquatic habitat, including 7.6 acres of mudflats. This particular habitat loss is of great concern to EPA, the Trustees, the Puyallup Tribe, and other interested parties. Although the site has been degraded by historic industrial and commercial navigation use, it still provides important fish and wildlife support functions (refugia, feeding, migration) and compensatory mitigation is required to offset loss of habitat and other impacts."</p> <p>"The mitigation plan was designed to emphasize recovery for migratory salmonid populations by providing a nearshore habitat connection between the Puyallup River and other existing nearshore habitats. The plan includes approximately 25 acres of estuarine habitat comprised of 15 acres of enhanced and 10 acres of created intertidal habitat, creation of a tidal channel and wetland marsh with a fresh water source, and preservation of land for a potential connector channel between the Puyallup River, the marshland, and Middle Waterway."</p> <p>"At this time, EPA is uncertain of the ability of the upper Middle Waterway mitigation area to fully function as claimed. EPA believes there are insufficient baseline fish use and salinity data in both St. Paul and Middle Waterways to provide reasonable assurance that juvenile salmonid use will equal or exceed current use levels within the St. Paul Waterway impact area. This uncertainty is partially related to the fact that the St. Paul Waterway is closer to the Puyallup River and its associated fresh water turbidity plume compared to the more distant upper Middle Waterway. Consequently, the provision of a perennial source of river water to the compensatory mitigation lands in the upper Middle Waterway is critical to its functional success toward conservation and recovery of salmonids."</p>	

REMEDIAL ACTION PLANNED

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“The Habitat Plan (April 2000) notes an option for supplying fresh water from the Puyallup River via rehabilitation and use of a City of Tacoma soon-to-be-abandoned water line along 11th Avenue that will become available in the year 2000 after a new water line is constructed. This pipeline option could potentially allow transfer of the necessary volume of fresh water to the Middle Waterway to achieve immediate benefits to salmonids, including development of brackish marsh habitat. In the future the pipeline could provide fresh water to potential restoration of intertidal brackish marsh and tidal channel habitats in the Delta Reserve/former industrial properties south of 11th Avenue.”

“EPA is requiring that this pipeline option, and other fresh water source(s) as necessary to meet the volume specifications, be implemented to assure full function of the mitigation project and, in part, to compensate for resource losses from the remedial activities in the Thea Foss Waterway.”

And from the draft 2001 ESD:

“The (Middle Waterway) area encompassing SMU 51a is one of the few remaining relatively natural mudflat habitat areas within Commencement Bay. Several habitat restoration projects have been selected for areas within or adjacent to the head of Middle Waterway. This area has also been designated an Environmental Reserve by the Washington Department of Natural Resources (May 2000) and is adjacent to the proposed location for the St. Paul habitat mitigation project. All of these habitat enhancements are in support of the recovery of ESA-listed threatened species (e.g., Puget Sound Chinook salmon and bull trout).”

“Because of the emphasis on habitat value in the head of Middle Waterway, EPA did consider complete removal of the subsurface contaminated sediment. However, complete sediment removal would have pronounced impacts on the unique mudflat environment in the waterway. The logistics of dredging in this area would result in significant short-term impacts to the waterway. Removal of the subsurface contamination would require construction on the mudflats to support access to the area and operation of the dredging equipment. A cofferdam would have to be built, and existing restoration areas which have recently been completed would in all likelihood be disturbed, if not severely damaged. The existing habitat would likely be adversely impacted for a number of years. Since there is no current exposure pathway for the subsurface sediments, containment of the sediment in place will result in protection to the surrounding restored habitat without short-term construction impacts.”

Agency Position on Sediment Removal (and Source): ROD, September 1989:

“Main deterrent to dredging is availability of disposal areas. However, confined disposal was selected for seven of the eight problem areas, but selection of type of disposal area (aquatic, nearshore, or upland) was deferred to the design phase when more accurate sediment volumes will be known.”

