CENPS-OP-DMMO

MEMORANDUM FOR RECORD 14 May 1993

SUBJECT: DECISION ON THE SUITABILITY OF DREDGED MATERIAL TESTED UNDER PSDDA GUIDELINES FOR THE PORT OF SEATTLE TERMINAL 115 DREDGING PROJECT (92-2-01363), FOR DISPOSAL AT THE PSDDA ELLIOTT BAY OPEN-WATER NONDISPERSIVE SITE.

1. The Port of Seattle proposes to dredge 3,000 cubic yards of sediments from Terminal 115, consisting of 1,700 cubic yards of maintenance material from the barge area and 1,300 cubic yards from an area proposed for dolphin construction. The following summary reflects the PSDDA agencies' (Corps, Department of Ecology, Department of Natural Resources and the Environmental Protection Agency) suitability determination for disposal of this material at the PSDDA Elliott Bay open-water nondispersive site.

2. The PSDDA agencies ranked the project area "high", based on the guidance provided in the PSDDA Management Plan Report, Phase II (page A-10) for projects on the Duwamish River.

3. A sampling and analysis plan was developed for this project and approved by the PSDDA agencies 18 December 1992.

4. Two dredged material management units (DMMUs) were characterized. Surface samples (from the sediment/water interface to the depth of proposed dredging) from three locations in the barge area were composited to represent DMMU C1. Surface samples from three locations in the dolphin area were composited to represent DMMU C2.

5. The chemistry data indicated that eleven detected exceedances of the Dredging Year 1993 PSDDA screening levels (SL) occurred for C1; two occurred for C2. See attachment 1 for SL exceedances. There were no exceedances of any bioaccumulation triggers or maximum levels.

6. The SL exceedances for C1 and C2 triggered the requirement for biological testing under the tiered testing approach. For this project concurrent biological testing was conducted. The amphipod 10-day acute toxicity test, echinoderm sediment larval combined mortality and abnormality (effective mortality) test, the *Neanthes* 20-day biomass test, and the Microtox bacterial luminescence test were conducted. PSDDA interpretation guidelines specified in the Phase II Management Plan Report (Sept 1989), modified by changes made at the second and fourth annual review meetings, were used to evaluate the bioassay data. The control sediment for the amphipod and *Neanthes* bioassays was collected at West Beach, while the seawater control for the sediment larval test came from the Seattle Aquarium. The reference sediment (all bioassays) came from Carr Inlet.

7. There were no hits for the *Neanthes*, sediment larval or Microtox bioassays. Reference sediments and negative controls performed within their respective performance standards and there were no quality assurance problems with any of these tests.

8. In the amphipod bioassay, C1 exhibited a mortality of 23 percent, which was greater than 20 percent over control (2 percent) and statistically different from reference. However, the mortality of C1 was not greater than 30 percent over reference (8 percent). Therefore, there was a hit under the two-hit rule for C1 in the amphipod test. There was no hit for C2 in the amphipod test. The reference sediment and negative control performed within their respective performance standards and there were no quality assurance problems with this test.

9. The single hit under the two-hit rule in the amphipod test was not corroborated by hits in any other bioassay. Therefore, C1 passed biological testing. There were no hits for C2 in any bioassay. Therefore, C2 passed biological testing.

10. In summary, the PSDDA-approved sampling and testing plan was followed, and quality assurance, quality control guidelines specified by PSDDA were generally complied with. The data gathered were deemed sufficient and acceptable for regulatory decision-making under the PSDDA program. Based on the results of the chemical and biological testing, the following consensus decision was made by the PSDDA agencies:

All 3,000 cubic yards proposed for dredging from the Port of Seattle Terminal 115 project (92-2-01363) are suitable for disposal at the Elliott Bay open-water nondispersive site.

11. This memorandum documents the suitability of proposed dredged sediments for disposal at a PSDDA open-water disposal site. It does not constitute final agency approval of the project. A public notice will be issued for this project. During the public comment period which follows the public notice, the resource agencies will provide input on the overall project. A final permit 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.

