

February 14, 2008

**SUBJECT:** DETERMINATION ON THE SUITABILITY OF PROPOSED MAINTENANCE DREDGED MATERIAL FROM BARBEE MILL BOATHOUSE RENOVATION PROJECT (NWS-2007-1019-NO) EVALUATED UNDER SECTION 404 OF THE CLEAN WATER ACT FOR POTENTIAL BENEFICIAL USES (HABITAT ENHANCEMENT) IN LAKE WASHINGTON OR UPLAND BENEFICIAL USES.

The following summary 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) on the suitability of material from Barbee Mill Boathouse Renovation Project for appropriate beneficial uses in Lake Washington and/or upland use.

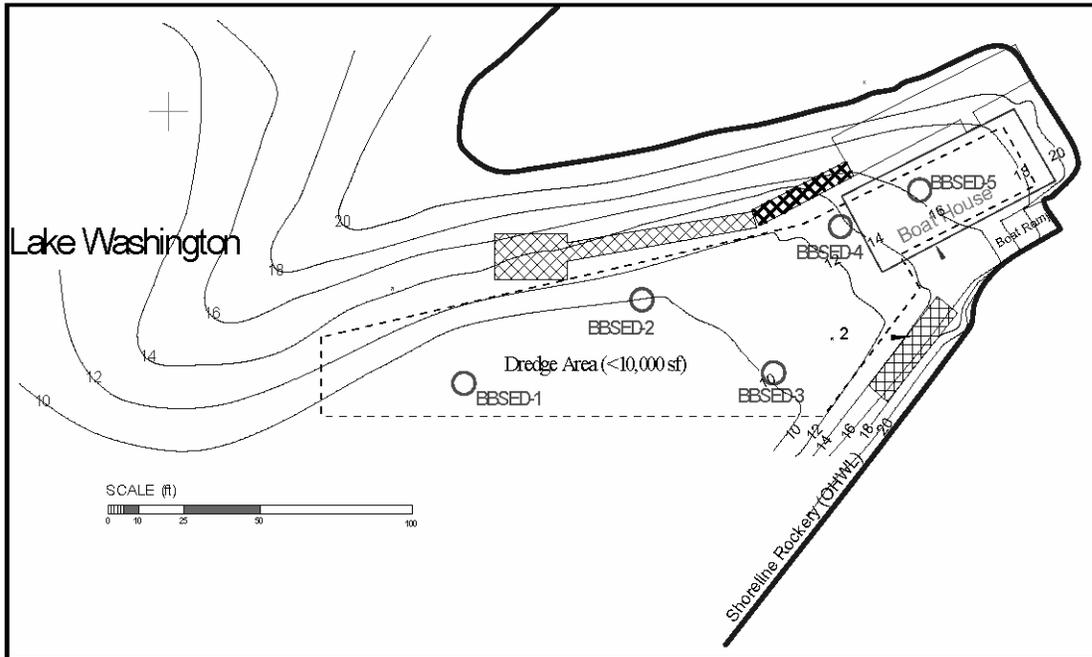
**Table 1. Project Details**

SAP received	September 24, 2007
SAP approved	October 2, 2007
Sampling dates	October 21, 2007
Final data report submitted	January 31, 2007
Recency Determination: Moderate Concern (5 years)	October 2012
DAIS reference number	BCBAD-1-A-F-246

**1. Historical Background.** The proposed dredge area in Lake Washington is approximately 10,000 square feet with an average sediment thickness of approximately 2 ft. The estimated volume of material to be dredged is less than 1000 cy. Historically, dredging of the May Creek Delta and Boathouse Area was conducted every 3-5 years. However, with site development on the Conner Development property to the north and suspension of dredging in the May Creek Delta, the rate of future sediment accumulation in the Boathouse Area is not known with a great deal of certainty, but maintenance dredging is anticipated to be required every 3 to 5 years to maintain the dredge profile for navigation access and continued recreational use of the boathouse. The frequency of dredging will be largely determined by the rate of sediment deposition from storm water runoff arising from the May Valley and transported by May Creek to Lake Washington.

