

MEMORANDUM FOR RECORD

**SUBJECT: DETERMINATION OF THE SUITABILITY OF DREDGED MATERIAL TESTED UNDER DMMP EVALUATION PROCEDURES FOR THE PORT OF EVERETT, 12<sup>TH</sup> STREET MARINA PROJECT FOR DISPOSAL AT THE PORT GARDNER OPEN WATER DISPOSAL SITE.**

1. The Port of Everett proposes to dredge approximately 294,470 cubic yards of material from the 12<sup>th</sup> Street Channel, with proposed construction of a 100-berth public marina. The following summary reflects the DMMP agencies (Corps of Engineers, Department of Ecology, Department of Natural Resources and the Environmental Protection Agency) consensus decision on the acceptability of the sampling plan and all relevant test data to make a determination of suitability for the disposal of the material at a PSDDA open-water disposal site.
2. The ranking for this project is low-moderate, based on a review of previous sampling data. The down-ranking is documented in a 20 June 2000 letter to the project applicant (Attachment 1).
3. A sampling and analysis plan was completed for this project and approved by the PSDDA agencies on 19 October 2000. Sampling for this project was performed from 6 November to 10 November 2000.

SAP approval date	19 October 2000
Sampling dates	6 –10 November 2000
Data Report submittal date	8 February 2001
Recency determination dates	6 November 2005 – 6 November 2007

DAIS Tracking No.	POE12-1-A-F-160
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4. Surface samples were taken from eleven locations within the project and composited for three analyses (CM-1, CM-2 and CM-3). Samples were taken from ten locations and composited for 5 subsurface analyses. The sampling and compositing scheme is detailed in Table 1. Dry compacted sand prevented sampler penetration at sample locations A-5, A-9, A-10 and A-11 into the –12 to –16 feet elevation. This affected the number of samples composited for subsurface DMMUs M-S5, M-S6 and M-S7 as well as the depth of characterization of the dredge prism. A z-sample was taken from the bottom of each core where full penetration did not occur. The z-sample

would be analyzed if there were exceedances of DMMP screening levels in the composite samples.

5. There were no exceedances of 2001 DMMP screening levels. All detection limits were below screening level. A single sample from each surface composite was analyzed for porewater Tributyltin. No TBT was detected, with all samples well below the detection limit.
6. The chemical analytical data were also compared to the State Sediment Management Standards. No chemicals exceeded SMS criteria. Based on this information, the DMMP agencies determined that the sediments from the 12<sup>th</sup> Street Marina are chemically suitable for use in beneficial use projects. Sediment conventional data is included in Table 2.
7. In summary, the DMMP-approved sampling and analysis plan was followed, with minor deviations approved by the DMMP agencies. Quality assurance and quality control guidelines specified by the DMMP were followed. The data gathered were deemed sufficient and acceptable for regulatory decision-making under the DMMP program. Based on the results of the chemical testing, the consensus determination of the DMMP agencies is that all 294,470 cubic yards from the 12<sup>th</sup> Street Marina site are suitable for open-water disposal.
8. This memorandum documents the suitability of proposed dredged sediments for disposal at a DMMP open water disposal site or for beneficial use. It 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 and public input, and after an alternatives analysis is done under section 404 (b) 1 of the Clean Water Act.

Port of Everett  
12<sup>th</sup> Street Marina

Concur:

3/14/00  
Date

Stephanie Stirling  
Stephanie Stirling  
Seattle District Corps of Engineers

4/2/01  
Date

Justine S. Barton  
Justine Barton  
Environmental Protection Agency, Region 10

4/25/01  
Date

Richard L. Vining  
Rick Vining  
Washington Department of Ecology

04/06/01  
Date

Deferred to other agencies - James Allen  
Ted Benson  
WA Department of Natural Resources

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EPA/Justine Barton  
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DOE/Rick Vining

