

MEMORANDUM FOR: RECORD

June 24, 2008

**SUBJECT:** DETERMINATION REGARDING THE EXCLUSIONARY STATUS OF DREDGED MATERIAL FROM THE MARINERS COVE ENTRANCE CHANNEL, WHIDBEY ISLAND, ISLAND COUNTY, WASHINGTON.

- 1. Introduction.** This memorandum reflects the consensus determination of the Dredged Material Management Program (DMMP) agencies (U.S. Army Corps of Engineers, Washington Departments of Ecology and Natural Resources, and the Environmental Protection Agency) regarding the exclusionary status of dredged material from the Mariners Cove entrance channel (see Figure 1 for a vicinity map).
- 2. Background.** Mariners Cove is a single-family residential area built around a man-made moorage basin with an entrance channel connecting the basin to Puget Sound (see Figure 2). The moorage basin and entrance channel were constructed in 1966. The entrance channel is located in a littoral-drift cell with net shore-drift from the southwest to the northeast, resulting in periodic shoaling at the mouth of the channel. Exposure to waves from Saratoga Passage generated by southerly quadrant winds is the primary driving mechanism for the northeastward net shore-drift at the site. Maintenance dredging of the entrance channel is conducted every two to three years, with approximately 4,000 cubic yards of dredged material removed from the channel over a 10-year period. The dredged material is placed as beach nourishment to the northeast of the entrance channel to mimic the natural sediment transport from net shore-drift (Landau, 2008).
- 3. Exclusionary Criteria.** The CWA Section 404(b)1 Guidelines for Specification of Disposal Sites for Dredged or Fill Material (CFR 40 Section 230.60, subparagraphs a and b) include exclusionary criteria with regard to testing. The Guidelines state that (1) dredged or fill material is most likely to be free from chemical, biological, or other pollutants where it is composed primarily of sand, gravel, or other naturally occurring inert material. Dredged material so composed is generally found in areas of high current or wave energy such as streams with large bed loads or coastal areas with shifting bars and channels; and (2) the extraction site shall be examined in order to assess whether it is sufficiently removed from sources of pollution to provide reasonable assurance that the proposed discharge material is not a carrier of contaminants (EPA, 1980). Dredged material that meets these two guidelines may be excluded from further testing.
- 4. Sampling.** The DMMP agencies required sampling from the two areas that will be dredged during the next dredging event (see Figure 3). Two individual samples were collected from each sample area. These two individual samples were then composited to form a laboratory sample for each area. Samples were collected to a depth of 2 feet with a hand-coring auger. The composited samples were submitted to a testing laboratory for analysis of grain size and TOC.
- 5. Grain-size and TOC Analysis.** The approved sampling and analysis plan was followed, with one exception. The sampling and analysis plan called for use of a #230 sieve (62.5 microns) to separate fines from coarse-grained sediment. The analytical laboratory used a #200 sieve (75 microns) instead. Use of a #200 sieve provides a higher estimate of the fines content compared to

a #230 sieve. However, this was inconsequential in the case of the Mariners Cove samples, as the percentage of sediment passing the #200 sieve was very low. With the exception of this one deviation from the SAP, the quality control guidelines specified by the DMMP programs were met. The data were considered sufficient and acceptable for regulatory decision-making under the DMMP program.

The testing results were as follows:

Parameter	Sample 1	Sample 2
finest content (%):	0.2	0.1
TOC (%):	0.17	0.50

The grain-size analysis showed that the dredged material was predominantly gravel (74-88 percent) and sand (12-26 percent) with very low fines content. The TOC result for Sample 2 was higher than anticipated for such coarse-grained sediment, but may be explained by the numerous shell fragments found in that sample. The calcium carbonate found in shell fragments is converted to carbon dioxide during the combustion process used in TOC analysis. This confounding factor was identified in the Puget Sound Protocols, which recommend that samples be treated to remove inorganic carbon before being analyzed (EPA 1986). This was not done for the Mariners Cove samples. Therefore, the relatively high carbon content in Sample 2 can likely be attributed to the inorganic carbon found in the shell fragments.