**2. Sampling.** The DMMP agencies approved sampling and analysis plan required testing of the proposed dredged material, for potential Beneficial Use (BU) suitability (upland and/or inwater habitat enhancement), and also specified collecting and archiving of a Z-sample (top 1 foot of the proposed new surface after dredging). The DMMP agencies evaluated the tested sample for compliance with SMS guidelines (e.g., SEF freshwater guidelines), and analysis of the archived Z-sample would be triggered if the material testing results demonstrated sediment quality concerns within the proposed dredged material footprint.

**3.** Sampling was conducted on October 21, 2007, and grab samples were collected at 5 locations (Figure 1), and composited for one DMMU-C1 analysis. Samples stations were located using differential GPS. However, attempts to collect Z-samples at the five sampling stations were unsuccessful with a gravity corer, and split spoon corer, and a modified Shelby Tube sampler, whereas surface samples were collected with a VanVeen grab sampler. A composited grab sample was submitted for analysis. After reviewing the characterization report submitted, the DMMP agencies agree that the approved sampling and analysis plan was generally followed, except the collection of the z-sample. The DMMP agencies reviewed the data for the composited grab sample, and quality assurance/quality control guidelines specified by the DMMP were generally complied with, and these data were deemed suitable for decision-making using best-professional-judgment.



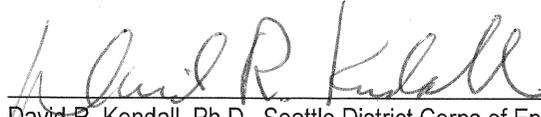
**Figure 1.** Barbee Boathouse Sediment Sampling Stations

4. **Chemical Analysis and Comparison with SEF Freshwater/DMMP Guidelines.** The Agencies' approved sampling and analysis plan was followed and quality assurance/quality control guidelines specified by PSEP and DMMP were generally complied with. A summary of Chemical analysis results are provided in **Table 2**, demonstrate that the single DMMU evaluated had no detected or undetected chemicals exceeding **SEF-SL1-Freshwater** or **DMMP SL** guidelines.
5. **Suitability For Beneficial Uses.** All sediments were found suitable for beneficial use as compared with the SEF Freshwater Guidelines, and all chemicals were also below DMMP Screening Level guidelines. The DMMP agencies will not require analysis of the new-surface after dredging is completed, based on these testing results.
6. This memorandum affirms the suitability of the sediment proposed for dredging at the Barbee Mill Boathouse for an appropriate beneficial use project. However, this suitability determination does not constitute final agency approval of the project. A dredging plan for this project must be completed as part of the final project approval process. A final decision will be made after full consideration of agency input, and after an alternatives analysis is done under Section 404(b)(1) of the Clean Water Act.

Concur:

3/3/2008

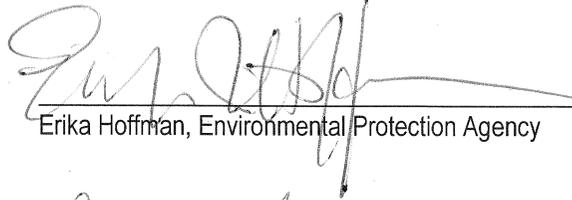
Date



David R. Kendall, Ph.D., Seattle District Corps of Engineers

2/28/2008

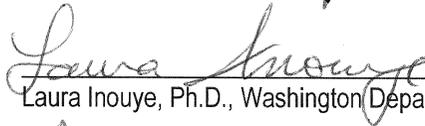
Date



Erika Hoffman, Environmental Protection Agency

2/28/2008

Date



Laura Inouye, Ph.D., Washington Department of Ecology

3/3/08

Date



Courtney Wasson, Washington Department of Natural Resources

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**Table 2. Barbee Company Boathouse DMMP/SEF-Freshwater Guidelines Characterization Summary**

