CENWS-OD-TS-DM
MEMORANDUM FOR FILE 25 January 2005

SUBJECT: ADDENDUM AND VOLUME REVISION TO SUPPLEMENTAL DETERMINATION ON THE SUITABILITY OF SEDIMENTS TO BE DREDGED FOR MANKE LUMBER COMPANY (2004-01400) FOR UNCONFINED OPEN-WATER DISPOSAL AT THE COMMENCEMENT BAY DISPOSAL SITE, AS EVALUATED UNDER SECTION 404 OF THE CLEAN WATER ACT.

1. The following summary reflects a consensus determination of the Agencies that comprise the regional Dredged Material Management Program (DMMP) for the State of Washington. The Agencies include the U.S. Army Corps of Engineers, Department of Ecology, Department of Natural Resources, and the Environmental Protection Agency.

2. This addendum addresses additional DMMP testing conducted at DMMU A-7 (2,400 cubic yards) and a slight volume revision from 1,400 to 2,600 cy for DMMU A-8 based on recent survey information, which brings the total suitable volume of the project up to 20,400 cy. This high concern area falls within the Commencement Bay MTCA cleanup effort known as the Hylebos Wood Debris Site (HWDS).

3. **Background**. The area outlined in this DMMP evaluation was subject to an earlier DMMP characterization and suitability determination dated 10 October 2000, which indicated that 10 of 27 DMMUs evaluated were suitable for unconfined open-water disposal. Dredging of all surface suitable DMMUs from the 2000 SDM have been completed. Approximately 31,500 cy of material from 13 DMMUs remains to be addressed under the requirements of the MTCA Consent Decree, and are the focus of the DMMP characterization summarized in the 30 December 2004 SDM, and the SDM addendum described herein.

4. The surface material at A-7 has TVS above the Washington Department of Ecology's MTCA cleanup criteria of 15 % (e.g., quantitated at 16% within the 0 –0.3 feet surface). This material was subsequently subjected to a DMMP characterization to evaluate its suitability for unconfined open-water disposal at the Commencement Bay disposal site.

Table 1. Regulatory Tracking Dates

Sampling date for A-7:	January 3,2005
Data report submittal date:	January 19, 2005
Total Volume Characterized A-7:	2,400 cy
DAIS Tracking Number:	MLUMB-1-B-F-204
Recency Determination Date: High Concern (2 years)	January 2007

5. This determination of suitability is based on the acceptability of the sampling data, as well as all relevant test data contained in the Supplemental Data Letter Summary Report submitted by the Manke Lumber contractor (Anchor Environmental) to the DMMP on January 19, 2005. Three 14 inch deep diver assisted core samples (8 inch diameter) were collected on 3 January 2005.

6. Relevant dates for regulatory tracking purposes are included in Table 1.

7. Appendix 1 provides a summary of the sediment conventional parameters, chemical testing results documented in the December 30, 2004 SDM with additional testing at DMMU A-7 included.

8. The results of the chemical analyses conducted at DMMU A-7 indicated that all chemicals-of-concern were either quantitated or detection limits were below the DMMP screening levels. Appendix 2 contains the full chemical characterization results for DMMU A-7.

9. Based upon the results of the testing of DMMU A-7, the agencies concluded that the 2,400 cy of material at A-7 is suitable for unconfined-open-water disposal at the Commencement Bay disposal site. Additionally, the volume previously noted in 30 December 2004 SDM as 1,400 cy at DMMU A-8, is adjusted to 2,600 cy based on updated survey information. This volume revision raises the total suitable volume from the 30 December 2004 SDM from 16,800 cy to 20,400 cy. Refer to Appendix 1 for a complete inventory of suitable and unsuitable DMMUs.

10. This memorandum documents the suitability of the dredged material characterized at the Manke Lumber Company site located at the head of Hylebos Waterway for disposal at the Commencement Bay non-dispersive open-water disposal site. These results were reviewed by all DMMP agency representatives and all concurred with the conclusions expressed in this memorandum. This suitability determination does not constitute final agency approval of the project. A dredging plan was previously submitted and approved by the DMMP agencies as part of the final project approval process.

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Appendix I. DMMP Characterization Summary for Manke Lumber (includes DMMU A-7).

