

# CENWS-OD-TS-DMMO

**MEMORANDUM FOR: RECORD**

**March 31, 2010**

**SUBJECT:** DMMP ANTIDegradation Evaluation on the Sediment Quality of the Proposed Post-Dredge Sediment Surface to Verify Compliance with the Washington State Antidegradation Policy for the Fairweather Bay Dredging Project (NWS-2009-1482).

**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 quality of the sediment surface remaining after dredging the Fairweather Bay at the Fairweather Bay Boat Basin. The project area is on the eastern side of Lake Washington, near Hunts Point (Figure 1). This project involves maintenance dredging up to 10,000 cy of material from the access channel into the boat basin. The dredged material will be dewatered and then trucked to an upland disposal site. Because this project does not involve in-water disposal, only a permit issued pursuant to Section 10 of the Rivers and Harbors Act is required from the Corps of Engineers.

**2. Background.** This project was last dredged in 1993. At that time limited sampling and testing was performed to determine that the material was not hazardous waste, for upland landfill information. Sampling and testing for the current project was conducted based on information obtained from the Corps and Ecology but without an approved DMMP SAP. Information submitted from the characterization, together with a Tier 1 evaluation, was considered sufficient for evaluating the proposed post-dredge surface.

**Table 1. Project Specifics**

Project ranking	Moderate
SAP received	No SAP
Sampling dates	November 30, 2009
Data report submitted	February 12, 2010
Project last dredged	1993
Proposed disposal	Upland; no return water
USACE Permit Application Number	NWS-2009-1482
DAIS Tracking Number	FWBAD-1-A-O-288

**3. Project Sampling.** Sediment cores were taken from a boat with a hand-held coring device on November 30, 2009 (Figure 2). Samples were penetrated to refusal. No Z-samples were taken due to the impervious nature of the below-dredge surface. Core samples were submitted to Fremont Analytical in Seattle, WA for chemical analysis.

**4. Chemical Analysis.** Four core samples were analyzed for gasoline, diesel and heavy oil, semi-volatile organic compounds and total metals. Results were compared to freshwater screening levels from the 2006 Interim Final Sediment Evaluation Framework (SEF) (Table 2).

**5. DMMP Antidegradation Evaluation.** To evaluate the concern for post dredging surface degradation, chemical results of the proposed dredged material were compared with interim freshwater guidelines from the RSET Sediment Evaluation Framework (RSET 2009). No exceedances of freshwater guidelines for the chemicals of concern were found in the dredged material, and there are no indications that there is increasing contamination with depth. Some DMMP chemicals of concern were not analyzed for in this characterization, including PCBs and dioxins. Tier 1 analysis of the dredge area showed little reason-to-believe for post-dredge surface contamination of either of those classes of chemicals, so no additional sampling was required to verify compliance with state antidegradation standards. However, this evaluation does not support any in-water disposal of dredged sediments.

**6. Upland disposal locations.** The Best Management Practices detailed in the JARPA for dewatering dredged material before upland disposal are encouraged and supported. For further guidance as to potential upland disposal the applicant should consult the local health district for guidance.

**7. References.**

Fremont Analytical, 2009. *Fairweather Bay Dredging Project analytical report.* December 7, 2009

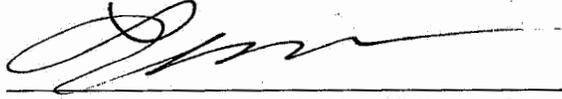
RSET, 2009. *Northwest Regional Sediment Evaluation Framework.* . Northwest Regional Sediment Evaluation Team, May 2009.

8. Agency Signatures.

Concur:

4/9/2010

Date



Lauran Cole Warner, Seattle District Corps of Engineers

4/15/10

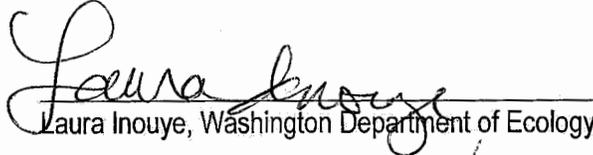
Date



Justine Barton, Environmental Protection Agency

06/03/2010

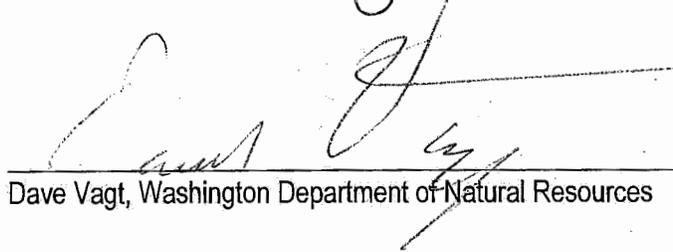
Date



Laura Inouye, Washington Department of Ecology

6/3/2010

Date



Dave Vagt, Washington Department of Natural Resources

Copies furnished:

DMMP Signatories  
Peter Zuvela, Waterfront Construction  
Kris Dillon, Corps Regulatory  
Brianna Blaud, NOAA  
DMMO file

**Table 2. Results of Chemical Analysis for Fairweather Bay.**

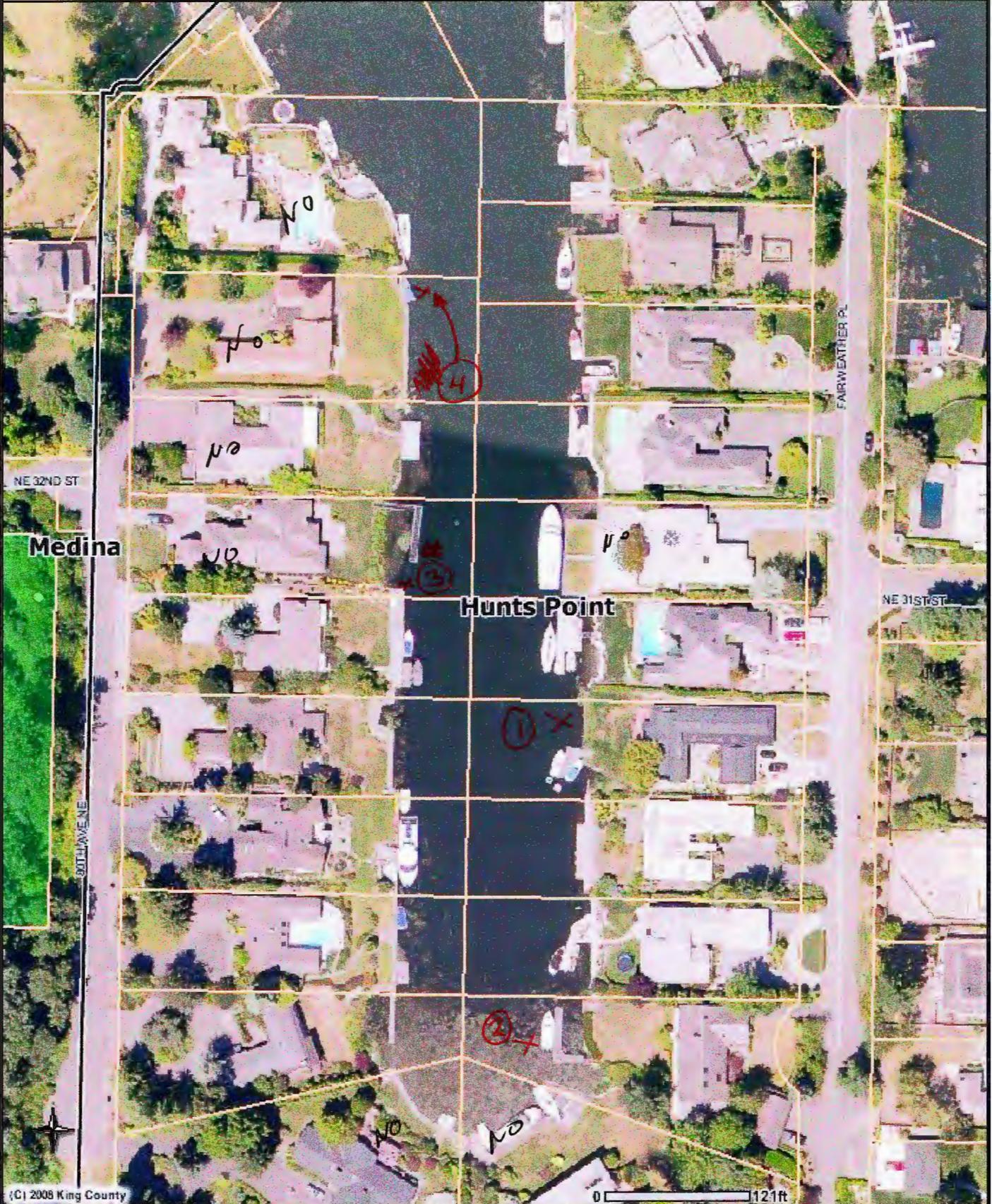
CHEMICAL	Interim FW SQG		Sample 1	Sample 2	Sample 3	Sample 4
	SL1	SL2				
<b>METALS</b>	<b>mg/kg dry wt.</b>					
Antimony	---	---	nd	0.3	nd	nd
Arsenic	20	51	6.3	8.1	5.0	5.0
Cadmium	1.1	1.5	0.25	0.47	0.40	0.25
Chromium	95	100	25	22	39	23
Copper	80	830	25	31	22	17
Lead	340	430	5.6	37	6.5	19
Mercury	0.28	0.75	nd	nd	nd	nd
Nickel	60	70	23	16	42	27
Selenium	---	---	nd	nd	nd	nd
Silver	2.0	2.5	nd	nd	0.33	nd
Zinc	130	400	63	103	55	37
<b>ORGANICS</b>	<b>µg/kg dry wt.</b>					
<b>Total LPAH</b>	<b>6,600</b>	<b>9,200</b>	<b>nd</b>	<b>640</b>	<b>5</b>	<b>811</b>
Naphthalene	500	1,300	nd	nd	5.00	6.0
Acenaphthylene	470	640	nd	nd	nd	15.0
Acenaphthene	1,100	1,300	nd	nd	nd	70
Fluorene	1,000	3,000	nd	nd	nd	60
Phenanthrene	6,100	7,600	nd	190	nd	340
Anthracene	1,200	1,600	nd	450	nd	320
2-Methylnaphthalene	470	560	nd	nd	nd	5.0
<b>Total HPAH</b>	<b>31,000</b>	<b>55,000</b>	<b>nd</b>	<b>3,280</b>	<b>nd</b>	<b>3,655</b>
Fluoranthene	11,000	15,000	nd	450	nd	nd
Pyrene	8,800	16,000	nd	390	nd	650
Benzo(a)anthracene	4,300	5,800	nd	150	nd	1150
Chrysene	5,900	6,400	nd	220	nd	500
Benzofluoranthenes (b+j+k)	600	4,000	nd	250	nd	250
	---	---				
	---	---	nd	420	nd	380
Benzo(a)pyrene	3,300	4,800	nd	170	nd	170
Indeno(1,2,3-c,d)pyrene	4,100	5,300	nd	1100	nd	490
Dibenz(a,h)anthracene	800	840	nd	nd	nd	15
Benzo(g,h,i)perylene	4,000	5,200	nd	130	nd	50
<b>CHLORINATED HYDROCARBONS</b>	<b>µg/kg dry wt.</b>					
1,3-Dichlorobenzene	---	---	nd	nd	nd	nd
1,4-Dichlorobenzene	---	---	nd	nd	nd	nd
1,2-Dichlorobenzene	---	---	nd	nd	nd	nd
1,2,4-Trichlorobenzene	---	---	nd	nd	nd	nd
Hexachlorobenzene (HCB)	---	---	nd	nd	nd	nd

