

19 June 1990

SUBJECT: DECISION ON THE SUITABILITY OF DREDGED MATERIAL TESTED UNDER PSDDA CRITERIA FOR THE TRISTAR MARINE MAINTENANCE DREDGING PROJECT (OYB-2-013209) TO BE DISPOSED OF AT THE ELLIOT BAY OPEN-WATER DISPOSAL SITE.

1. The following summary reflects the PSDDA agencies (Corps, 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 (delivered to the Corps October 19, 1989 and May 22, 1990 respectively) to make a determination of suitability of the 5,500 cubic yards of material proposed for dredging from the Tristar Marine project site for disposal at a PSDDA open-water site.
2. 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.
3. Two dredged material management units were characterized. Test sample C1 consisted of sediment (0-4 ft) from sampling station 1 and 2 (see Enclosure 1 - plan view) representing the surface sediment from the entire project area. Test sample S1 characterized the subsurface sediments (4-8 ft) from sampling station 1 on the north end of the project.
4. Chemistry data indicated that exceedances of the 1989 PSDDA screening levels (SL) occurred for both analyses. Test sediment C1 had eighteen screening level exceedances while S1 had one. In addition, analysis of pesticides and total PCBs for both management units resulted in sample-specific detection limits exceeding PSDDA SL's. No PSDDA maximum levels or bioaccumulation triggers were exceeded for samples S1 or C1. See Enclosure 2 for a table of all PSDDA screening level exceedances. The SL exceedances for S1 and C1 would normally trigger the requirement for biological testing. In this case concurrent bioassays were conducted.
5. The amphipod 10-day mortality test, Echinoderm sediment larvae combined mortality and abnormality test, Neanthes juvenile infaunal 10-day mortality test and the Microtox bacterial luminescence test were conducted. PSDDA interpretation guidelines specified in June 1988 EPTA, and Bivalve larvae/Echinoderm embryo bioassay interpretation guidelines clarified in the Phase II MPR were used to evaluate the bioassay data. Interpretation guidelines clarified in the Phase II MPR for the sediment larvae bioassay specified necessary clarifications and changes in the mortality and abnormality performance standards for control sediment, reference sediment, and dredged material relative to those specified in June 1988 EPTA. In general the bioassays performed well with respect to appropriate control sediment and seawater control guidelines as specified by PSDDA. The control sediment was from West Beach. The reference sediment (Carr Inlet) was not well-matched to the test sediments but this did not have any consequences for the bioassays: none of the sediments demonstrated dose-responsiveness for Microtox (testing occurred before revisions from the second annual PSDDA review meeting were placed in effect), no test sediment exhibited mortalities for the amphipod or Neanthes test greater than twenty percent over control, and the reference sediment outperformed the seawater control in the Echinoderm test.

6. The bioassays reflected the chemical analysis results. Sample C1 failed the Echinoderm sediment larvae test with a combined mortality and abnormality exceeding the reference sediment by 89.2 percent; the mean mortality was significantly different at the alpha = .05 level. The results of this bioassay alone fail this dredged management unit under the "single hit" rule (Phase II MPR, page A-25). Sample S1 had no hits for any of the bioassays. Therefore the dredged material management unit characterized by sample S1 passed the biological testing guidelines and is suitable for open-water disposal.

7. Based on the above discussion and summary of chemical and bioassay results for the Tristar Marine project area, the PSDDA agencies concluded that 2,000 cubic yards of proposed dredged material was suitable for unconfined open-water disposal at the ~~Port Gardner~~ disposal site, whereas 3,500 cubic yards of material was found to be unsuitable for open-water unconfined disposal. A dredging plan must be approved by the Corps of Engineers which is adequate for separating the surface sediments from the subsurface sediments for this project.