Port of Seattle-Terminal 115
92-2-01363

Concur:

13 May 1993
Date

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Seattle District Corps of Engineers

14 May 1993
Date

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17 May 1993
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18 May 93
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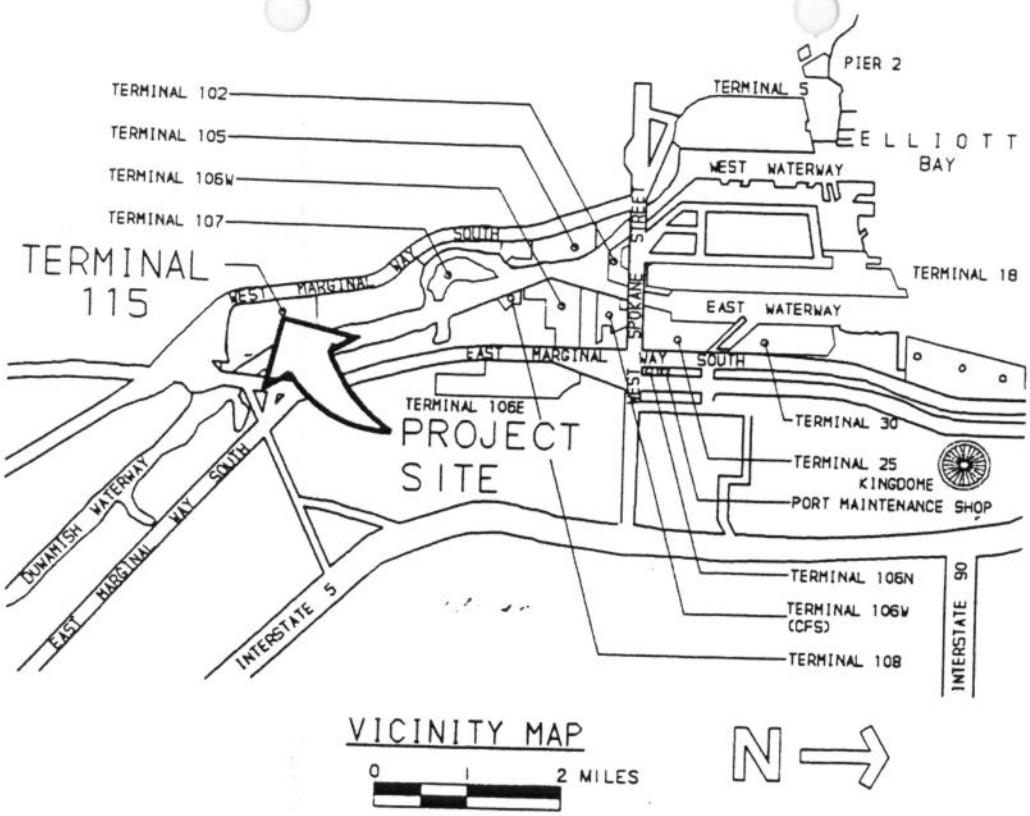
ATTACHMENT 1
Port of Seattle Terminal 115
92-2-01363

Chemical	C1(pier)	C2(dolphin)	PSDDA SL
Lead	88 mg/kg	---	66 mg/kg
Acenaphthene	86 ug/kg	---	63 ug/kg
Phenanthrene	330 ug/kg	---	320 ug/kg
Anthracene	250 ug/kg	---	130 ug/kg
Total LPAH	779 ug/kg	---	610 ug/kg
Fluoranthene	3300 ug/kg	---	630 ug/kg
Pyrene	3300 ug/kg	---	430 ug/kg
Benzo(a)anthracene	1000 ug/kg	---	450 ug/kg
Benzofluoranthenes	1420 ug/kg	---	800 ug/kg
Indeno(1,2,3-c,d)pyrene	220 ug/kg	---	120 ug/kg
Total HPAH	11444 ug/kg	---	1800 ug/kg
Total DDT	---	8.3 ug/kg	6.9 ug/kg
Total PCBs	---	172 ug/kg	130 ug/kg



