CENWS-OD-TS-DM 28 September 2005

MEMORANDUM FOR RECORD

SUBJECT: DETERMINATION OF THE SUPPLEMENTAL SUITABILITY OF SEDIMENT PROPOSED TO BE MAINTENANCED DREDGED FROM DAKOTA CREEK INDUSTRIES (DCI) SHIPYARD FACILITY/PIER 1, ANACORTES, WA FOR OPEN-WATER DISPOSAL AT THE PORT TOWNSEND WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES (DNR) OPEN WATER DISPOSAL SITE, AS EVALUATED UNDER SECTION 404 OF THE CLEAN WATER ACT.

1. The following summary reflects the consensus determination of the agencies that comprise the regional Dredged Material Management Program (DMMP) for the State of Washington. The agencies include the Corps of Engineers, Department of Ecology, Department of Natural Resources, and the Environmental Protection Agency. The agencies are charged with determining the suitability of proposed dredged material for in-water disposal and have evaluated the proposed maintenance dredging of 273,000 cubic yards (CY) from the Dakota Creek Industries (DCI) Shipyard Facility and Port of Anacortes Pier 1 located in Anacortes, WA.

The Port of Anacortes proposes to dredge approximately 241,000 cy of sediment from the two DMMUs at the DCI site and approximately 32,000 CY from the two DMMUs at the adjacent Pier 1 site. Of the 241,000 CY of sediment proposed for dredging at the DCI site, approximately 230,000 cy did not exceed PSDDA Screening Levels (SLs) and subsequently were determined to be suitable for open-water disposal whereas, approximately 16,000 CY (surficial material located within DMMU 1) will require disposal at an appropriate upland facility. All of the 32,000 CY characterized at Pier 1 did not exceed SLs and was determined to be suitable for open water.

Dioxin was not previously identified as a potential contaminant of concern in the initial sediment characterization studies, and subsequently, was not analyzed. To address concerns for the potential for contamination associated with historical pulp mill-related discharges at the site, four core samples were collected from the 2 to 4 foot layer within the established DCI and Pier 1 DMMUs and analyzed for dioxin. The stations will be located to sample historically-deposited material present at the 2 to 4 foot interval. Selection of specific sampling locations was based on a review of core log observations available from previous dredge material characterization studies, conservatively focusing on areas of finer-grained sediment deposits.

Two reference samples were collected using a van Veen-type grab sampler from Fidalgo Bay and Padilla Bay to characterize regional background sediment dioxin chemical concentrations. Reference sediment samples were surficial; the collected interval was from the 0 to 15 cm below mudline to characterize the dioxin concentration within the biologically mixed surface layer.

2. The project was ranked moderate for testing purposes. The sampling and analysis plan was approved on May 19, 2004 by the DMMP agencies for an estimated total dredged material footprint volume of 273,000 cubic yards. Five sediment cores were collected using a vibracorer from DMMUs DCI 1 (two cores), DCI 2 (one core), P1 (one core), P2 (one core). For each core,

a sample from the 1-to-3-foot interval was targeted. For DMMU DCI 1, samples DCI 1A and DCI 1B were composited into a single sample.

3. Relevant dates for regulatory tracking purposed are included in Table 1.

Table 1. Regulatory Tracking Information and Dates

Supplemental SAP submittal date:	**March 2004**
Supplemental SAP Approval letter date:	**19 May 2004**
Supplemental Sampling date(s):	**13/15 July 2004**
Supplemental Sediment data characterization report submittal date:	**October 2004**
Supplemental DAIS Tracking Number	**ANAC1-1-A-O-218**
Original Dakota Creek SAP submittal date:	14 December 1998
Original Dakota Creek SAP Approval letter Date:	25 April 2000
Original Dakota Creek Sampling date(s):	25 April 2000
Original Dakota Creek Sediment data characterization report submittal date:	June 2000
Dakota Creek DAIS Tracking Number:	ANAC11AF153
Original Dakota Creek Suitability Memorandum Date:	12 April 2001
Original Pier 1 SAP submittal date:	14 December 1998
Original Pier 1 SAP Approval letter Date:	14 December 1998
Original Pier 1 Sampling date(s):	24 April 2000
Original Pier 1 Sediment data characterization report submittal date:	June 2000
Pier 1 DAIS Tracking Number:	ANAC21AF168
Original Pier 1 Suitability Memorandum Date:	12 April 2001
Recency Determination Dates:	April 2005 to April 2007 (based upon the April 2001 SDM)

4. The sampling and Analysis Plan approved by the agencies for testing for the four DMMUs was followed, and quality assurance/quality control guidelines specified by the PSDDA Users Manual were generally complied with. The data gathered were deemed sufficient and acceptable for decision-making by the DMMP agencies based on best professional judgment and current program guidelines.