Elliott Bay

Concur:

10 July 1990
Date

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

19 June 1990
Date

David D. Fox
David Fox
Seattle District Corps of Engineers

19 June 1990
Date

John Malek
John Malek
Environmental Protection Agency, Region X

3 July 1990
Date

Rick Vining
Rick Vining
Washington Department of Ecology

10 July 1990
Date

Betsy Striplin
Betsy Striplin
Washington Department of Natural Resources

Enclosures

Copies Furnished:

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DMMU file

SUMMARY OF ANALYSIS RESULTS
 TRISTAR MARINE
 OYB-2-013209

1. SEDIMENT QUALITY VALUE EXCEEDANCES AND BLANK DATA

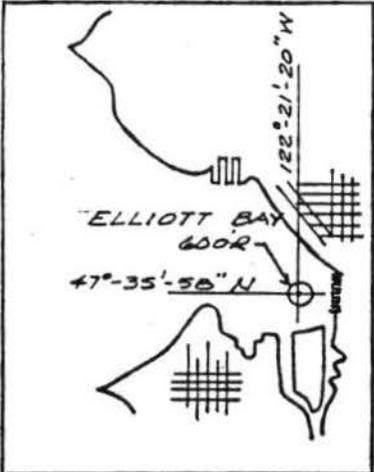
CHEMICAL	1989 SL	1989 BT	1989 ML	6501 C1	6502 S1	6502 S1	DUP S1 DUP	Method Blank
=====								
METALS (ppm dry):								
Antimony	20	126	200					
Arsenic	57	393.1	700					
Cadmium	0.96		9.6	1 ✓				
Copper	81		810	170 ✓				
Lead	66		660	99 ✓				12
Mercury	0.21	1.5	2.1	0.47 ✓				
Nickel	140	504						2
Silver	1.2	4.6	6.1					
Zinc	160		1,600	250 ✓				1
ORGANIC CHEMICALS (ppb dry):								
LPAHs								
Naphthalene	210		2,100	430 ✓				
Acenaphthylene	64		640	150 ✓				
Anthracene	130		1,300					
Acenaphthene	63		630	140 ✓				
Fluorene	64		640	120 ✓		130 ✓		
Phenanthrene	320		3,200	770 ✓				
2-Methylnaphthalene	67		670	100 ✓				
Total LPAH	610		6,100	1800 ✓				
HPAHs								
Fluoranthene	630	4,600	6,300	880 ✓				
Pyrene	430		7,300	900 ✓				
Benzo(a)anthracene	450		4,500					
Chrysene	670		6,700					
Benzo(a)fluoranthene	800		8,000					
Benzo(a)pyrene	680	4,964	6,800					
Indeno(1,2,3-c,d)pyrene	69		5,200					
Dibenzo(a,h)anthracene	120		1,200					
Benzo(g,h,i)perylene	540		5,400					
Total HPAH	1,800		51,000	3000 ✓				

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1. SEDIMENT QUALITY VALUE EXCEEDANCES AND BLANK DATA

CHEMICAL	1989 SL	1989 BT	1989 ML	6501 C1	6502 S1	6502 DUP S1 DUP	Method Blank
CHLORINATED HYDROCARBONS							
1,3-Dichlorobenzene	170	1,241					
1,4-Dichlorobenzene	26	190	260				
1,2-Dichlorobenzene	19	37	350				
1,2,4-Trichlorobenzene	6.4		64				
Hexachlorobenzene	23	168	230				
PHTHALATES							
Dimethyl Phthalate	160	1,168					
Diethyl Phthalate	97						
Di-n-butyl phthalate	1,400	10,220					
Butyl benzyl phthalate	470						
Bis(2-ethylhexyl)phthalate	3,100	13,870					41
Di-n-octyl phthalate	6,200						
PHENOLS							
Phenol	120	876	1,200	140 ✓			270
2-Methylphenol	10		72				
4-Methylphenol	120		1,200	130 ✓			
2-4-Dimethylphenol	10		50				
Pentachlorophenol	69	504	690				
MISCELLANEOUS EXTRACTABLES							
Benzyl Alcohol	10		73				
Benzoic Acid	216		690				
Dibenzofuran	54		540	58 ✓			
Hexachloroethane	1,400	10,220					
Hexachlorobutadiene	29	212	290				
N-Nitrosodiphenylamine	22	161	220				
VOLATILES							
Trichloroethene	160	1,168	1,600				
Tetrachloroethene	14	102	210				
Ethylbenzene	10	27	50				
Total Xylene	12		160				
PESTICIDES							
Total DDT	6.9	50	69	10 U ✓	8.6 U ✓	8.6 U	
Aldrin	10	37		15 U ✓	13 U ✓	13 U	
Chlordane	10	37		15 U ✓	13 U ✓	13 U	
Dieldrin	10	37		15 U ✓	13 U ✓	13 U	
Heptachlor	10	37		15 U ✓	13 U ✓	13 U	
Lindane	10	37		15 U ✓	13 U ✓	13 U	
TOTAL PCBs	130	38*	2,500	190 U ✓	160 U ✓	160 U	
SEDIMENT CONVENTIONALS							
Ammonia (mg/kg dry)				60	35		
Sulfide (mg/kg dry)							