- 6. Exclusionary Status Determination.** The DMMP agencies have traditionally used 20 percent fines as the upper limit for determining eligibility for exclusionary status. The Northwest Regional Sediment Evaluation Team (RSET) recently adopted the 20-percent guideline and added an upper limit of 0.5% for TOC (RSET, 2006). The fines content from the Mariners Cove project met the grain-size criterion for exclusionary status. The TOC content for Sample 1 was well below the 0.5% RSET limit, while the TOC content for Sample 2 was right at the limit. However, as discussed previously, the higher carbon content in this sample was likely the result of the large number of shell fragments found in this sample.

With respect to the proximity of Mariners Cove to sources of contamination, as was noted previously, the shoals in the entrance channel result from sediment transport in a drift cell that experiences net southeast-to-northwest movement. This drift cell extends from approximately 0.7 miles southwest of the entrance channel and continues east and north to the spit at Dugwalla Bay (Landau, 2008). There are no point sources updrift of the Mariners Cove entrance channel, the land cover in this area being a mix of residential, agricultural and woodlands. Therefore the DMMP agencies determined that the Mariners Cove entrance channel is sufficiently removed from sources of pollution to provide reasonable assurance that the proposed discharge material is not a carrier of contaminants.

In summary, the DMMP agencies have determined that dredged material from the Mariners Cove entrance channel meets the exclusionary criteria under the Clean Water Act and does not require additional chemical testing.

7. **Sediment Exposed by Dredging**. Based on the exclusionary status of the dredged material, the DMMP agencies believe the probability that the sediment exposed by dredging might have concentrations of chemicals of concern that exceed the Sediment Management Standards Sediment Quality Standards (Ecology, 1995) is very low. The agencies agreed that no testing of the newly exposed sediment is necessary.
8. **Project Summary**. Table 1 includes project summary and tracking information.

**Table 1. Project Summary**

Project ranking (after testing)	Exclusionary
Dredged volume	~400 cubic yards/ year
Dredged depth	-2 to -3 feet MLLW
SAP received	February 27, 2008
SAP approved	March 7, 2008
Sampling date	May 7, 2008
Data report received	June 16, 2008
DAIS Tracking number	MARCO-1-X-O-251
USACE Permit Application Number	NWS-2001-570
Frequency Determination (10 years)	June 2018

9. **References**.

Ecology, 1995. *Sediment Management Standards – Chapter 173-204 WAC*. Washington State Department of Ecology, December 1995.

EPA, 1980. *40 CFR Part 230 Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material*, Environmental Protection Agency, December 1980.

EPA, 1986. *Recommended Protocols for Measuring Conventional Sediment Variables in Puget Sound*. Environmental Protection Agency – Region 10 and Puget Sound Water Quality Authority, March 1986 (with minor corrections in April 2003).

Landau, 2008. *Limited Sediment Characterization Report, Mariners Cove Entrance Channel, Whidbey Island, Washington*. Landau Associates, June 2008.

RSET, 2006. *Northwest Regional Sediment Evaluation Framework, Interim Final*. Northwest Regional Sediment Evaluation Team, September 2006.

9. Agency Signatures.

Concur:

6/24/08 David F. Fox  
Date David Fox, P.E. - Seattle District Corps of Engineers

7/1/08 Erika Hoffman  
Date Erika Hoffman - Environmental Protection Agency

7/01/2008 Laura Inouye  
Date Laura Inouye, Ph.D. - Washington Department of Ecology

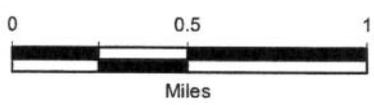
07/2/08 Courtney Wasson  
Date Courtney Wasson - Washington Department of Natural Resources

Copies furnished:

DMMP signatories  
Vicky Didenhover, Seattle District Regulatory  
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Data Source: ESRI 2006