5. Site conditions required modification to the original compositing and analysis approach in consultation with DMMO. Deviations from the SAP included:

- Samples were taken from the 1-to-3-foot interval in accordance with direction provide by the DMMP.
- A second core sample (AN-DCI-1B) was added in DMMU DCI-1 at a location deemed most likely to accumulate fined-grained sediment and that has not previously been dredged per comments by DMMP.

- The sample from core AN-P1-1 was from the 2-to-3-foot interval because the material from 1-to-2-foot interval was primarily gravel and there was not enough sediment to extract a sample.

6. Conventional analyses (see Table 2): total solids 60%, total organic carbon 2.24%. Grain size: 14.1% gravel, total sands 42.84%, silt 26.6% and clay 13%.

7. Dioxin concentrations in the DCI and Pier 1 DMMUs were below both the DMMP criterion for 2, 3, 7, 8-TCDD (5ng/kg) and the calculated DMMP 2, 3, 7, 8-TCDD Toxicity Equivalent Concentration (TEC) (15ng/kg) (see Table 2).

8. The results of the chemical analysis for the sediment samples confirmed the previously issued open water disposal suitability issued for Dakota Creek and Pier 1 in April 2001, summarized below:

Dakota Creek. Samples were taken from eight surface locations and composited for two analyses (D1-A and D2-A). Samples were also taken for analysis of subsurface sediments. Analysis was completed for all chemicals of concern. In addition, pore-water analysis for TBT was completed on both surface composites. There were no exceedances of DMMP screening levels for the standard list of chemicals of concern in DMMU D1-A. DMMU D2-A had exceedances of screening levels for seven HPAHs as well as for total HPAP. TBT was detected in both samples, but well below the screening level. All detection limits were below screening levels. The Port of Anacortes chose not to pursue bioassay testing for the sediment represented by D2-A. Based on the chemistry data alone, the 16,000 cubic yards of sediment represented by this sample is not suitable for open water disposal.

Native subsurface samples were not analyzed due to sampler refusal in the consolidated native sediment. Since chemistry data was not available for this material, a 1-2 foot buffer of native material must be removed with the overlying unsuitable material to assure that only suitable material is left exposed at the surface and only suitable material is placed at the open-water disposal site.

Based on the results of the chemical testing the consensus determination of the DMMP agencies was that approximately 230,000 CY (16,000 surface, 214,000 native subsurface) from the port of Anacortes Dakota Creek dredging project are suitable for open-water disposal at either a dispersive or non-dispersive site. Approximately 16,000 cubic yards of material from Dakota Creek is not suitable for open-water disposal.

Pier 1. Samples were taken from a total of 8 surface locations and composited for two analyses. In addition, pore-water analysis for tributyltin was completed on both composites. There were no exceedances of 1998 DMMP screening levels. TBT was detected in both samples, but well below the screening level. All 32,000 CY from the Port of Anacortes Pier 1 dredging project are deemed suitable for open-water disposal.

9. This memorandum documents the suitability of sediment to be dredged from the DCI/Pier 1 maintenance dredging project for disposal at a DNR approved dispersive open-water disposal

site. However, this suitability determination does not constitute final agency approval of the project. A dredging plan for this project must be completed as part of the final project approval process. A final decision will be made after full consideration of agency input and after an alternative analysis is done under Section 404(b) (1) of the Clean Water Act.