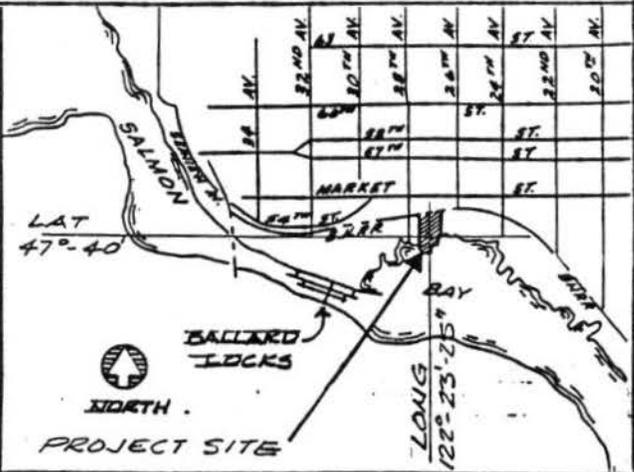
* Value normalized to Total Organic Carbon
 (TOC normalized: 247.2*.463 (TOC) = 10.41)



Location of Center of Elliott Bay Disposal Site

47° 35.97' N 122° 21.38' W
by 1927 North American Datum

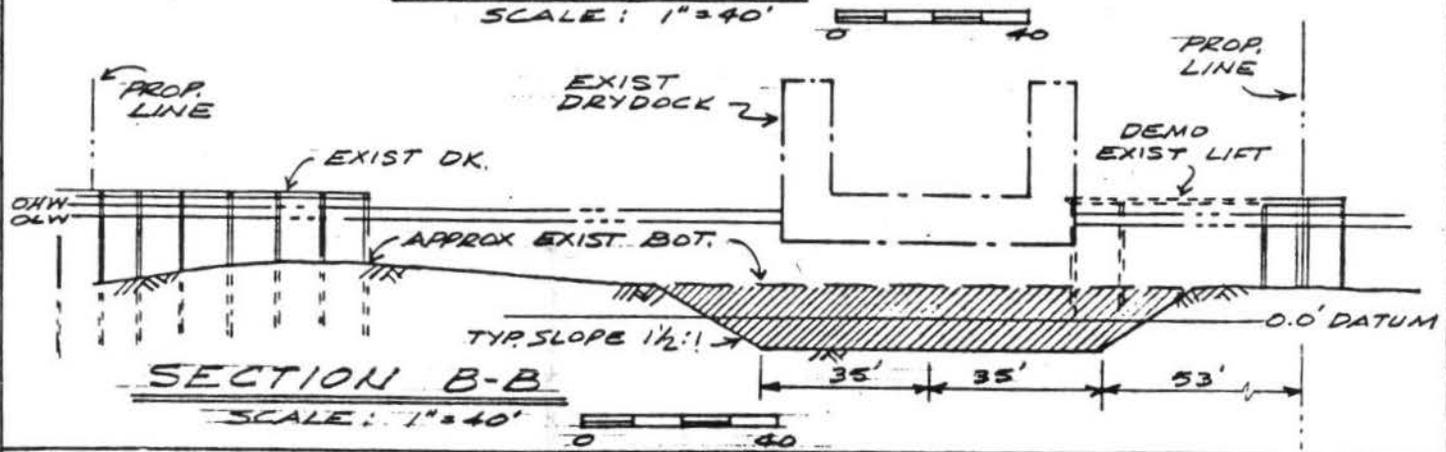
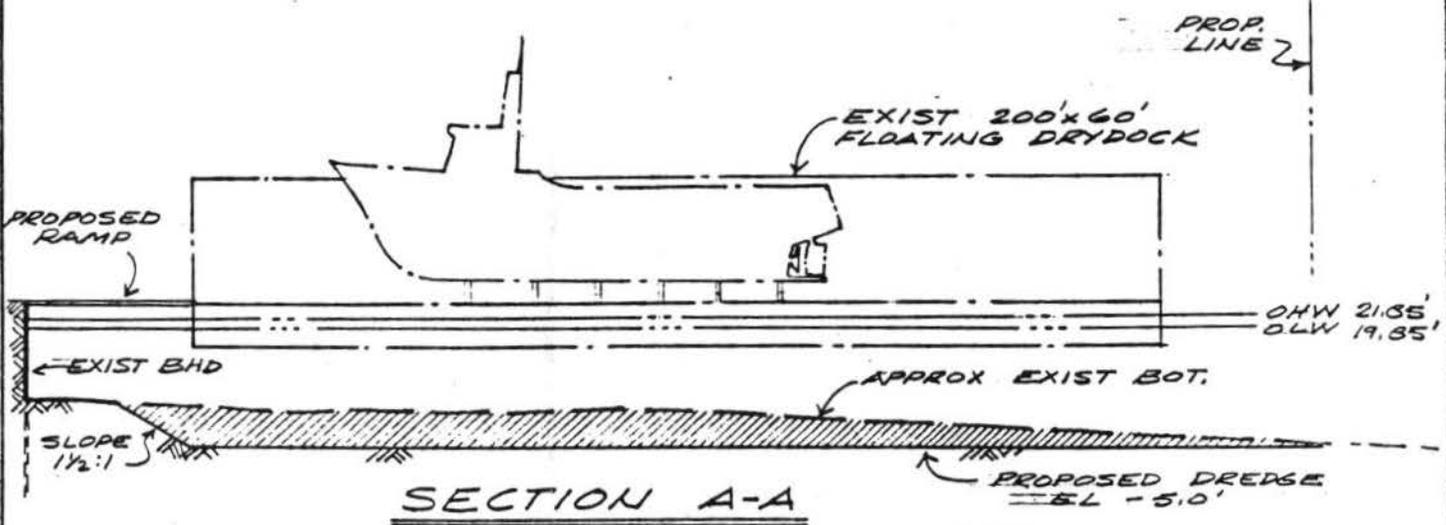
47 35.96 N 122 21.45 W
by 1983 North American Datum