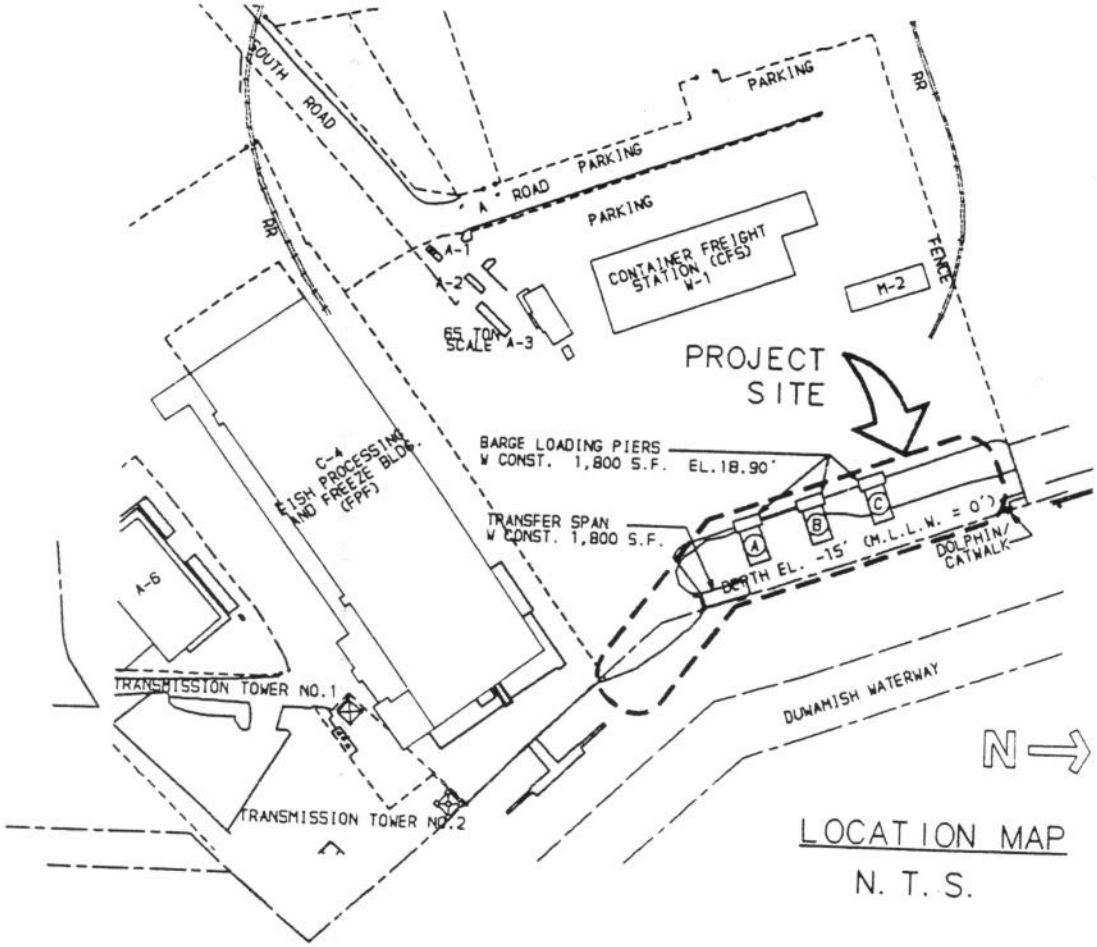