Concur:

11/3/2005
Date

Gwyn Puckett, Seattle District Corps of Engineers

11/3/2005
Date

Erika Hoffman, Environmental Protection Agency

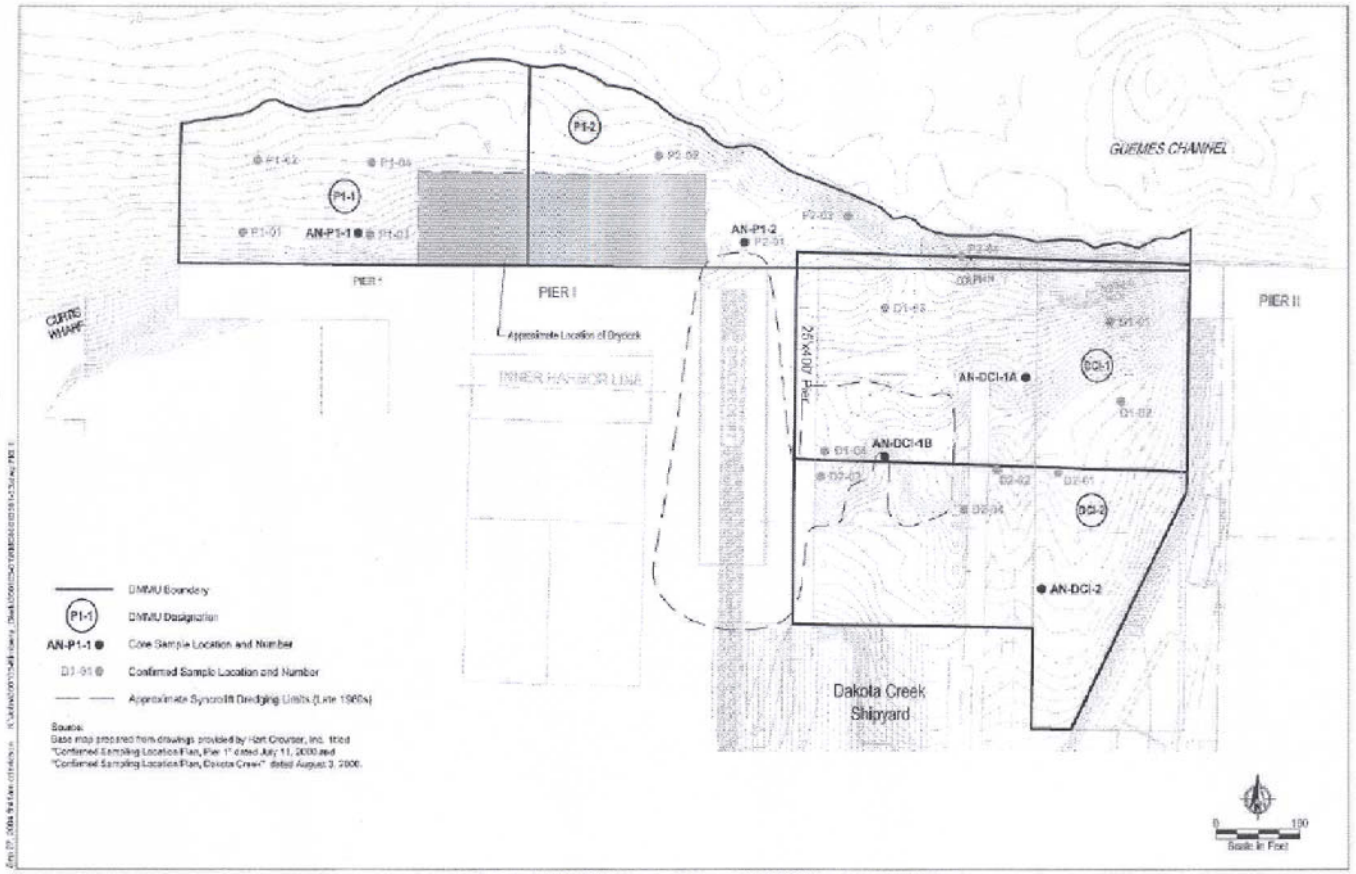
11/3/05
Date

Cinde Donoghue, Washington Department of Ecology

11/3/2005
Date

Peter Leon, Washington Department of Natural Resource

Copies Furnished:
Regulatory Branch Project Manager
Jonathan Freedman, EPA
Erika Hoffman, EPA
John Malek, EPA
Cinde Donoghue, Ecology
Helen Pressley, Ecology
Tom Gries, Ecology
Peter Leon, DNR
DMMO File



ANCHOR ENVIRONMENTAL L.L.C.

