

21 September 1993

SUBJECT: DETERMINATION ON THE SUITABILITY OF DREDGED MATERIAL TESTED FOR THE PORT OF GRAYS HARBOR TERMINAL FOUR MAINTENANCE DREDGING AREA FOR DISPOSAL AT EITHER THE SOUTH JETTY OR POINT CHEHALIS ESTUARINE OPEN WATER DISPOSAL SITES, OR AT THE 3.9 MILE OCEAN DISPOSAL SITE.

1. The following summary reflects the consensus determination of the Agencies' (U.S. Army Corps of Engineers, Department of Ecology, Department of Natural Resources, and the Environmental Protection Agency) with jurisdiction on dredging and disposal on the suitability of the estimated 5,000 cubic yards of material, which was maintenance dredged during spring 1993 from the Terminal Four berthing area and disposed at the Point Chehalis estuarine disposal site. The determination of suitability is based on the acceptability of the sampling conducted and all relevant test data contained in July 6, 1993 SAIC Data Summary Report relative to disposal at either the South Jetty, or Point Chehalis estuarine sites, or at the 3.9 mile ocean disposal site.
2. The results of these testing data will be used to assess future maintenance dredging testing requirements under the interim testing guidelines for Grays Harbor and Willapa Bay as agreed to by the Agencies with jurisdiction over dredging and disposal.
3. The sampling and testing conducted generally complied with quality assurance/quality control guidelines specified by PSEP and the PSDDA program. The data gathered were deemed sufficient and acceptable for decision making by the Agencies based on best professional judgement.
4. Chemistry data from one composited sample from six sampling locations indicated that there were no chemical exceedances of PSDDA screening level values except hexachlorobutadiene, which was quantitated at < 33 ppb, where the detection limit slightly exceeded the PSDDA SL of 29 ppb. The carbon normalized concentration was 1.2 ppm for hexachlorobutadiene, which is below the Washington State Sediment Quality Standard (SQS) of 3.9 ppm. PSDDA SL's and SQS are used in Puget Sound to establish a concern for biological effects, where chemicals below the SL and SQS have a low level of concern. Given the carbon normalized comparison to the SQS, there is little concern that the slight SL exceedance of this chemical detection limit is a cause for concern requiring confirmatory biological testing. Based on the chemistry data results discussed above, no biological testing was required based on best professional judgement.
5. One composited sediment sample was also analyzed for dioxins by Twin City Testing Corporation utilizing EPA method 8290. These data are summarized in enclosure 1. Results indicated that 2,3,7,8 TCDD (Tetrachloro-Dibenzo-p-Dioxin) was detected at 3.0 ppt (parts per trillion). This congener is regarded by the EPA as the most toxic form of dioxin. A few other less toxic dioxin congeners were detected at low parts per trillion concentrations. In the following table, the toxicity equivalence in terms of 2,3,7,8-TCDD is shown for the nine most toxic congeners of furan and dioxin.
6. One way to summarize potential toxicity for mammals is to calculate the toxicity equivalent concentrations (TEC) measured in tissue. Total TEC is calculated by multiplying the toxicity equivalent factor (TEF) by the congener specific concentration and summing the TEC's for all

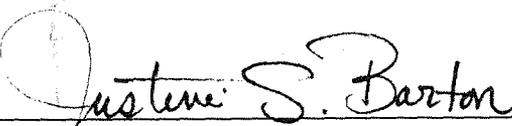
congeners. Total TEC comparisons are usually used for food ingestion, and have limited applicability to sediment because TEC does not consider the relative bioavailability of the congeners. Accordingly, TEC overstates toxicity to mammals when applied to sediments. TEC as a toxicity measure does not apply to fish, shellfish or birds. For comparison purposes only, the TEC totaled 9.07 pptr for all congeners of dioxin quantified by EPA method 8290.

7. Based on the Agencies' present best professional judgment, these low concentrations are unlikely to be environmentally harmful for this project. The Agencies' consensus is that the material is suitable for either estuarine or ocean unconfined open-water disposal relative to these dioxin test results.

8. The Agencies concluded based on the above discussion and summary of sediment chemical and biological characterization results for the Port of Grays Harbor's Terminal Four berthing area maintenance area, that all the dredged material tested (5,000 cubic yards) was suitable for disposal at either the South Jetty or Point Chehalis estuarine disposal sites, or at the 3.9 mile ocean disposal site.

