

Duwamish O&M Summary  
DY 1990-2004  
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DUWA01BF013: USACE DUWAMISH O&M DY90

The proposed work was to dredge shoaled sediment from station 235+00 to the Head of Navigation in the Duwamish Waterway for maintenance of the 15 foot authorized depth of the upper portion of the Seattle Harbor Navigation Project. Disposal was planned for the Elliott Bay disposal site.

Bioassays were conducted on 11 samples. QC problems were encountered in the first round of bioassays. The Microtox extracts were held over night; temperatures were out of range for the amphipod test; the performance standard was exceeded for the sediment larval test. Therefore a second round of bioassays was required. Resampling was required to collect sediment for the Round 2 bioassays. Four DMMUs failed bioassay testing.

The reaches that were not dredged included 240+90 to 248+10, 249+55 to 251+25, and 255+85 to 257+35. The material from 272+00 to 275+56 was dredged and used for capping material at the Denny Way CSO. The rest of the dredged material was taken to the Elliott Bay site.

DUWA01BF014: USACE DUWAMISH O&M DY90 ROUND 3

Round 3 sampling and testing was for sediment that was deposited by winter floods prior to dredging.

DUWA11BF032: USACE Duwamish O&M, DY92 Phase 1

Phase 1 took place in the summer of 1990. Eight DMMUs were characterized. Four DMMUs had bioaccumulation trigger (BT) exceedances. Bioaccumulation testing was not conducted due to the high cost involved. In the absence of bioaccumulation data these DMMUs were considered unacceptable for open-water disposal. The remaining DMMUs had screening level (SL) exceedances, but passed biological testing. The pesticides for these DMMUs, however, were not quantitated by the chemical testing subcontractor. These DMMUs were resampled and the pesticides and PCBs quantitated during phase 2.

DUWA21BF038: USACE Duwamish O&M, DY92 Phase 2

Phase 2 consisted of sixteen DMMUs, which characterized 164,417 cy. In addition, pesticide and PCB quantitation was conducted for the four DMMUs from Phase 1.

Chemical testing for phase 2 resulted in SL exceedances for 12 DMMUs. The other 4 DMMUs had no SL exceedances. There were no BT or ML exceedances for any of the 16 DMMUs. In addition, for the 4 DMMUs from phase 1, the pesticides and PCBs were quantitated below BTs and MLs. Based on the chemical testing results, 12 DMMUs from phase 2 were subjected to biological testing. The 4 DMMUs from phase 1 were found to be acceptable for open-water disposal (note that the status of the other 4 DMMUs from phase 1 did not change – in the absence of bioaccumulation testing, the BT exceedances made these DMMUs unacceptable for open-water disposal).

Biological testing for phase 2 was conducted in two rounds due to QA/QC problems encountered in the amphipod, sediment larval and Neanthes bioassays. All DMMUs eventually passed bioassay testing.

Dredging associated with phases 1 and 2: Suitable material from station 205+00 to 275+56 was dredged and disposed at Elliott Bay. Suitable material from station 271+50 to 275+56 was dredged and used at Pier 53 for capping. Unsuitable material was left in place.

USACE Duwamish O&M, DY94

No testing required under PSDDA recency/frequency guidelines. Up to 60,000 cy from stations 258+00 to 276+00 were found suitable for open-water disposal. Material from station 257+35 to 275+56 was dredged and taken to the Elliott Bay site. Some of the material from station 272+00 to 275+56 was dredged and used as capping material at Piers 64/65.

DUWA61BF132: USACE Duwamish O&M, DY96

This survey characterized upper Duwamish sediment from station 241+00 to 257+35 (28,000 cy). An additional 95,000 cy of material from the upper turning basin (257+35 to 275+56) was also proposed for dredging but was exempt from testing under the PSDDA recency/frequency guidelines.

Seven DMMUs were tested; all had SL exceedances but no BT exceedances. All DMMUs were subjected to bioassay testing. Two of the DMMUs (S5 and S7) had single-hit failures in the sediment larval test. The other 5 DMMUs had hits under the two-hit rule in the larval test, but with no corroborating hits in any other bioassays. So these 5 DMMUs were found suitable for open-water disposal.