POTENTIALLY RESPONSIBLE PARTIES

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

PRP Name: PRP INFORMATION NOT RELEASED

PRPID:

Street Address:

City:

State:

KEY CONTACTS

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

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:

REFERENCES

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

Reference Type: A

ReferenceID: 752

Title: *Superfund Fact Sheet - Commencement Bay/Nearshore
Tideflats - Tacoma, Washington
Final Cleanup Plan and Final Disposal Sites Approved for
Commencement Bay Contaminated Sediments*

Location: AEM

Category: Site Update

Prepared by/Author: US EPA Region X

**Preparer/Author
Address:**

Prepared For: General Public

Date Published: August 2000

**Key Words and
Phrases:**

Reference Type: A

ReferenceID: 753

Title: *Explanation of Significant Differences: Commencement Bay
Nearshore/Tideflats 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: August 2000

**Key Words and
Phrases:**

Reference Type: A

ReferenceID: 754

Title: *Record of Decision: Commencement Bay Nearshore/Tideflats*

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 1989

**Key Words and
Phrases:**

REFERENCES

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

Reference Type: A

ReferenceID: 755

Title: *Explanation of Significant Differences Operable Unit 01 - Sediments; and Operable Unit 05 - Sources*

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: July 28, 1997

Key Words and Phrases:

Reference Type: A

ReferenceID: 756

Title: *Superfund Fact Sheet - Commencement Bay Nearshore/Tideflats - Tacoma, Washington (Middle Waterway)*

Location: AEM

Category: Site Update

Prepared by/Author: USEPA Region X

Preparer/Author Address:

Prepared For: General Public

Date Published: August 2001

Key Words and Phrases:

Reference Type: A

ReferenceID: 757

Title: *Explanation of Significant Differences: Middle Waterway: Commencement Bay Nearshore/Tideflats Superfund Site (Draft)*

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: August 2001

Key Words and Phrases:

REFERENCES

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

Reference Type: A

ReferenceID: 767

Title: *Superfund Fact Sheet: Pilot Project in the Hylebos Waterway and Cleanup Plan for Middle Waterway to be Finalized Early Next Year*

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:

Reference Type: A

ReferenceID: 851

Title: *Fact Sheet: EPA announces the last major cleanup plan for the Commencement Bay Nearshore/Tideflats Superfund site!*

Location: AEM

Category: Site Update

Prepared by/Author: US EPA Region X

Preparer/Author Address: Seattle, WA

Prepared For: General Public

Date Published: February 2002

Key Words and Phrases:

Reference Type: A

ReferenceID: 999

Title: *Explanation of Significant Differences: Middle Waterway: Commencement Bay Nearshore/Tideflats 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:

REFERENCES

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

Reference Type: A

ReferenceID: 1000

Title: *Fact Sheet: Comments Requested on Proposed Agreements for Cleaning Up Sediments in Commencement Bay's Middle Waterway*

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:**

Reference Type: B

ReferenceID: 946

Title: *e-mail re: Question re Middle Waterway*

Location: AEM

Category: Site Update

Prepared by/Author: Nancy Harney

**Preparer/Author
Address:** US EPA Region X

Prepared For: AEM, Inc.

Date Published: February 22, 2002

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 959

Title: *e-mail re: Middle Waterway Question*

Location: AEM

Category: Site Update

Prepared by/Author: Nancy Harney

**Preparer/Author
Address:** US EPA Region X

Prepared For: AEM, Inc.

Date Published: February 19, 2002

**Key Words and
Phrases:**

REFERENCES

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

Reference Type: B

ReferenceID: 1144

Title: *e-mail re: FW: Questions re St Paul Waterway*

Location: AEM

Category: Site Update

Prepared by/Author: Piper Peterson-Lee

**Preparer/Author
Address:** US EPA Region X

Prepared For: AEM, Inc.

Date Published: June 9, 2004

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 1145

Title: *e-mail re: Question re Middle Waterway*

Location: AEM

Category: Site Update

Prepared by/Author: Nancy Harney

**Preparer/Author
Address:** US EPA Region X

Prepared For: AEM, Inc.