	DMMP Guideline DMMU				A-4	A-5	A-6	**A-7 (0-1.2 ft)**	A-8	AML-A9	AML-A10	A-14	A-16	A-21	A-22	REF-17	REF-48	REF-80
				Rank:	H	H	H	H	H	H	H	H	H	H	H			
CHEMICAL NAME	Units	SL	BT	ML	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.	Conc.			
Mercury	mg/kg	###	##	2.3	NT	NT	NT	0.27	NT	0.6	0.6	NT	NT	NT	NT			
Total Solids	%							40		26.7	26.5							
Total Volatile Solids (dredged material prism)	%					16	12	10.9	64	38.7	42.9	27.0	21.0	43.0				
Total Volatile Solids (surface)					17	16	18	19		26.0	20.0	17.0	24.0		32.0			
Total Organic Carbon	%							6.0		9.7	9.5							
Total Ammonia	mg/kg							31.4		35.8	23.6							
Total Sulfides	mg/kg							2,000		4,600	6,700							
Gravel (percent)	%							10.0		18.7	18.5					0.1	0	0
Sand (percent)	%							42.1		44.4	37.2					76.9	54.2	19
Silt (percent)	%							34.2		23.0	28.5					19.3	39.3	71.6
Clay (percent)	%							**13.7**		**13.8**	**15.7**					3.8	6.7	9.4
Fines (percent silt + clay)	%							47.9		36.8	44.2					23	45.8	81
Eohaustorius *Amphipod Survival* hits:					**NH**	**NH**	**NH**		**NH**	**NH**	**NH**	**NH**	**NH**	**NH**	**NH**			
Neanthes Growth					**NH**	**NH**	**NH**		**NH**	**2H**	**NH**	**NH**	**NH**	**NH**	**NH**			
Mytilus galloprovincialis (PSEP Initial Test) hits:					F (QA)	F (QA)	F (QA)		F (QA)	F (QA)	F (QA)	F (QA)	F (QA)	F (QA)	F (QA)			
Mytilus galloprovincialis (Screen Tube Retest 1) hits:					F (QA)	F (QA)	F (QA)		F (QA)	F (QA)	F (QA)	F (QA)	F (QA)	F (QA)	F (QA)			
Mytilus galloprovincialis (Screen Tube Retest 2) hits:					**1H**	**NH**	**NH**		**NH**	**2H**	**NH**	**NH**	**NH**	**1H**	**1H**			
Bioassay Pass/Fail:					**FAIL**	**PASS**	**PASS**	**NT**	**PASS**	**FAIL**	**PASS**	**PASS**	**PASS**	**FAIL**	**FAIL**			
BTs exceeded:								no		no	no							
Bioaccumulation conducted:																		
Bioaccumulation Pass/Fail:																		
ML Rule exceeded:								no		no	no							
PSDDA Determination:					**FAIL**	**PASS**	**PASS**	**PASS**	**PASS**	**FAIL**	**PASS**	**PASS**	**PASS**	**FAIL**	**FAIL**			
DMMU Volume:	cy				2,500	3,100	2,100	2,400	2,600	1,400	1,700	4,400	4,100	900	1,400			
DMMU ID:					A-4	A-5	A-6	A-7	A-8	AML-A9	AML-A10	A-14	A-16	A-21	A-22	REF-17	REF-48	REF-80

Legend:

NT = Not Tested
NA = Not Analyzed (bioassays)
F(QA) = Quality Assurance Failure
SL = Screening Level (lower chemical guideline)
NH = No Hit (nondispersive guidelines)
2H = two hit failure (nondispersive guidelines)
1H = one hit failure (nondispersive guidelines)
P = Pass (Suitable for UCOWD)
F = Failure (Unsuitable for UCOWD)
UCOWD = Unconfined open-water disposal
VQ = Validation Qualifier

Total Volume Tested
26,600 cy

6,200	cy Unsuitable = 23.3%
20,400	cy Suitable = 76.7%

Table 1
Summary of Analytical Results for the PSDDA Analyte List and Comparison with Criteria

Location ID Sample ID Sample Depth Mudline Elevation (MLLW) Sample Date	PSDDA Screening	Bio Trigger	PSDDA Max	AML-A7 AML-A7-Comp 0-1.2 feet NA 01/03/2005	AML-A7-01 AML-A7-01SDA 0-0.3 feet -33.9 01/03/2005	AML-A7-02 AML-A7-02SDA 0-0.3 feet -33.4 feet 01/03/2005	AML-A7-03 AML-A7-03SDA 0-0.3 feet -35.2 01/03/2005
Conventionals							
Ammonia (mg/kg)	--	--	--	**31.4**	--	--	--
Total Volatile Solids (%)	--	--	--	**10.9**	**16.2**	**15.9**	**15.5**
Preserved Total Solids (%)	--	--	--	**35.1**	--	--	--
Total Solids (%)	--	--	--	**40.0**	**32.6**	**34.1**	**31.9**
Sulfide (mg/kg)	--	--	--	**2,000**	--	--	--
Total Organic Carbon (%)	--	--	--	**6.0**	--	--	--
Grain Size (%)							
Gravel	--	--	--	**10**	--	--	--
Sand	--	--	--	**42.1**	--	--	--
Silt	--	--	--	**34.2**	--	--	--
Clay	--	--	--	**13.7**	--	--	--
Fines	--	--	--	**47.9**	--	--	--
Metals (mg/kg)							
Antimony	150	--	200	10 U	--	--	--
Arsenic	57	507.1	700	**24.4**	--	--	--
Cadmium	5.1	11.3	14	**0.82**	--	--	--
Chromium	--	267	--	**33.0**	--	--	--
Copper	390	1,027	1300	**87.2**	--	--	--
Lead	450	975	1200	**48.8**	--	--	--
Mercury	0.41	1.5	2.3	**0.27**	--	--	--
Nickel	140	370	370	**28**	--	--	--
Selenium	--	3	--	10 U	--	--	--
Silver	6.1	6.1	8.4	1 U	--	--	--
Zinc	410	2,783	3,800	**162**	--	--	--
Butyltins (µg/L)							
Tributyltin ion	0.15	--	--	0.022 U	--	--	--
Tributyltin chloride	--	--	--	0.025 U	--	--	--
Pesticides (µg/kg)							
4,4'-DDD	--	--	--	2.0 U	--	--	--
4,4'-DDE	--	--	--	2.5 UJ	--	--	--
4,4'-DDT	--	50	--	2.0 U	--	--	--
Total DDT	6.9	50	69	2.5 UJ	--	--	--
Aldrin	10	--	--	1.0 U	--	--	--
Dieldrin	10	--	--	2.0 U	--	--	--
Endrin	--	--	--	2.0 U	--	--	--
alpha-BHC	--	--	--	1.0 U	--	--	--
alpha-BHC (mg/kg-OC)	--	10	--	0.02 U	--	--	--
gamma-BHC (Lindane)	10	--	--	1.0 U	--	--	--
alpha-Chlordane	--	--	--	1.0 U	--	--	--
gamma-Chlordane	--	--	--	1.0 U	--	--	--
Heptachlor	10	--	--	1.0 U	--	--	--
Total Chlordane	10	37	--	1.0 U	--	--	--
Hexachlorobenzene	22	168	230	**0.64 J**	--	--	--
Hexachlorobutadiene	29	--	270	1.0 U	--	--	--
PCBs (µg/kg)							
Aroclor 1016	--	--	--	10 U	--	--	--
Aroclor 1221	--	--	--	10 U	--	--	--
Aroclor 1232	--	--	--	10 U	--	--	--
Aroclor 1242	--	--	--	10 U	--	--	--
Aroclor 1248	--	--	--	**19**	--	--	--