DISPOSAL SITE

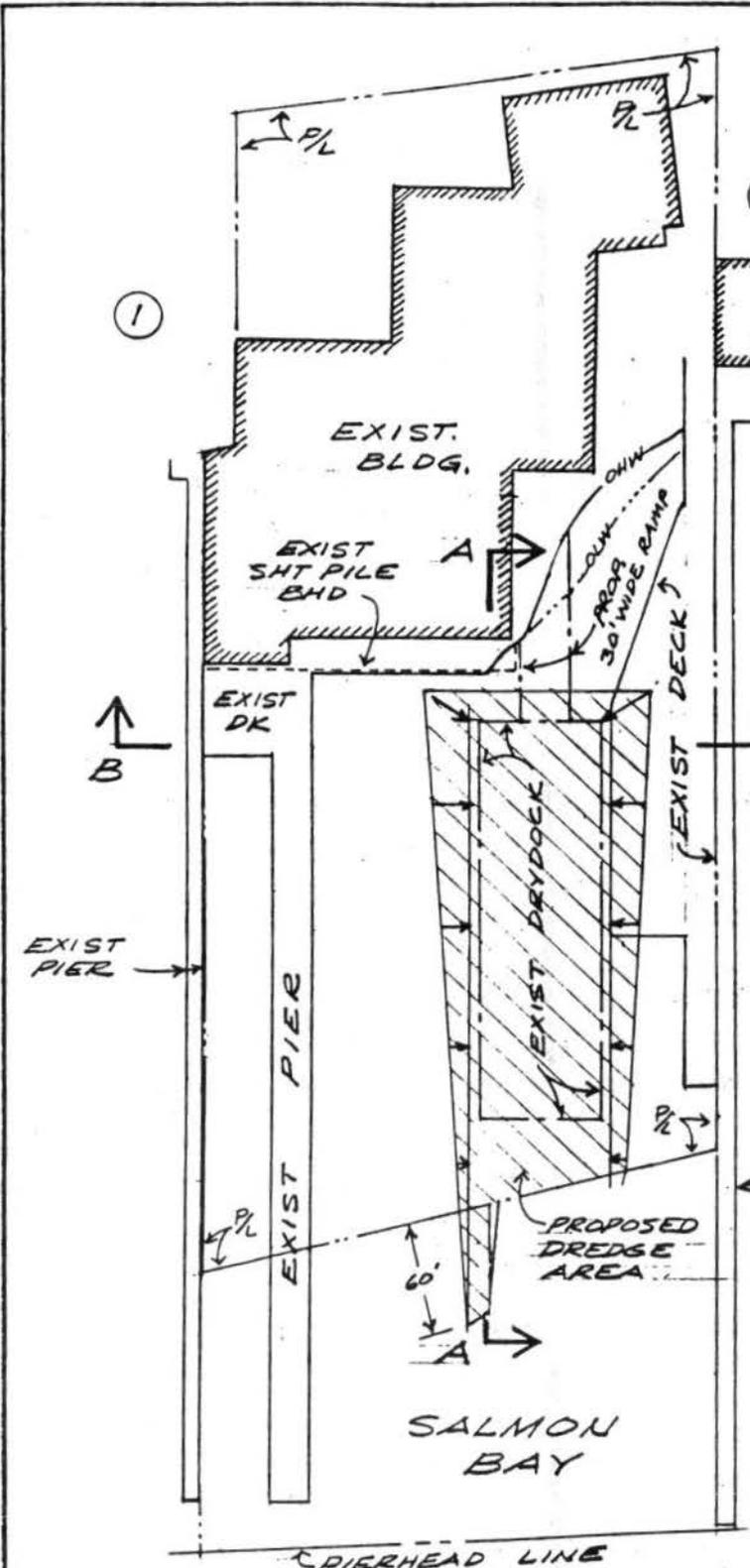
SCALE:
0 1 2 3 MI

VICINITY MAP



APPLICATION FOR
TRISTAR MARINE INC.
2629 N.W. 54TH ST
SEATTLE, WASH, 98107
APPLIC. 0YB-2-0YB209

PROPOSED
DREDGING W/
DEEPWATER DISPOSAL
IN SALMON BAY
CITY OF SEATTLE
KING COUNTY, WASH.



NOTES

1. PURPOSE: DREDGE FOR DRYDOCK TO ACCOMMODATE LARGER COMMERCIAL VESSELS AT EXISTING SHIPYARD.
2. ELEVS. REFERRED TO ARMY ENGINEERS LK. WASH. DATUM.
3. DREDGE BY CLAMSHELL APPROX. 3500 CY TO BE DISPOSED OF AT UNSPECIF'D UPLAND DISPOSAL SITE. DREDGE APPROX. 2000 CY FOR DISPOSAL AT DNR ELLIOTT BAY DISPOSAL SITE.
4. REF: 071-07B-1-002680
071-07B-2-008995
5. ADJACENT OWNERS:
 ① MR & MRS MARION M'GINNIS
 ② MR & MRS WARREN R. AAKERVIK

PLAN
SCALE IN FEET
0 100

Sheet 2 of 2

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TRISTAR MARINE INC.
2629 N.W. 54TH ST
SEATTLE, WASH, 98107
APPLIC. 07B-2-013209

PROPOSED
DREDGING W/
DEEPWATER DISPOSAL
IN SALMON BAY
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