CENPS-OP-DMMO

MEMORANDUM FOR RECORD 08 May 1995

SUBJECT: DETERMINATION OF THE SUITABILITY OF DREDGED MATERIAL, TESTED UNDER THE INTERIM GUIDELINES FOR DREDGING AND DISPOSAL AT GRAYS HARBOR AND WILLAPA BAY, FOR THE PORT OF GRAYS HARBOR TERMINAL 2 PROPOSED DOWNRANKING FROM 'MODERATE' TO 'LOW-MODERATE.'

1. The Port of Grays Harbor is seeking a downranking of Terminal 2 area sediments from 'moderate' to 'low-moderate.' To determine if the sediments are suitable for downranking, the agencies with jurisdiction on dredged material disposal (Corps, Department of Ecology, Department of Natural Resources and the Environmental Protection Agency) required additional sampling and testing to supplement previous years' data. The following summary reflects the agencies' consensus determination for downranking of this area.

2. The agencies currently rank the project area 'moderate,' based on the guidance provided in the Interim Guidelines for Dredging and Disposal at Grays Harbor and Willapa Bay (herein referred to as 'Interim Guidelines'), and sample collection and analysis for the downranking investigation was conducted under the Interim Guidelines for a moderate-ranked area.

3. In sediment characterizations conducted in 1992 and 1994, Terminal 2 sediments were found to be suitable for unconfined, open-water disposal. In the 1994 study, screening levels (SLs) were not exceeded and biological testing was not required.

4. A sampling and analysis plan was developed for full characterization and approved by the agencies on February 1, 1995. Sampling was conducted on February 2, 1995.

5. Three dredged material management units (DMMUs) were characterized. Terminal 2 berth area sediments are considered homogenous (with no distinction between surface and subsurface sediments) and were therefore characterized with grab samples (Composite samples C1, C2 and C3). Each DMMU was represented by five grab samples.

6. The chemistry data indicated that none of the DMMUs had any detected or undetected exceedences of the Interim Guidelines SLs for the chemicals of concern.

7. Dioxin and furan analysis was performed for one DMMU composite collected at Terminal 2 (Sample C1). Initial results showed high relative percent difference (RPD) values between the sample and reference, and were considered invalid due to quality assurance concerns. The analyses were repeated, and the RPDs were acceptable. Many dioxin and furan congeners were detected at low levels in the sample and duplicate.

8. Values for 2,3,7,8-tetrachlorodibenzo(p)dioxin (TCDD) were 4.3 ng/kg for the sample and 4.0 ng/kg for the duplicate. For 2,3,7,8-tetrachlorodibenzofuran (TCDF), the values were 1.1 ng/kg for the sample and 1.4 ng/kg for the duplicate. The TCDF results may include contributions from other TCDF isomers, according to the laboratory which performed the analyses.

9. 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 TECs for all congeners. Total TEC comparisons are usually used for food ingestion, and have limited applicability to sediment because TEC doe 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 11 ng/kg for all congeners of dioxin quantified by EPA Method 8290.

10. 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 downranking relative to these dioxin test results.

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

All sediments (60,000 cy) from the Port of Grays Harbor Terminal No. 2 were found suitable for open-water disposal. All detected chemicals of concern were below Interim Guidelines SLs and biological testing was not required under the tiered approach. Dioxin and furan concentrations were below the interim guideline screening limits. Overall concentrations of detected chemicals of concern did not increase appreciably between 1994 and 1995. These results support downranking the Port of Grays Harbor Terminal No. 2 dredging area from 'moderate' to 'low-moderate.'

12. Based on the proposed 'low-moderate' ranking for this project, under recency guidelines the data collected for the full characterization of project sediments are valid for 5-7 years after the sampling date. If a "changed condition" (e.g. after a spill event, or based on new information on dioxin toxicity levels) occurs between the date of this suitability determination and the time of dredging, the agencies will determine whether additional sampling and testing are required prior to dredging.

13. This memorandum documents the suitability of proposed dredged sediments for disposal at a Grays Harbor open-water disposal site, and for agency downranking of dredging area sediments. This suitability determination does not constitute final agency approval of the project.