CHEMICAL NAME	DMMU ID:							DMMU-C1	
	DMMP Marine				Freshwater SEF			mg/kg-dry wgt	VQ
	Units	SL	BT	ML	Units	SL1	SL2		
Antimony		150		200		--	--	0.3	
Arsenic	mg/kg	57	507.1	700	mg/kg	20	51	2.8	
Cadmium	mg/kg	5.1	11.3	14	mg/kg	1.1	1.5	0.30	
Chromium	mg/kg	(2)	267	(2)	mg/kg	95	100	21.1	
Copper	mg/kg	390	1,027	1,300	mg/kg	80	830	15.3	
Lead	mg/kg	450	975	1,200	mg/kg	340	430	10.0	
Mercury	mg/kg	0.41	1.5	2.3	mg/kg	0.28	0.75	0.06	
Nickel	mg/kg	140	370	370	mg/kg	60	70	24.7	
Selenium	mg/kg	(2)	3	(2)	mg/kg	--	--	0.7	
Silver	mg/kg	6.1	6.1	8.4	mg/kg	2.0	2.5	0.03	
Zinc	mg/kg	410	2,783	3,800	mg/kg	130	400	48.0	
TBT ion (porewater)	ug/TBT/L	0.15	0.15		ug/TBT/L			NA	
TBT ion (bulk sediment)	ug/TBT/kg	73.2	73.2		ug/TBT/kg	75	75	NA	
Naphthalene	ug/kg	2,100		2,400	ug/kg	500	1,300	20.0	u
Acenaphthylene	ug/kg	560		2,000	ug/kg	470	640	20.0	u
Acenaphthene	ug/kg	500		2,000	ug/kg	1,100	1,300	20.0	u
Fluorene	ug/kg	540		3,600	ug/kg	1,000	3,000	20.0	u
Phenanthrene	ug/kg	1,500		2,100	ug/kg	6,100	7,600	70	
Anthracene	ug/kg	560		13,000	ug/kg	1,200	1,600	20.0	u
2-Methylnaphthalene	ug/kg	670		1,900	ug/kg	470	560	20.0	u
<b>Total LPAH</b>	ug/kg	5,200		29,000	ug/kg	6,600	9,200	70	
Fluoranthene	ug/kg	1,700	4,600	30,000	ug/kg	11,000	15,000	99	
Pyrene	ug/kg	2,600	11,980	16,000	ug/kg	8,800	16,000	56	
Benzo(a)anthracene	ug/kg	1,300		5,100	ug/kg	4,300	5,800	28	
Chrysene	ug/kg	1,400		21,000	ug/kg	5,900	6,400	39	
Total Benzo(b+k)fluoranthenes	ug/kg	3,200		9,900	ug/kg	600	4,000	53	
Benzo(a)pyrene	ug/kg	1,600		3,600	ug/kg	3,300	4,800	20.0	u
Indeno(1,2,3-cd)pyrene	ug/kg	600		4,400	ug/kg	4,100	5,300	20.0	u
Dibenzo(a,h)anthracene	ug/kg	230		1,900	ug/kg	800	840	20.0	u
Benzo(g,h,i)perylene	ug/kg	670		3,200	ug/kg	4000	5200	20.0	u
<b>Total HPAH</b>	ug/kg	12,000		69,000	ug/kg	31,000	55,000	275	
1,3-Dichlorobenzene	ug/kg	170			ug/kg	--	--	20.0	u
1,4-Dichlorobenzene	ug/kg	110		120	ug/kg	--	--	20.0	u
1,2-Dichlorobenzene	ug/kg	35		110	ug/kg	--	--	20.0	u
1,2,4-Trichlorobenzene	ug/kg	31		64	ug/kg	--	--	20.0	u
Hexachlorobenzene (HCB)	ug/kg	22	168	230	ug/kg	--	--	20.0	u
Dimethylphthalate	ug/kg	71		1,400	ug/kg	46	440	20.0	u
Diethylphthalate	ug/kg	200		1,200	ug/kg	--	--	20.0	u
Di-n-butylphthalate	ug/kg	1,400		5,100	ug/kg	--	--	20.0	u
Butylbenzylphthalate	ug/kg	63		970	ug/kg	260.0	370	20.0	u
Bis(2-ethylhexyl)phthalate	ug/kg	1,300		8,300	ug/kg	220	320	82	
Di-n-octylphthalate	ug/kg	6,200		6,200	ug/kg	26	45	20.0	u
Phenol	ug/kg	420		1,200	ug/kg	--	--	20.0	u
2-Methylphenol	ug/kg	63		77	ug/kg	--	--	20.0	u
4-Methylphenol	ug/kg	670		3,600	ug/kg	--	--	20.0	u
2,4-Dimethylphenol	ug/kg	29		210	ug/kg	--	--	20.0	u
Pentachlorophenol	ug/kg	400		690	ug/kg	--	--	100.0	u
Benzyl alcohol	ug/kg	57		87	ug/kg	--	--	20.0	u
Benzoic acid	ug/kg	650		760	ug/kg	--	--	200.0	u
Dibenzofuran	ug/kg	540		1,700	ug/kg	400	440	20.0	u
Hexachloroethane	ug/kg	600		1,600	ug/kg	--	--	20.0	u