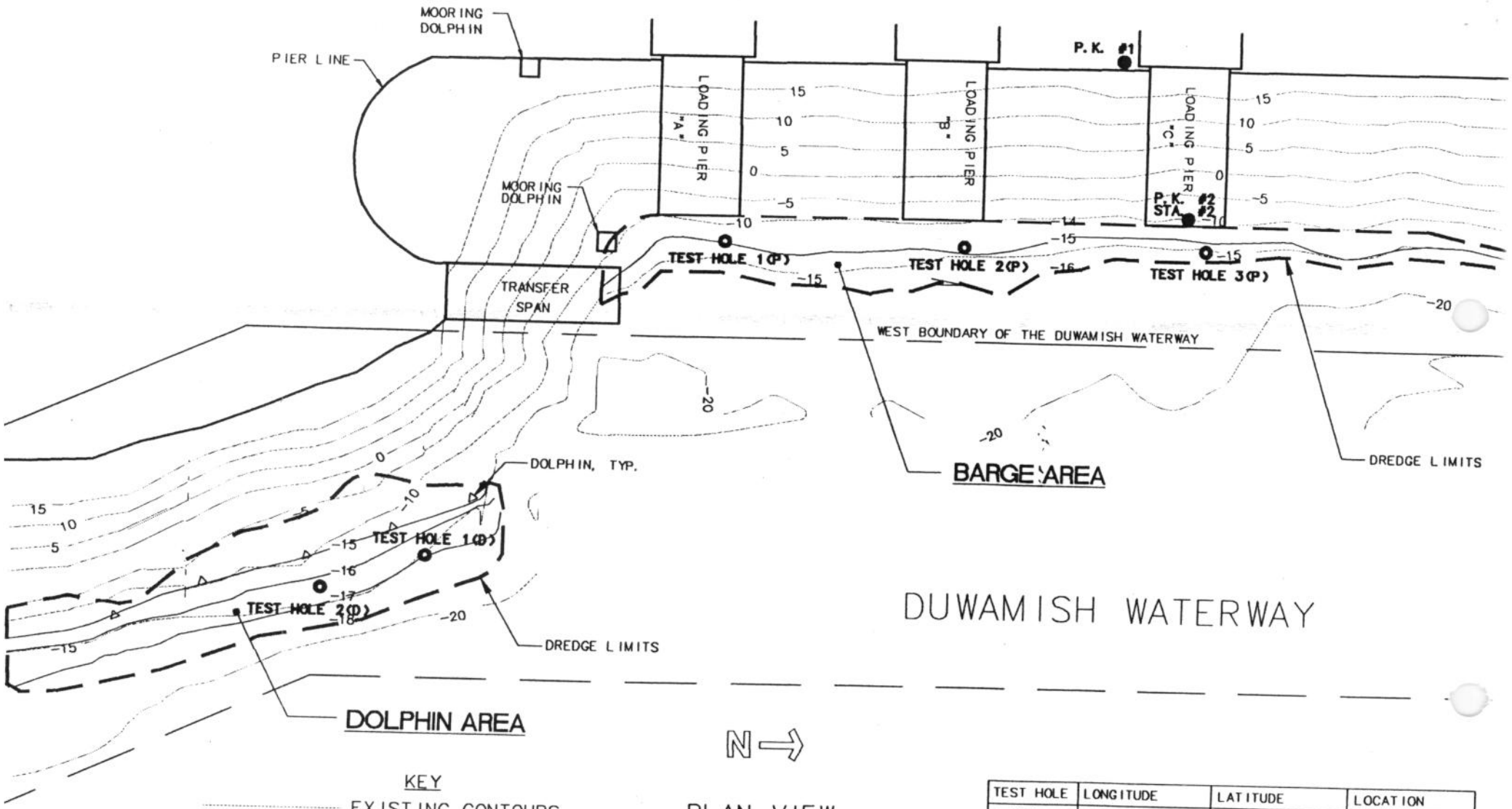


