

CENPS-OP-DMMO

MEMORANDUM FOR RECORD

31 January 1995

SUBJECT: DETERMINATION OF THE SUITABILITY OF DREDGED MATERIAL TESTED UNDER PSDDA EVALUATION PROCEDURES FOR PORT OF SEATTLE'S TERMINAL 5 PIER EXTENSION (OYB-2-014832) FOR DISPOSAL AT THE PSDDA ELLIOTT BAY OPEN WATER DISPOSAL SITE.

1. The Port of Seattle proposes to dredge approximately 34,000 cubic yards of sediments as part of its extension of Terminal 5. The following summary reflects the PSDDA 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 the PSDDA Elliott Bay open-water disposal site.

2. The ranking for the project area is "high" based on guidance in the PSDDA Management Plan Report, Phase II (page A-10) for Elliott Bay. A partial characterization for the project was completed in March 1993 to characterize up to 163,400 cubic yards of sediment. Based upon this partial characterization, surface sediments (0-4 ft.) were down-ranked to "low-moderate." Subsurface sediments between 4-8 ft. were also down-ranked to "low-moderate." Based upon the partial characterization results, no additional sampling and testing was required for the subsurface sediments between 8-12 ft.

3. A sampling and analysis plan was completed for this project and approved by the PSDDA agencies on 17 May 1994. Sampling for this project was initiated on 14 June 1994.

4. Two dredged material management units (DMMUs) were characterized. Samples were taken from three locations and composited for two analyses, one characterizing the surface sediments (FC-1), representing 12,000 cubic yards of material. Another composite (FC-2) was used to characterize the 4-8 foot section, representing 9,500 cubic yards. Based upon the partial characterization, no testing was required in the 8-12 foot section, representing 12,500 cubic yards.

5. For composite FC-²~~1~~, the chemistry data indicated there were no detected exceedances of the Dredging Year 1995 PSDDA screening levels (SL). For composite FC-1 exceedances were detected for silver (2 ppm) and for anthracene (150 ppb).

6. The screening level exceedances triggered the requirement to do bioassays for composite FC-1. 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, fourth and sixth annual review meetings, were used to evaluate the bioassay data.

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7. Reference sediment for use in the bioassays was collected from Carr Inlet. Control sediment was collected from West Beach.

8. Bioassay results are listed in Attachment 1. Quality control problems were encountered in the performance of the reference sediment for the *Neanthes* biomass test. The reference had a mortality of 44%, exceeding the criteria. For this test, the control sediment was used for comparison. Use of the Microtox test for regulatory decision-making has been suspended during DY95 pending evaluation of the bioassay. No hits were observed in this project for the Microtox bioassay. The *Neanthes*, sediment larval, and Microtox bioassays all passed PSDDA interpretive criteria. The amphipod bioassay exhibited a hit under the "two-hit" rule (statistically significant from reference). In the absence of any other bioassay hits, this DMMU is found suitable for open-water disposal.

9. In summary, PSDDA approved protocols and procedures were 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 PSDDA agencies concluded that up to 34,000 cubic yards of proposed dredged material are suitable for unconfined open-water disposal at a PSDDA non-dispersive site.

10. This memorandum documents the suitability of proposed dredged sediments for disposal at a PSDDA open-water disposal site. This determination of suitability does not preclude the consideration of this material for an appropriate beneficial use. It does not constitute final agency approval of the project. During the public comment period which follows a public notice, the resource agencies will provide input on the overall project. 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.