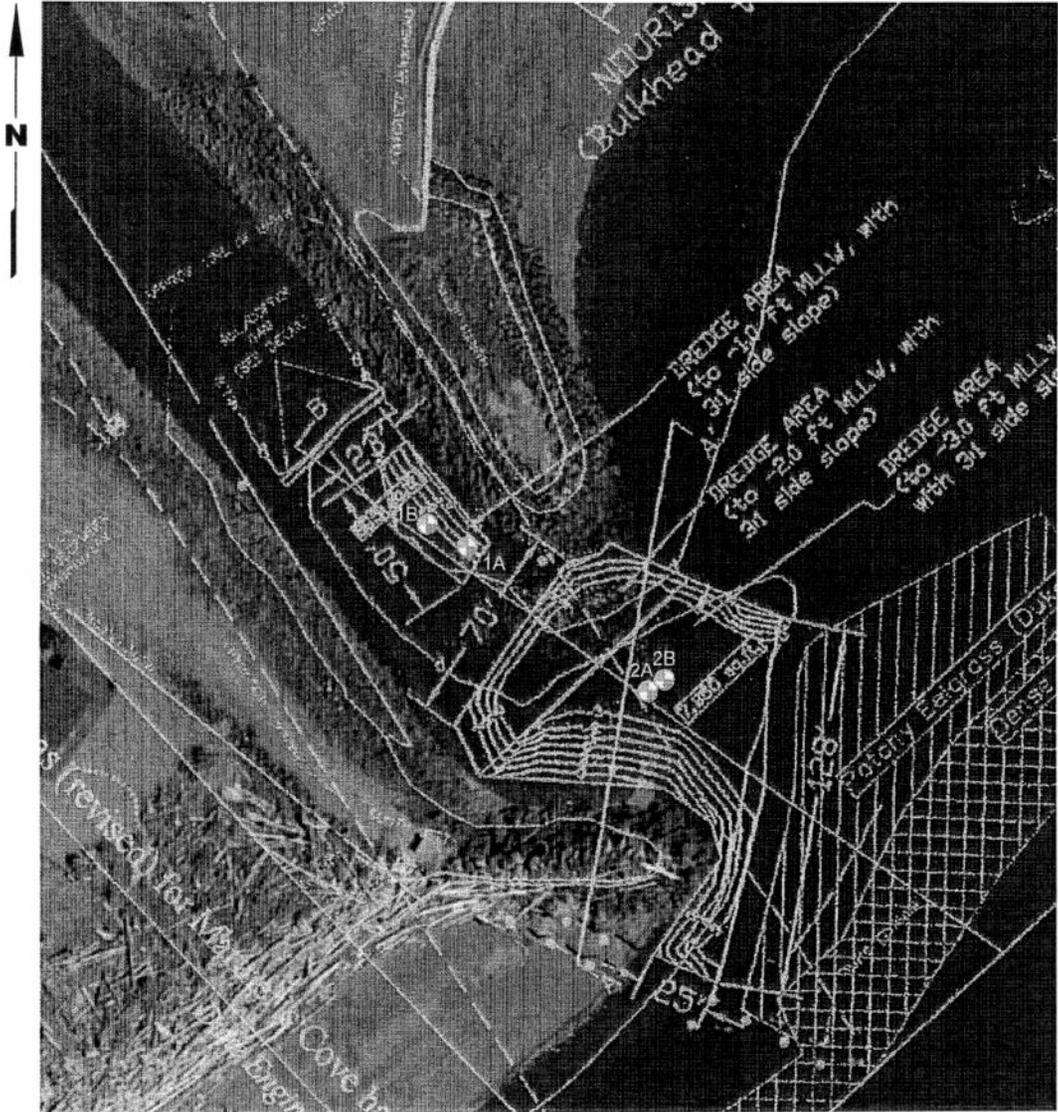
Mariners Cove  
Whidbey Island, Washington

Vicinity Map

Figure  
**1**



Figure 2

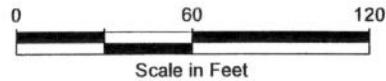


**Legend**

● Sample Location

Sample Location	Latitude	Longitude
1A	N48° 17' 16.74"	W122° 31' 09.51"
1B	N48° 17' 16.81"	W122° 31' 09.71"
2A	N48° 17' 16.27"	W122° 31' 08.58"
2B	N48° 17' 16.31"	W122° 31' 08.50"

Base map source: Google Earth Pro, 2008



Mariners Cove  
Whidbey Island, Washington

**Site Map and Sample Locations**

Figure

**2**