

Commencement Bay Project 4 (Middle Waterway)

Site Description

The Middle Waterway is part of the Commencement Bay Nearshore/Tideflats Superfund site (CB/NT Site), in Tacoma, Washington at the southern end of the main basin of Puget Sound. The CB/NT Site Sources Operable Unit 5 (OU 5) is divided into six waterways; Middle Waterway is one of the six waterways. It is bounded by the Thea Foss Waterway on the southwest and the Saint Paul Waterway on the northeast. The Middle Waterway is approximately 3,500 feet long and 300 feet wide, and is approximately 49 acres in size.

Potential Responsible Parties

The Middle Waterway Action Committee (MWAC) was established to represent a group of potentially responsible parties for the mouth and mid-portions of Middle Waterway (Foss Maritime Company, Marine Industries Northwest, Inc. and Pioneer Industries). The Washington Department of Natural Resources (WDNR), the City of Tacoma (the City), and other parties were identified as responsible parties for the head of Middle Waterway.

Threats and Contaminants

Constituents of concern (COCs) in the Middle Waterway sediments are copper, mercury and polycyclic aromatic hydrocarbons.

Site History

In 1997, the Environmental Protection Agency (EPA) and MWAC entered into an Administrative Order on Consent (AOC) for the Pre-Remedial Design and Remedial Design of Middle Waterway. Under the AOC, MWAC agreed to conduct additional sampling to determine the nature and extent of contamination, to evaluate data and remedial options, recommend a remedy to EPA and to design the remedy selected by EPA. During the site investigation activities, Middle Waterway was divided into Areas A (the mouth of the waterway), Area B (the mid-portion of the waterway) and Area C (the head of the waterway). Each of these areas was subsequently divided into sub-areas known as Sediment Management Units (SMU) (EPA, 2004a).

In 1989, a Record of Decision (ROD) was published that established a selected remedy for the CB/NT Site, OU 01 and OU 05. The selected remedy consisted of site use restrictions, source control, natural recovery, sediment remedial action and monitoring, and sediment confinement (in-place capping, confined aquatic disposal, nearshore disposal, and upland disposal). This selected remedy was established for the site wide Commencement Bay OU5, the selected remedy was to be implemented independently in each waterway.

In February 2002, an Explanation of Significant Differences (ESD) was issued that identified specific cleanup actions for the Middle Waterway including dredging, sediment disposal in Blair Slip 1, capping, enhanced natural recovery (ENR), and natural recovery and monitoring (EPA, 2002). The 2002 ESD described how the remedial activities outlined in the 1989 ROD were to be applied to the Middle Waterway and identified how and in which instances the selected remedy differed from the ROD. In area SMU 51a (in Area C), the 2002 ESD specified leaving subsurface sediment in place, monitoring and ENR to remedy the impacted sediment.

The 2002 ESD also specified that dredged sediments from Middle Waterway be placed in the Blair Slip 1 Nearshore Confined Disposal site, which is approximately 10 acres in size and has a disposal capacity of 650,000 cubic yards (cy).

In March 2003, EPA issued another ESD that specified remedial action for SMU 51a in Area C (EPA, 2003). The modified remedy consists of the removal of impacted subsurface sediments and disposal at an upland facility.

In August 2003, EPA entered into two Consent Decrees for the cleanup of the Middle Waterway. MWAC entered into a Consent Decree for the implementation of the remedial action for Areas A and B. EPA, WDNR, the City, and other parties entered into a Remedial Design/Remedial Action Consent Decree for Area C.

In early March 2004, the WDNR submitted the final remedial design for EPA approval. Plans included removal of sediments during low tide or “in the dry” (EPA, 2004b).

Cleanup Approach and Update since 2004

Areas A and B

Construction activities occurred between mid-July 2003 and mid-February 2004. Dredging, capping and other activities required for the mouth and middle portions (Areas A and B) of Middle Waterway were completed in February 2004 (EPA, 2004b).