Concur:

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Enclosure

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DMMO File

Port of Grays Harbor Terminal-4 Dioxin Testing Summary

Dioxin Congeners	C1	1/2 DL	TEF	TEC	C1-DUP	1/2 DL	TEF	TEC
2378-TCDD	3.00		1	3	2.70		1	2.7
12378-PeCDD	4.30		0.5	2.15	3.60		0.5	1.8
123478-HxCDD	1.40		0.1	0.14	1.60 u	0.8	0.1	0.08
123678-HxCDD	5.00		0.1	0.5	4.80		0.1	0.48
123789-HxCDD	9.30		0.1	0.93	9.50		0.1	0.95
1234678-HpCDD	110.00		0.01	1.1	96.00		0.01	0.96
OCDD	640.00		0.001	0.64	670.00		0.001	0.67
2378-TCDF	3.40		0.1	0.34	3.60		0.1	0.36
12378-PeCDF	0.77 u	0.385	0.05	0.01925	0.74 u	0.37	0.05	0.0185
23478-PeCDF	0.66 u	0.33	0.5	0.165	0.93 u	0.465	0.5	0.2325
123478-HxCDF	2.00		0.1	0.2	3.70 u	1.85	0.1	0.185
123678-HxCDF	0.72		0.1	0.072	0.58 u	0.29	0.1	0.029
234678-HxCDF	1.50		0.1	0.15	1.70		0.1	0.17
123789-HxCDF	1.20 u	0.6	0.1	0.06	1.20 u	0.6	0.1	0.06
1234678-HpCDF	19.00		0.01	0.19	17.00		0.01	0.17
1234789-HpCDF	0.55		0.01	0.0055	0.83 u	0.415	0.01	0.00415
OCDF	35.00		0.001	0.035	29.00		0.001	0.029
TOTAL TEC				9.70				8.90

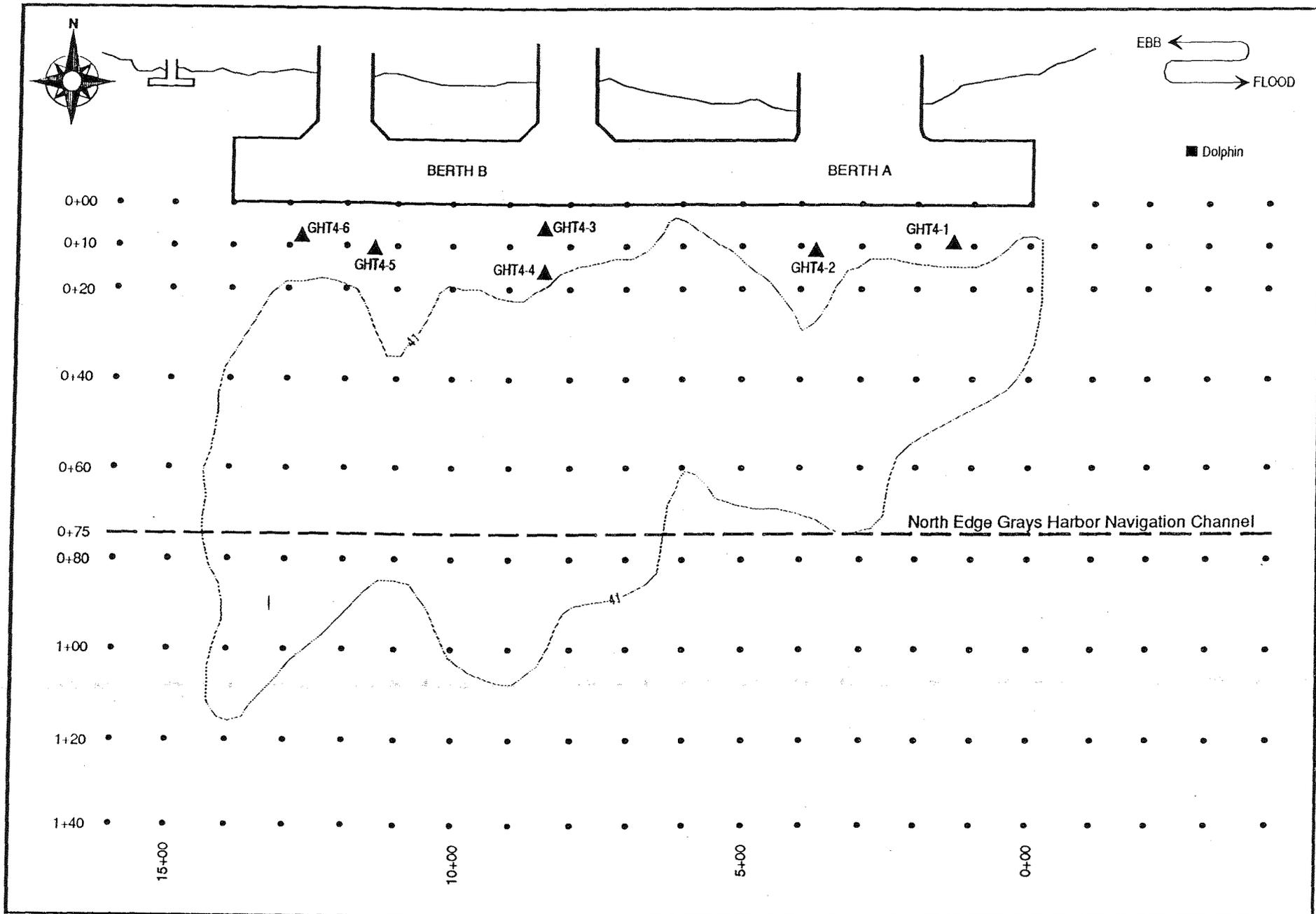


Figure 1. Station locations for the sediment characterization of Port of Grays Harbor Terminal 4 sediments.