Figure 1
Actual Sample Location Map
Kimberly-Clark Anacortes, DCI

Table 2. Testing Summary

Analytical Results for DCI/Pier 1 Sediment Core Samples

Sample ID Sample Date Depth		AN-DCI-1 7/15/2004 1-3 ft	AN-DCI-2 7/15/2004 1-3 ft	AN-P1-1 7/15/2004 2-3 ft	AN-P1-2 7/15/2004 1-3 ft	AN-REF-1-01-SD 7/13/2004 0-15 cm	AN-REF-2-01-SD 7/13/2004 0-15 cm
Conventionals							
Total solids	%	60	60.4	87.2	78.2	58	70.6
Total organic carbon	%	2.24	4.25	0.27	0.64	1.17	0.74
Grain Size							
Gravel	%	14.1	1.71	7.84	3.96	0.02	0.04
Sand, Very Course	%	4.35	2.21	3.26	3.25	0.36	0.41
Sand, Course	%	3.97	3.95	4.14	3.9	0.47	4.37
Sand, Medium	%	5.22	11.2	6.85	6.82	0.74	19.5
Sand, Fine	%	14.7	36	7.54	10.2	16.9	24.8
Sand, Very Fine	%	14.6	26	7.08	3.38	33	6.57
Silt	%	26.6	14.5	33.6	35	34.6	30
Clay	%	13	4.4	24.6	31.9	10.8	6.23
Dioxins							
1,2,3,4,6,7,8-HpCDD	ng/kg	55.574	25.002	2.5 U	2.5 U	2.742 J	6.001
1,2,3,4,6,7,8-HpCDF	ng/kg	5.652	5.104	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3,4,7,8,9-HpCDF	ng/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3,4,7,8-HxCDD	ng/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3,4,7,8-HxCDF	ng/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3,6,7,8-HxCDD	ng/kg	1.76 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3,6,7,8-HxCDF	ng/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3,7,8,9-HxCDD	ng/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3,7,8,9-HxCDF	ng/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3,7,8-PeCDD	ng/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3,7,8-PeCDF	ng/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2,3,4,6,7,8-HxCDF	ng/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2,3,4,7,8-PeCDF	ng/kg	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2,3,7,8-TCDD	ng/kg	1 U	1 U	1 U	1 U	1 U	1 U
2,3,7,8-TCDF	ng/kg	1 U	1 UC	1 U	1 U	1 U	1 U
OCDD	ng/kg	589.61 B	205.812 B	10.782 BJ	9.1 BJ	16.972 J	47.747 B
OCDF	ng/kg	10.785 J	18.241	5 U	5 U	5 U	5 U
Total HpCDD	ng/kg	187.863	74.169	1.144	2.5 U	2.742	13.324
Total HpCDF	ng/kg	17.656	15.014	2.5 U	2.5 U	2.5 U	2.5 U
Total HxCDD	ng/kg	14.483	4.915	2.5 U	2.5 U	1.218	2.5 U
Total HxCDF	ng/kg	8.325	6.599	2.5 U	2.5 U	2.5 U	2.5 U
Total PeCDD	ng/kg	2.5 U	3.567	2.5 U	2.5 U	2.5 U	2.5 U
Total PeCDF	ng/kg	0.737	4.561	2.5 U	2.5 U	2.5 U	2.5 U
Total TCDD	ng/kg	1 U	5	1 U	1 U	1 U	1 U
Total TCDF	ng/kg	1 U	1.084	1 U	1 U	1 U	1 U
Dioxin TEQ	ng/kg	1.39	0.635	0.0108	0.0091	0.0444	0.108

Table 2. Sampling Station Boring Depths and Elevations

Sample ID	Sampling Depth (ft)	Mudline Elevation (ft MLLW)	Subsample Intervals, Designations, and Elevations
AN-DCI-1A	-18.7	-20.1	-23.1
AN-DC1-1B	-6.8	-7.8	-10.8
AN-DC1-2	-4.9	-2.4	-5.4
AN-P1-1	-34.7	-33.1	-36.1
AN-P1-2	-33.3	-33.4	-36.4
AN-REF-1	-10.6	-9.5	(0 to 15 cm interval)
AN-REF-2	-13.5	-5.4	(0 to 15 cm interval)