**Table 1**  
**Sampling and Compositing Scheme**

Composite	Station Number	Core Section Designation
CM-1	A-1	A-1A
	A-4	A-4A
	A-5	A-5A
CM-2	A-6	A-6A
	A-7	A-7A
	A-8	A-8A
	A-9	A-9A
CM-3	A-11	A-11A
	A-12	A-12A
	A-13	A-13A
	A-14	A-14A
CM-S4	A-2R2	A-2B
		A-2C
		A-2D
		A-3B
CM-S5	A-3	A-3B
	A-5	A-5B
		A-5C
	A-6	A-6B
A-6C		
A-6D		
A-7B		
CM-S6	A-7	A-7C
		A-7D
		A-9B
		A-9C
CM-S7	A-10	A-10B
		A-10C
	A-11	A-11B
		A-11C
CM-S8	A-13	A-13B
		A-13C
		A-13D
		A-14B
	A-14	A-14C
		A-14D

**Table 2**  
**Sediment Conventional Parameters**

Parameter	CM-1	CM-2	CM-3	CM-S4	CM-S5	CM-S6	CM-S7	CM-S8
Total Solids (%)	71.9	72.6	67.6	73.9	76.6	73.2	73.2	73.1
Total Organic Carbon (%)	1.4	1.7	1.7	0.92	0.82	0.85	0.93	0.85
Bulk ammonia (mg/kg)	45	25	20	150	34	56	36	47
Total Sulfides (mg/kg)	71	19	16	5.6 U	12	6	3.6 U	640
Grain-size(%)								
Gravel	2.6	2.2	2.2	0.2	0.5	0.4	1.6	1.9
Sand	52.6	51.3	29.9	59.8	53.5	50.4	48.4	57.8
Silt	36.0	37.3	54.3	38.3	38.8	39.9	40.9	31.6
Clay	8.8	9.4	13.1	7.6	7.2	9.4	9.1	8.7

DAIS Value Table - Dry Weight Basis

Project:

Port of Everett - Marina Project (NWS-2000-2-01177) EI21AF160

	units	C1	C2	C3	C4	C5	C6	C7	C8
SEDIMENT CONVENTIONALS									
Total Solids	%	71.9	72.6	67.6	73.9	76.6	73.2	73.2	73.1
Volatile Solids	%	69	69.8	58	77.6	67.2	74.7	66.7	55.6
Total Organic Carbon	%	1.4	1.7	1.7	0.92	0.82	0.85	0.93	0.85
Ammonia	MG/KG	45	25	20	150	34	56	36	47
Total Sulfides	MG/KG	71	19	16	5.6 u	12	6	3.6 u	640
METALS									
Antimony (1)	MG/KG	7 u	6 u	7 u	6 u	6 u	7 u	6 u	6 u
Arsenic	MG/KG	10	10	10	11	8	12	7	7
Cadmium	MG/KG	0.3 u	0.3	0.3 u	0.3	0.3 u	0.3 u	0.2 u	0.3 u
Chromium (4)	MG/KG	41.9	41.1	53.4	41.2	40.8	43.1	44.4	44
Copper	MG/KG	38.5	31.3	47.4	33.5	29.8	31.2	33.1	29.9
Lead (1)	MG/KG	12	8	10	10	8	7	5	5
Mercury	MG/KG	0.06	0.07	0.09	0.05	0.06 u	0.07 u	0.05	0.06 u
Nickel	MG/KG	39	37	48	39	39	41	43	44
Selenium (4)	MG/KG	-	-	-	-	-	-	-	-
Silver	MG/KG	0.4 u	0.4 u	0.6	0.4 u	0.4 u	0.4 u	0.4	0.4 u
Zinc	MG/KG	61.9	57.9	75.9	55.5	51.4	54.9	56.1	55.7
LPAH									
2-Methylnaphthalene (1)	UG/KG	19 u	20 u	20 u	19 u	19 u	19 u	19 u	19 u
Acenaphthene (1)	UG/KG	19 u	20 u	20 u	19 u	19 u	19 u	19 u	19 u
Acenaphthylene (1)	UG/KG	19 u	20 u	21	19 u	19 u	19 u	19 u	19 u
Anthracene (1)	UG/KG	19 u	20 u	20 u	19 u	19 u	19 u	19 u	19 u
Fluorene (1)	UG/KG	19 u	20 u	20 u	19 u	19 u	19 u	19 u	19 u
Naphthalene (1)	UG/KG	53	49	71	31	30	37	24	18 u
Phenanthrene (1)	UG/KG	-	32	54	20	25	22	22	19 u
Total LPAH (1)	UG/KG	97	81	146	51	55	59	46	18 j
HPAH									
Benzo(a)anthracene (1)	UG/KG	24	19 j	23	19 u	19 u	19 u	19 u	19 u
Benzo(a)pyrene (1)	UG/KG	20	20 u	24	19 u	19 u	19 u	19 u	19 u
Benzo(g,h,i)perylene (1)	UG/KG	19 u	20 u	20 u	19 u	19 u	19 u	19 u	19 u
Benzofluoranthenes (1)	UG/KG	37 j	20 u	44	19 u	19 u	19 u	19 u	19 u
Chrysene (1)	UG/KG	29	25	38	19 u	19 u	19 u	19 u	19 u
Dibenzo(a,h)anthracene (1)	UG/KG	19 u	20 u	20 u	19 u	19 u	19 u	19 u	19 u
Fluoranthene	UG/KG	66	47	88	19 u	21	35	22	19 u
Indeno(1,2,3-c,d)pyrene (1)	UG/KG	19 u	20 u	20 u	19 u	19 u	19 u	19 u	19 u
Pyrene	UG/KG	60	41	70	19 u	27	32	25	20
Total HPAH (1)	UG/KG	236 j	132 j	287	19 u	45	67	47	20
CHLORINATED HYDROCARBONS									
1,2,4-Trichlorobenzene (1)	UG/KG	6.9 u	20 u	7.8 u	5.9 u	6.3 u	6.3 u	7 u	19 u