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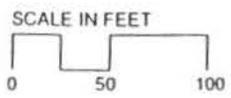
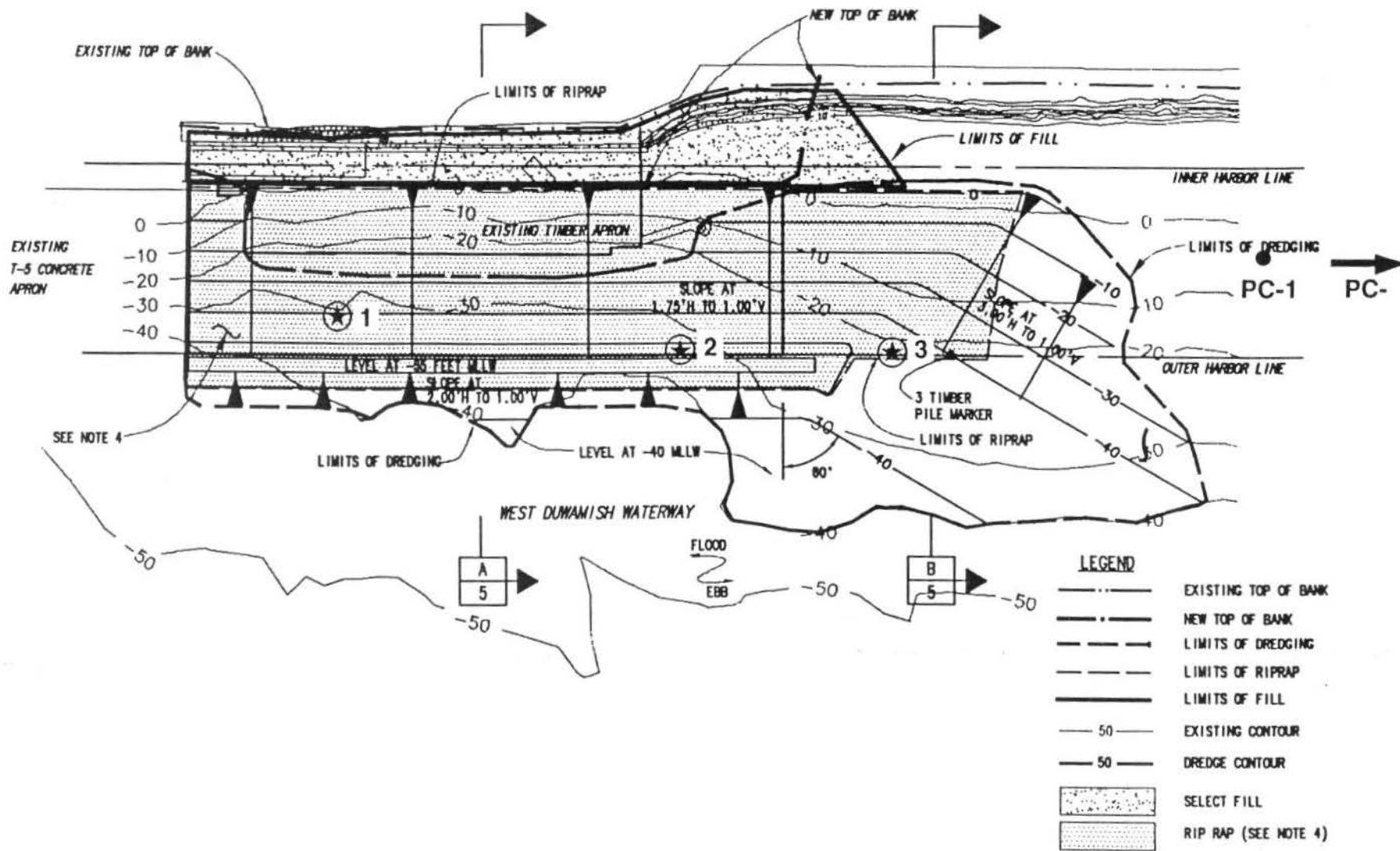
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Table 1. Summary of DMMU and Sediment Conventional Parameters

Conventional Parameters	FC-1	FC-2
DMMU volume (cubic yards)	12,000	9,500
Grain Size (%)		
Gravel	0.0	0
Sand	51	77
Silt	38	16
Clay	9	3
Total Solids (%)	77	73
Total Volatile Solids (%)	1.7	1.9
Total Organic Carbon (%)	0.28	0.36
Bulk Ammonia (mg/kg)	18	17
Total Sulfides (mg/kg)	0.16	0.40

Attachment 1. Bioassay Results

	Positive Control	Control	Carr 4 Reference Sediment	FC-1
Amphipod Mortality (%)	0.226	0	19	42
Echinoderm Combined Mortality/Abnormality (%)	14.39	NA	13.4	12.8
20-Day Neanthes Growth	4.73	0.42	0.43	0.44
Microtox (% light change)	31.55	NA	4.12	-2.22
Interpretation				PASS



- Sample Locations from 1992 Partial Characterization
- ★ Full Characterization Sample Locations

Figure 3.
Port of Seattle Terminal 5
Pier Expansion: Overview
of Dredge Plan