CHEMICAL	Interim FW SQG		Sample 1	Sample 2	Sample 3	Sample 4
	SL1	SL2				
<b>PHTHALATES</b>	<b>µg/kg dry wt.</b>					
Dimethyl phthalate	46	440	nd	nd	nd	nd
Diethyl phthalate	---	---	nd	nd	nd	nd
Di-n-butyl phthalate	---	---	nd	nd	nd	nd
Butyl benzyl phthalate	260	370	nd	nd	nd	nd
Bis(2-ethylhexyl) phthalate	220	320	nd	nd	nd	nd
Di-n-octyl phthalate	26	45	nd	nd	nd	nd
<b>PHENOLS</b>	<b>µg/kg dry wt.</b>					
Phenol	---	---	nd	nd	nd	nd
2-Methylphenol	---	---	nd	nd	nd	nd
4-Methylphenol	---	---	nd	nd	nd	nd
2,4-Dimethylphenol	---	---	nd	nd	nd	nd
Pentachlorophenol	---	---	nd	nd	nd	nd
<b>MISCELLANEOUS EXTRACTABLES</b>	<b>µg/kg dry wt.</b>					
Benzyl alcohol	---	---	nd	nd	nd	nd
Benzoic acid	---	---	nd	nd	nd	nd
Dibenzofuran	400	440	nd	nd	nd	nd
Hexachloroethane	---	---	nd	nd	nd	nd
Hexachlorobutadiene	---	---	nd	nd	nd	nd

**Notes:**

- All non-detects were at or below Interim FW SQGs
- 2-Methylnaphthalene is not included in sum of LPAHs

# iMAP



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**King County**

Date: 11/17/2009

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