Activities included (EPA, 2004a):

- *Demolition* — 71,000 square feet of over-water coverage were removed, including Cook's Marine pier and marine railways, the float and tip of the pier at Foss Maritime, a dilapidated pier, the Scow Shed and existing wharf at Marine Industries Northwest.
- *Replacement bulkhead construction, utility relocation and replacement.*
- *Dredging and disposal* — 109,500 cy of sediment and debris were dredged using a clamshell bucket (6 to 16 cy) in Areas A and B. Confirmation sampling that was conducted following dredging indicated that additional dredging was required in some areas. Dredging continued until sediment quality objectives (SQOs) were achieved, or until MWAC and the EPA concluded that the alternative action was appropriate (EPA, 2004a).
- *Backfilling, capping and ENR* — The following backfilling, thick layer capping, and ENR techniques were used in Areas A and B (EPA, 2004a):
 - *Backfilling* — A "habitat mixture" was applied to eliminate habitat loss or conversion to return dredged areas to their original grade.
 - *Thick-Layer Capping* — Thick-layer capping was required in areas where sediments contained chemical concentrations exceeding SQOs that could not be completely removed.
 - *ENR* — Two ENR remedies were applied, including ENR with a surficial cap, and dredging and ENR. These remedies were applied in areas to improve habitat conditions and address minor chemical exceedances, and to remove sediments and augment the natural sedimentation rate in residuals, respectively.

- *Planting and habitat enhancement* — Planting and habitat enhancement included (EPA, 2004a):
 - backfilling slopes with material beneficial to salmon.
 - shoreline planting and placement of large woody debris.
 - utilizing capping material that enhanced habitat function.
 - removing chemicals above SQOs.
 - removing over-water structures.
 - removing 865 creosote-treated pilings.
 - implementing conservation measures during construction.

The following additional cleanup activities were conducted in Areas A and B in August 2004 (EPA, 2004a):

- *Fender pile replacement* — Untreated fender piles were used to replace the creosote-treated piles that were removed.
- *Former Scow Shed Area dredging and disposal* — 1,500 cy of sediment were removed from this area in fall 2004; impacted sediment is believed to be a result of slope sloughing which occurred after completion of the remediation work.
- *Installation of cathodic protection system on the Foss float plies* — 12-inch-diameter pipe piles were installed to replace creosote-treated piles at Foss mooring float. A passive cathodic protection system was installed during fall 2004 due to premature scaling of the piles.
- *Placement of ENR material* — Additional ENR material was placed in two areas where minor exceedances of mercury were present following dredging. Placement was completed in February 2005.

Operation, Maintenance and Monitoring Plan (OMMP) Monitoring — As stated in the 2004 Five Year Review Report, OMMP monitoring is to be conducted in years 0, 3,

and 5 following completion of remedial activities. Results of Year 0 monitoring indicated that areas treated with ENR met cleanup standards (EPA, 2004a). The Year 3 monitoring event occurred in June and August 2007; however, Year 3 monitoring results are not yet publicly available. The Year 5 monitoring event is scheduled for 2009, Areas A and B may be sampled in 2008 pending a decision by EPA (EPA, 2007b).

Area C

Area C is approximately 2.2 acres. Remedial activities completed from July through October 2004 included removal of approximately 3,200 cy of sediments from SMU 51a. Sediment was removed “in the dry” using land based excavation equipment during low tide and disposed of at an upland landfill. Debris and piles were also removed from Area C. Post-excavation samples were collected prior to backfilling with habitat-suitable substrate (EPA, 2004a). According to EPA, analytical results of these samples did not exceed SQOs. ENR material was applied; samples were collected in October 2004. Additional activities included (EPA, 2004a):

- Area C in-water plantings were completed in spring 2005.
- According to the EPA, the Final OMMP for Area C was approved by EPA in September 2005. Long-term monitoring has been implemented at this location. Post-excavation samples were collected from Area SMU 51a prior to backfilling. OMMP monitoring was conducted in years 0, 1 and 2 following completion of remedial activities (EPA, 2007b).

Future Site Activities

All required remedial actions in Middle Waterway have been completed. According to EPA, remedies are functioning as intended and are therefore protective, and no remaining issues have been identified (EPA, 2004a). Long-term monitoring, the OMMP for Areas A, B and C, will be conducted for ten years from the date of completion of the remedial activities.

References

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