Figure 1. Vicinity Map Showing the Location of Terminal 115.



KEY

EXISTING CONTOURS

PROPOSED CONTOURS

SOUNDINGS IN FEET, MLLW

PLAN VIEW

30 0 30 60

scale feet

1"= 60'

TEST HOLE	LONGITUDE	LATITUDE	LOCATION
1 (P)	122 20 18.39433	47 32 38.42187	PIER A
2 (P)	122 20 19.30815	47 32 39.17767	PIER B
3 (P)	122 20 20.22198	47 32 39.93347	PIER C
4 (P)	122 20 17.75456	47 32 37.89303	DOLPHIN-NORTH
5 (P)	122 20 17.38883	47 32 37.59052	DOLPHIN-SOUTH

Figure 2. Test Hole Loacation Map

DAIS Value Table - Dry Weight Basis

Project: Port of Seattle T-115 (DY1993) PS1151BF065

	units	C1		C2	
SEDIMENT CONVENTIONALS					
Total Solids	%	67.6		67.2	
Volatile Solids	%	3.96		3.59	
Total Organic Carbon	%	2.5		1.3	
Ammonia	MG/KG	34		36	
Total Sulfides	MG/KG	620		330	
METALS					
Antimony (1)	MG/KG	3.8		3.3	
Arsenic	MG/KG	14		13	
Cadmium	MG/KG	0.26		0.23	
Chromium (4)	MG/KG	-		-	
Copper	MG/KG	54		44	
Lead (1)	MG/KG	88		47	
Mercury	MG/KG	0.07		0.08	
Nickel	MG/KG	28		19	
Selenium (4)	MG/KG	-		-	
Silver	MG/KG	0.87		1	
Zinc	MG/KG	150		110	
LPAH					
2-Methylnaphthalene (1)	UG/KG	21	u	21	u
Acenaphthene (1)	UG/KG	86		21	u
Acenaphthylene (1)	UG/KG	24		21	u
Anthracene (1)	UG/KG	250		21	u
Fluorene (1)	UG/KG	62		21	u
Naphthalene (1)	UG/KG	30		21	u
Phenanthrene (1)	UG/KG	330		57	
Total LPAH (1)	UG/KG	779		57	
HPAH					
Benzo(a)anthracene (1)	UG/KG	1000		57	
Benzo(a)pyrene (1)	UG/KG	670		57	
Benzo(g,h,i)perylene (1)	UG/KG	170		39	
Benzofluoranthenes (1)	UG/KG	1420		115	
Chrysene (1)	UG/KG	1300		80	
Dibenzo(a,h)anthracene (1)	UG/KG	64		21	u
Fluoranthene	UG/KG	3300		150	
Indeno(1,2,3-c,d)pyrene (1)	UG/KG	220		33	
Pyrene	UG/KG	3300		170	
Total HPAH (1)	UG/KG	11444		701	
CHLORINATED HYDROCARBONS					
1,2,4-Trichlorobenzene (1)	UG/KG	6.2	u	6.2	u
1,2-Dichlorobenzene (1)	UG/KG	3	u	3	u
1,3-Dichlorobenzene (3)	UG/KG	3	u	3	u
1,4-Dichlorobenzene (1)	UG/KG	3	u	3	u
Hexachlorobenzene	UG/KG	12	u	12	u
PHTHALATES					
Bis(2-ethylhexyl)phthalate (1)	UG/KG	920		250	

Butyl benzyl phthalate (1)	UG/KG	55		30	
Di-n-butyl phthalate (1)	UG/KG	21	u	21	u
Di-n-octyl phthalate (1)	UG/KG	21	u	21	u
Diethyl phthalate (1)	UG/KG	21	u	21	u
Dimethyl phthalate (1)	UG/KG	21	u	21	u
PHENOLS					
2 Methylphenol (1)	UG/KG	10	u	10	u
2,4-Dimethylphenol (1)	UG/KG	10	u	10	u
4 Methylphenol (1)	UG/KG	21	u	21	u
Pentachlorophenol	UG/KG	62	u	62	u
Phenol (1)	UG/KG	21	u	21	u
MISCELLANEOUS EXTRACTABLES					
Benzoic acid (1)	UG/KG	100	u	100	u
Benzyl alcohol (1)	UG/KG	12	u	12	u
Dibenzofuran (1)	UG/KG	36		21	u
Hexachlorobutadiene (1)	UG/KG	21	u	21	u
Hexachloroethane (1)	UG/KG	21	u	21	u
N-Nitrosodiphenylamine (1)	UG/KG	12	u	12	u
VOLATILE ORGANICS					
Ethylbenzene (1)	UG/KG	3	u	3	u
Tetrachloroethene (1)	UG/KG	3	u	3	u
Total Xylene (1)	UG/KG	3	u	3	u
Trichloroethene (1)	UG/KG	3	u	3	u
PESTICIDES AND PCBs					
Aldrin (3)	UG/KG	0.73	u	0.74	u
Chlordane (2)	UG/KG	0.73	u	0.74	u
Dieldrin (3)	UG/KG	0.98	u	0.98	u
Heptachlor (3)	UG/KG	0.73	u	0.74	u
Lindane (3)	UG/KG	0.73	u	0.74	u
Total DDT	UG/KG	3.3		8.3	
Total PCBs	UG/KG	59		172	
ORGANOMETALLICS					
Tributyltin (porewater) (2)	UG/L	-		-	

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