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Aroclor 1254	--	--	--	**53**	--	--	--
Aroclor 1260	--	--	--	40 U	--	--	--
Total PCBs	130	--	3100	**72**	--	--	--
Total PCBs (mg/kg-OC)	--	38	--	**1.2**	--	--	--
SVOCs (µg/kg)							
1,2,4-Trichlorobenzene	31	--	64	13 U	--	--	--
1,2-Dichlorobenzene	35	--	110	2.7 U	--	--	--
1,3-Dichlorobenzene	170	--	--	2.7 U	--	--	--
1,4-Dichlorobenzene	110	--	120	2.7 U	--	--	--
2,4-Dimethylphenol	29	--	210	20 U	--	--	--
2-Methylnaphthalene	670	--	1,900	**100**	--	--	--
2-Methylphenol	63	--	77	20 U	--	--	--
4-Methylphenol	670	--	3,600	20 U	--	--	--
Acenaphthene	500	--	2,000	**260**	--	--	--
Acenaphthylene	560	--	1,300	20 U	--	--	--
Anthracene	960	--	13,000	**170**	--	--	--
Benzo(a)anthracene	1,300	--	5,100	**150**	--	--	--
Benzo(a)pyrene	1,600	--	3,600	**110**	--	--	--
Benzo(b)fluoranthene	--	--	--	**140**	--	--	--
Benzo(g,h,i)perylene	670	--	3,200	**40**	--	--	--
Benzo(k)fluoranthene	--	--	--	**140**	--	--	--
Total benzofluoranthenes	3,200	--	9,900	**280**	--	--	--
Benzoic acid	650	--	760	200 U	--	--	--
Benzyl Alcohol	57	--	870	20 U	--	--	--
bis(2-Ethylhexyl)phthalate	8,300	--	--	**88**	--	--	--
Butylbenzylphthalate	970	--	--	20 U	--	--	--
Chrysene	1,400	--	21,000	**290**	--	--	--
Dibenzo(a,h)anthracene	230	--	1,900	20 U	--	--	--
Dibenzofuran	540	--	1,700	**120**	--	--	--
Diethylphthalate	1,200	--	--	20 U	--	--	--
Dimethylphthalate	1,400	--	--	20 U	--	--	--
Di-n-butylphthalate	5,100	--	--	20 U	--	--	--
Di-n-octylphthalate	6,200	--	--	20 U	--	--	--
Fluoranthene	1,700	4,600	30,000	**670**	--	--	--
Fluorene	540	--	3,600	**170**	--	--	--
Hexachloroethane	1,400	--	14,000	20 U	--	--	--
Indeno(1,2,3-cd)pyrene	600	--	4,400	**40**	--	--	--
Naphthalene	2,100	--	2,400	**400**	--	--	--
N-Nitrosodiphenylamine	28	--	130	20 U	--	--	--
Pentachlorophenol	400	504	690	100 U	--	--	--
Phenanthrene	1,500	--	21,000	**660**	--	--	--
Phenol	420	--	1,200	20 U	--	--	--
Pyrene	2,600	11,980	16,000	**450**	--	--	--
Total HPAHs	12,000	--	69,000	**1,760**	--	--	--
Total LPAHs	5,200	--	29,000	**2,030**	--	--	--