	units	C1	C2	C3	C4	C5	C6	C7	C8
1,2-Dichlorobenzene (1)	UG/KG	1.4 u	1.4 u	1.6 u	19 u	19 u	1.3 u	1.4 u	19 u
1,3-Dichlorobenzene (3)	UG/KG	1.4 u	1.4 u	1.6 u	1.2 u	19 u	19 u	1.4 u	19 u
1,4-Dichlorobenzene (1)	UG/KG	19 u	1.4 u	1.6 u	19 u	19 u	19 u	1.4 u	19 u
Hexachlorobenzene	UG/KG	19 u	20 u	20 u	19 u				
PHTHALATES									
Bis(2-ethylhexyl)phthalate (1)	UG/KG	22	34	34	34	19	20	19 u	- u
Butyl benzyl phthalate (1)	UG/KG	19 u	20 u	20 u	19 u				
Di-n-butyl phthalate (1)	UG/KG	24 uj	34 uj	27 uj	37 uj	38 uj	31 uj	100 uj	28 uj
Di-n-octyl phthalate (1)	UG/KG	19 u	20 u	20 u	19 u				
Diethyl phthalate (1)	UG/KG	-	-	-	-	-	-	-	-
Dimethyl phthalate (1)	UG/KG	19 u	20 u	20 u	19 u				
PHENOLS									
2 Methylphenol (1)	UG/KG	19 u	20 u	20 u	19 u				
2,4-Dimethylphenol (1)	UG/KG	19 u	20 u	20 u	19 u				
4 Methylphenol (1)	UG/KG	41	31	- u	21	19 u	21	19 u	19 u
Pentachlorophenol	UG/KG	93 u	98 u	99 u	96 u	93 u	96 u	96 u	96 u
Phenol (1)	UG/KG	54	24	36	19 u				
MISCELLANEOUS EXTRACTABLES									
Benzoic acid (1)	UG/KG	190 u	200 u	200 u	190 u				
Benzyl alcohol (1)	UG/KG	19 u	20 u	20 u	19 u				
Dibenzofuran (1)	UG/KG	19 u	20 u	20 u	19 u				
Hexachlorobutadiene (1)	UG/KG	19 u	20 u	20 u	19 u				
Hexachloroethane (1)	UG/KG	19 u	20 u	20 u	19 u				
N-Nitrosodiphenylamine (1)	UG/KG	19 u	20 u	20 u	19 u				
VOLATILE ORGANICS									
Ethylbenzene (1)	UG/KG	1.4 u	1.4 u	1.6 u	1.2 u	1.3 u	1.3 u	1.4 u	1.3 u
Tetrachloroethene (1)	UG/KG	1.4 u	1.4 u	1.6 u	1.2 u	1.3 u	1.3 u	1.4 u	1.3 u
Total Xylene (1)	UG/KG	1.4 u	1.4 u	1.6 u	1.2 u	1.3 u	1.3 u	1.4 u	1.3 u
Trichloroethene (1)	UG/KG	1.4 u	1.4 u	1.6 u	1.2 u	1.3 u	1.3 u	1.4 u	1.3 u
PESTICIDES AND PCBs									
Aldrin (3)	UG/KG	0.87 u	0.98 u	0.93 u	0.96 u	0.93 u	0.96 u	0.96 u	0.96 u
Chlordane (2)	UG/KG	0.87 u	0.98 u	0.93 u	0.96 u	0.93 u	0.96 u	0.96 u	0.96 u
Dieldrin (3)	UG/KG	1.7 u	2 u	1.9 u	1.9 u	1.9 u	1.9 u	1.9 u	1.9 u
Heptachlor (3)	UG/KG	0.87 u	0.98 u	0.93 u	0.96 u	0.93 u	0.96 u	0.96 u	0.96 u
Lindane (3)	UG/KG	0.87 u	0.98 u	0.93 u	0.96 u	0.93 u	0.96 u	0.96 u	0.96 u
Total DDT	UG/KG	1.7 u	1.7 u	1.9 u					
Total PCBs	UG/KG	35 u	35 u	37 u	39 u	37 u	39 u	38 u	39 u
ORGANOMETALLICS									
Tributyltin (porewater) (2)	UG/L	0.02 u	0.07 u	0.02 u	- u	- u	- u	- u	- u