Concur:

May 8, 1995
Date

David Kendall, Ph.D
Seattle District Corps of Engineers

May 8, 1995
Date

Therese Littleton
Seattle District Corps of Engineers

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Justine Barton
Environmental Protection Agency, Region 10

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Sandra Manning
Washington Department of Ecology

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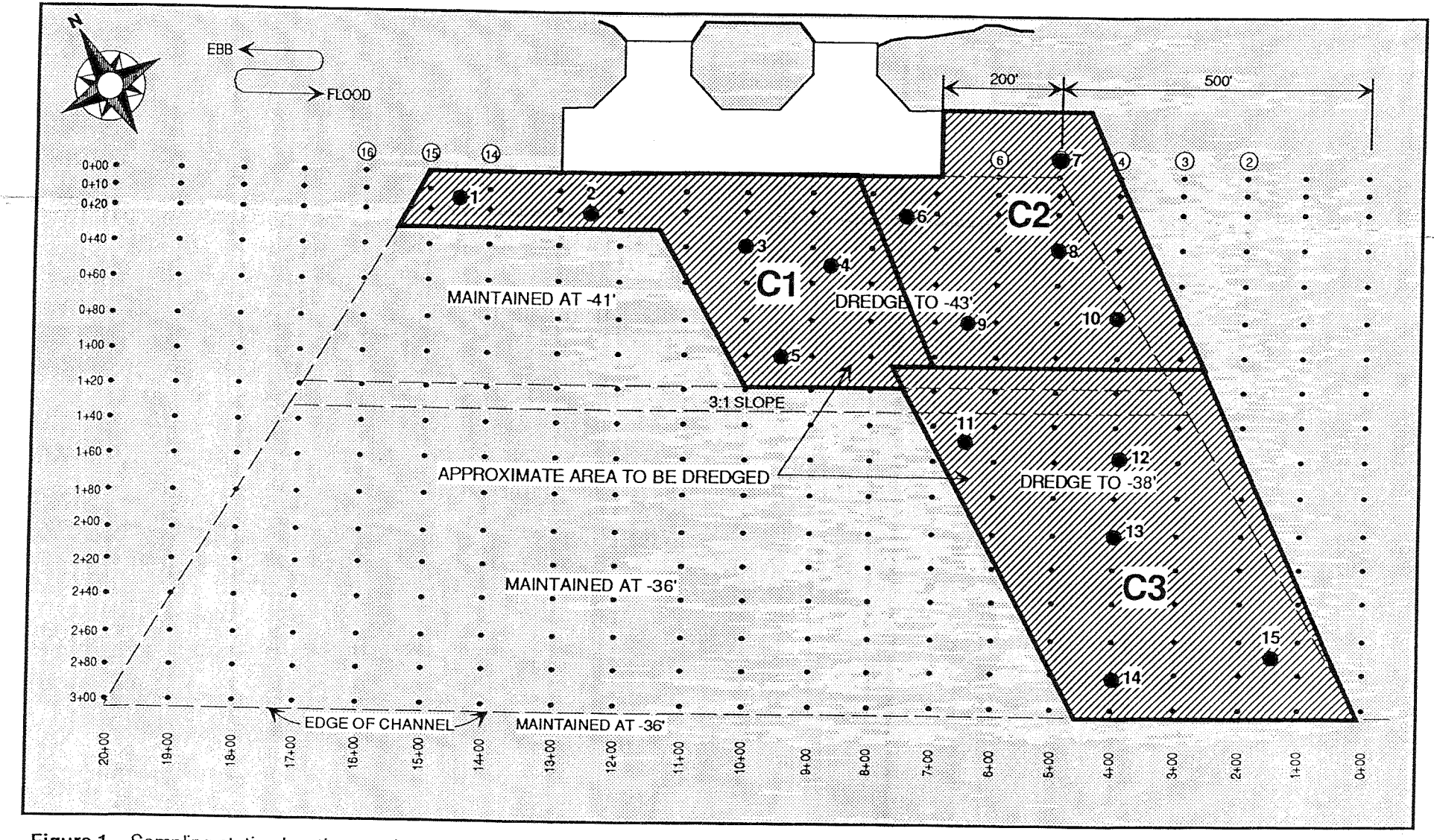

Figure 1. Sampling station locations and compositing scheme at Terminal No. 2, Port of Grays Harbor. The three composites represent DMMUs to be dredged.