**Table 2. Barbee Company Boathouse DMMP/SEF-Freshwater Guidelines Characterization Summary**

CHEMICAL NAME	DMMU ID: DMMU-C1							mg/kg-dry wgt	VQ
	DMMP Marine			Freshwater SEF					
	Units	SL	BT	ML	Units	SL1	SL2		
Hexachlorobutadiene	ug/kg	29		270	ug/kg	--	--	20.0	u
N-Nitrosodiphenylamine	ug/kg	280		130	ug/kg	--	--	20	u
Trichloroethene	ug/kg	160		1,600	ug/kg	--	--	1.3	u
Tetrachloroethene	ug/kg	57		210	ug/kg	--	--	1.3	u
Ethylbenzene	ug/kg	10		50	ug/kg	--	--	1.3	u
Total Zylene (sum of o-,m-,p-)	ug/kg	40		160	ug/kg	--	--	1.3	u
Total DDT (sum of 4,4'-DDD, 4,4'-DDE and 4,4'-DDT)	ug/kg	6.9	50	69	ug/kg	--	--	2.0	u
Aldrin	ug/kg	10			ug/kg	--	--	0.98	u
Chlordane	ug/kg	10	37		ug/kg	--	--	0.98	u
Dieldrin	ug/kg	10			ug/kg	--	--	2.0	u
Heptachlor	ug/kg	10			ug/kg	--	--	0.98	u
Alpha-BHC	ug/kg		10		ug/kg	--	--	2.00	u
Gamma-BHC (Lindane)	ug/kg	10			ug/kg	--	--	0.98	u
Total PCBs	ug/kg	130	38***	3,100.0	ug/kg	60	120	20.0	u
Total Solids	%							80.1	
Total Volatile Solids	%							0.95	
Total Organic Carbon	%							2.0	
Total Ammonia	mg/kg							28	
Total Sulfides	mg/kg							126	
Gravel	%							3.5	
Sand	%							81.6	
Silt	%							NA	
Clay	%							NA	
Fines (percent silt + clay)*	%							14.9	
Bioassay Determination: (P/F)								NA	
BTs exceeded:								no	
Bioaccumulation conducted:								no	
ML Rule exceeded:								no	
PSDDA Determination:								Suitable BU	
DMMU Volume:	cy							<1,000 cy/yr	
Rank								LM	
Mean grab sampling depth	cm							10.0	
Maximum sampling depth (mudline)	cm							10.0	
DMMU ID:								DMMU-C1	

**Legend:**

**SL/SL1 = Screening Level exceedance**

**BT = Bioaccumulation Trigger exceedance**

**S (BU) = Suitable for Beneficial Uses (BU)**

**U (BU) = Unsuitable for Beneficial Uses**

**VQ = Validation Qualifier**

**U = undetected at the reported concentration**

**NA = Not analyzed**

**\* used # 200 sieve rather than #230 sieve for % fines**