A dash indicates that no data exists for this analyte in DAIS

(1) = No BT exists (2) = No ML exists (3) = No BT or ML exists (4) = No SL or ML exists

END OF REPORT

Attachment 1



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
SEATTLE DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 3755  
SEATTLE, WASHINGTON 98124-3755

June 20, 2000

Robert Gilmour  
Pentac Environmental  
120 Third Avenue South, Suite 110  
Edmonds, WA 98020-8411

Dear Mr. Gilmour:

This letter provides the DMMP consensus response to your June 12, 2000 letter regarding the "Potential downranking of the Port of Everett 12<sup>th</sup> Street Channel Construction Project for DMMP characterization. Our files indicate that the pilot characterization conducted in 1990 supported the downranking of this area from "high" to "moderate" for testing in a July 25, 1990 letter provided to the Port of Everett's agent Jeff Layton (Attachement 1).

Moreover, the full characterization testing that was subsequently conducted in 1992 indicated that six of the eight Dredged Material Management Units (DMMUs) tested supported a low-moderate rank (see Appendix C of 1994 Biennial Report for Dredging Years 1992/1993), whereas the remaining two DMMUs tested supported a "low" rank (e.g., no chemical guideline exceedances). Testing during 1992 included the routine chemicals of concern, dioxin and guiacols, but did not include TBT. TBT analyses will have to be conducted as part of a full characterization for the marina expansion project.

The DMMP agencies conclude based on our review of the testing conducted in 1990 and 1992 that the data generally support an area downrank from "moderate" to "low-moderate" for future testing purposes.

Please call me (206/764-3768) if you have any questions about our response.

Sincerely,

David R. Kendall, Ph.D.  
Chief, Dredged Material Management Office

Copies Furnished:  
Justine Barton, EPA  
Rick Vining, Ecology  
Ted Benson, DNR  
DMMO File