All suitable material was dredged and placed at the Elliott Bay site. The unsuitable material was left in place.

DUWA71BF107: USACE Duwamish O&M, DY97

A total of 112,000 cy was characterized from the upper turning basin and waterway. The area upstream of station 257+35 was ranked "low-moderate" based on results from previous PSSDA surveys in this area. The waterway downstream of station 257+35 was ranked "high". The low-moderate ranked area required only "safety-net" testing under the PSSDA frequency guidelines and was represented by a single analysis (C1). The high-ranked area was represented by three DMMUs (S1-S3).

C1 had no SL exceedances and was not subjected to bioassays. Concurrent bioassays were conducted for S1, S2 and S3. There were no hits in the sediment larval or Neanthes biomass tests. In the amphipod test, S1 and S2 had hits under the 2-hit rule; S3 had a hit under the single-hit rule. Because there were no corroborating hits, S1 and S2 were found suitable for open-water disposal. S3 was found unsuitable. All suitable material from station 253+31 to 275+56 was dredged and disposed at the Elliott Bay site. The unsuitable material was left in place.

DUWA81BF128: USACE Duwamish O&M DY99

The tested area included a low-ranked subarea plus a high-ranked subarea. The low-ranked subarea included the turning basin and a portion of the adjacent navigation channel (stations 254+00 to 275+00) and consisted of 54,641 cy of dredged material. The high-ranked subarea was from station 205+00 to 254+00 and included 27,840 cy. A total of ten DMMUs were sampled and tested.

DMMU C2 was the only DMMU with SL exceedances, but all DMMUs were subjected to bioassay testing. DMMU C3 had a hit under the 2-hit rule for the larval test, but there were no corroborating hits for any of the other bioassays. None of the other DMMUs had any bioassay hits.

All material was found suitable for open-water disposal. Material from station 210+00 to 275+56 was dredged and placed at the Elliott Bay site.

DUWA01BF131: USACE Duwamish O&M, DY00

The area proposed for maintenance dredging was last characterized and dredged in 1992. All the area proposed for dredging was in a high-ranked area. Total volume was 76,000 cy. Dredging in the area furthest downstream (stations 118+00 to 135+00) is authorized to -30 ft. MLLW (+2 ft. overdepth); further upstream (stations 135+00 to 205+00) the authorized depth is -20 ft (+2 ft. overdepth).

Chemical analysis indicated that 17 out of 20 DMMUs had at least one SL exceedance. Fourteen of the DMMUs exceeded screening levels for PCBs but no other COC; two of the DMMUs exceeded SL for TBT but no other chemicals. One DMMU (C15) exceeded SL for both PCBs and TBT.

Because the SL is equal to the BT for TBT, a decision was made not to dredge those DMMUs with TBT exceedances and thus no further testing was conducted on samples C3, C4 and C15. The total volume in these three DMMUs was 8,400 cy.

Bioassays were conducted on 14 DMMUs. Two of the DMMUs (C1 and C20) had hits in both the Neanthes and sediment larval bioassays and were found unsuitable for open-water disposal. The other DMMUs either had no hits or a single hit under the two-hit rule and were found suitable for open-water disposal.

In summary, five DMMUs (C1, C3, C4, C15, C20) representing 18,600 cubic yards were found unsuitable for open-water disposal. The rest of the DMMUs, representing 57,400 cy, were suitable.

NOTE: It turned out that the sampling contractor had sampled the wrong side of the channel. As a result, none of the material was dredged. All the material was left in place.

DUWO41AF189: USACE Duwamish O&M DY04; Duwamish turning basin maintenance

This survey characterized 66,000 cy from the turning basin (stations 257+00 to 275+56). Five DMMUs were tested and there were no SL exceedances. All material was found suitable for open-water disposal at the Elliott Bay site or an approved beneficial-use site. Upon further review by EPA, all sediment was placed as a cap at the Pacific Sound Resources superfund site in Elliott Bay.