Date Published: June 18, 2004

**Key Words and
Phrases:**

Reference Type: B

ReferenceID: 1146

Title: *Commencement Bay Newsletter: EPA to Begin the Second Five-Year Review of Commencement Bay*

Location: AEM

Category: Site Update

Prepared by/Author: US EPA Region X

**Preparer/Author
Address:**

Prepared For: General Public

Date Published: June 2004

**Key Words and
Phrases:**

REFERENCES

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

Reference Type: C

ReferenceID: 824

Title: **Wash.: PRP Funding Sought**

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:**

Reference Type: C

ReferenceID: 828

Title: **Wash.: Waterway Remedy Chosen**

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author

Address:

Prepared For: Hazardous Waste/Superfund Week

Date Published: March 4, 2002

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 947

Title: **Wash.: EPA to Use ESDs**

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author

Address:

Prepared For: Hazardous Waste/Superfund Week

Date Published: October 1, 2001

**Key Words and
Phrases:**

REFERENCES

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

Reference Type: C

ReferenceID: 1035

Title: *United States v. Foss Maritime Co., et al.*

Location: AEM

Category: Legal

Prepared by/Author:

Preparer/Author

Address:

Prepared For: Hazardous Waste/Superfund Week

Date Published: June 23, 2003

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 1103

Title: *Commencement Bay NEWSLETTER, Vol. 1, No. 1*

Location: AEM

Category: Site Update

Prepared by/Author: US EPA Region X

Preparer/Author

Address:

Prepared For: General Public

Date Published: May 2003

**Key Words and
Phrases:**

Reference Type: C

ReferenceID: 1128

Title: *Anchor Receives Award for Middle Waterway Cleanup Project*

Location: AEM

Category: Site Update

Prepared by/Author:

Preparer/Author

Address:

Prepared For: International Dredging Review

Date Published: July / August 2004

**Key Words and
Phrases:**

REFERENCES

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

Reference Type: E

ReferenceID: 218

Title: *Middle Waterway Sediment Remediation: A Case Study*

Location: AEM

Category: Site Update

Prepared by/Author: (1) D.W. Templeton, (2) B.G. McDonald, (3) K.M. Johannessen, (4) G. Hartman

Preparer/Author (1), (2) Anchor Environmental, LLC

Address: 1411 4th Avenue, Suite 1210
Seattle, WA 98101
(3) Johannessen & Associates, PS
5413 Meridian Ave. N, Suite C
Seattle, WA 98103
(4) Foster Wheeler Corporation
1050 NE Hostmark Street, Suite 202
Poulsbo, WA 98370

Prepared For: WEDA 21, Houston, TX

Date Published: June 24-27, 2001

**Key Words and
Phrases:**

Reference Type: E

ReferenceID: 266

Title: *Middle Waterway Sediment Remediation: An Environmental Case Study*

Location: AEM

Category: Site Update

Prepared by/Author: (1) R.P. Barth, (2) E.T. Appy, (3) D.W. Templeton, (4) B.G. McDonald, (5) E.J. Berschinski

Preparer/Author (1) thru (5) Anchor Environmental, L.L.C.

Address: 1423 Third Avenue, Suite 300
Seattle, WA 98101

Prepared For: WEDA XXIV, Orlando, FL

Date Published: July 6-9, 2004

**Key Words and
Phrases:**

REFERENCES

Project Name COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)

ProjectID: 10-11

Reference Type: L

ReferenceID: 234

Title: *None (Summary Sheet with Dredging Volumes by Location)*

Location: AEM

Category: Site Update

Prepared by/Author: AEM, Inc.

Preparer/Author

Address:

Prepared For: Internal File

Date Published: July 21, 2004

**Key Words and
Phrases:**

FISH ADVISORIES

Project Name ***COMMENCEMENT BAY - PROJECT 4 (Middle Waterway)***

ProjectID: 10-11

Advisory: Commencement Bay

AdvisoryID: 1095

Extent: Industrially developed waterways at South end

Pollutant: PCE

Species: all bottomfish

Population: NCGP

Population Definition: No Consumption-General Population: Advise against consumption by the general population.

Advisory Type: Estuary

Advisory Number: 4246

Status (Active or Rescinded): Active

Date Rescinded:

Contact Name: Dave McBride

Contact Number: 360-236-3176

Advisory: Commencement Bay

AdvisoryID: 1096

Extent: Industrially developed waterways at South end

Pollutant: PCE

Species: shellfish-crab

Population: NCGP

Population Definition: No Consumption-General Population: Advise against consumption by the general population.

Advisory Type: Estuary

Advisory Number: 4246

Status (Active or Rescinded): Active

Date Rescinded:

Contact Name: Dave McBride

Contact Number: 360-236-3176
