CENWS-OD-TS-NR

MEMORANDUM FOR: RECORD October 6, 2014

SUBJECT: EVALUATION OF PROPOSED POST-DREDGE SEDIMENT SURFACE TO VERIFY COMPLIANCE WITH THE WASHINGTON STATE ANTIDEGRADATION POLICY, FOR THE NORTHWEST GRAIN GROWERS WALLULA GRAIN ELEVATOR (NWS-2014-243), WALLULA, WA (COLUMBIA RIVER).

1. Introduction. This memorandum reflects the consensus determination of the Dredged Material Management Program (DMMP) agencies (U.S. Army Corps of Engineers, Washington Department of Ecology, Washington State Department of Natural Resources, and the Environmental Protection Agency) regarding the suitability of the exposed sediment surface after removal of approximately 6,250 cubic yards (cy) of accumulated sediment from the grain terminal berthing area, where grain is loaded onto barges for transportation downstream.

2. Project. The Northwest Grain Growers, Inc. (NWGG) barge slip at Wallula Grain Elevator is located on the Columbia River just south of the town of Wallula at the juncture of State Routes 12 and 30 (Figure 1). It has been operated as a grain loading facility for downstream barge transport since 1947. Proposed project is part of a regular maintenance dredging program necessary to maintain the function of the barge slip. Over time during regular operations, tug boat engines disturb the substrate causing silt to mound in the center of the slip, impeding barge access to the grain elevator during minimum pool depths. As a result, the slip needs dredging approximately every six years; previous dredging was conducted in 1984, 1991, 1997, and 2004. The area proposed for dredging measures approximately 400 ft. by 125 ft. Dredged material is proposed to be disposed at an upland site.

Table 1. Northwest Grain Growers, Wallula Grain Elevator, project summary

Project ranking	Low-moderate
Proposed dredging volume	6,250 cy
Proposed dredging depth	12 ft (323 ft. amsl – NGVD29)
Proposed disposal location	upland
SAP received	June 24, 2014
SAP approved	June 25, 2014
Sampling date	July 3, 2014
Final Report received	September 18, 2014
EIM Study ID	NWGGW
Public Notice	NWS-2014-243
Recency Determination (LM = 6 years)	July 2020

3. Tier 1: Project Ranking and Sampling Requirements. The Tier 1 evaluation presented in the Sampling and Analysis Plan (SAP) provided the DMMP with adequate information to determine rank and sampling requirements. Because the material is being disposed upland, with no return water, the only DMMP interest is insuring that the post-dredge surface meets State of Washington antidegradation policy. The material was ranked low-moderate, consistent with few local sources for potential contamination. Chemicals of concern were those promulgated in WAC 173-204-563: SMS Freshwater Sediment Chemical Criteria.

Testing for dioxins and furans were required due to previous detection of dioxins in fish collected near the Wallula Junction.

4. Sampling. Sampling took place on July 3, 2014. Sediment cores were collected with a vibracore. Due to inadequate retention of the Z-layer in some of the cores, several coring attempts had to be made, with the stations moved slightly from planned locations (Figure X). Final recovery in the three cores ranged from 68% to 84%. As planned, material from the dredge prism section of the three cores was composted into one sample, and the material from the Z-layer in all three cores was composited into another sample, with the two samples submitted for analysis.

5. Tier 2 Conventional & Chemical Analyses. Chemical analyses were conducted by Analytical Resources, Inc. (ARI) of Tukwila, Washington. The approved SAP was followed, and quality control guidelines specified by the DMMP were generally met. The resulting analytical data were validated by Mr. Mingta Lin of Pyron Environmental. The data gathered were deemed sufficient and acceptable for regulatory decision-making under the DMMP. All standard freshwater chemicals of concern were either detected or undetected at levels below the regulatory guidelines (Table 2). Dioxin analysis showed that both samples had TEQs below 1 pptr TEQ, well below DMMP guidelines.

6. Sediment Exposed by Dredging. The sediment to be exposed by dredging must either meet the State of Washington Sediment Quality Standards (SQS) (Ecology 2013) or the State's antidegradation standard (DMMP 2008). For dioxin, there are currently no established SQS guidelines. The DMMP agencies use the established DMMP upper screening value of 10 pptr TEQ to evaluate anti-degradation.

   As demonstrated by the results of the above analysis, the sediment to be exposed by dredging is not considered to be degraded relative to the currently exposed sediment surface. On this basis the DMMP agencies conclude that this project, as described, is in compliance with the Washington State anti-degradation policy.

   This determination does ***not*** constitute final agency approval of the project. A final decision will be made after full consideration of agency input, and after an alternatives analysis is done under section 404(b)(1) of the Clean Water Act.

7. References.

DMMP 2008. *Quality of Post-Dredge Sediment Surfaces (Updated).* A Clarification Paper Prepared by David Fox (USACE), Erika Hoffman (EPA) and Tom Gries (Ecology) for the Dredged Material Management Program, June 2008.

DMMP 2010. *Dredged Material Management Program New Interim Guidelines for Dioxins*. December 6, 2010.

DMMP 2013. Dredged Material Evaluation and Disposal Procedures (User Manual). Prepared by the Seattle District Dredged Material Management Office for the Dredged Material Management Program, July 2013.

Ecology 2013. Sediment Management Standards – Chapter 173-204 WAC. Washington State Department of Ecology, adopted February 2013.

8. Agency Signatures

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Signed version on file in DMMO, Seattle District Office.

Copies furnished:

DMMP signatories
Richard Thomas, NWGG
Tim Thompson, SEE
Tim Erkel, Corps Regulatory

Table 2. Chemical analysis results compared to SMS FW Guidelines

Parameter	CAS	MDLs	MRLs	WA Freshwater Standard		WGT-P		WGT-Z	
				SQS	CSL	Result	Q	Result	Q
CONVENTIONALS									
Grain size (% fines)	NA	1	—	—	—	84.1		80.6	
Total solids (%)	NA	—	0.10%	—	—	64.3		71.11	
Total organic carbon (%)	NA	0.02%	0.05%	—	—	0.82		0.723	
METALS (mg/kg dry wt.)									
Arsenic	7440-38-2	0.33	5	14	120	3.87	J	4.31	J
Cadmium	7440-43-9	0.18	0.2	2.1	5.4	0.5		0.5	
Chromium	7440-47-3	0.12	0.5	72	88	15.2		14.7	
Copper	7440-50-8	0.1	0.2	400	1,200	16.2		15.8	
Lead	7439-92-1	0.16	2	360	>1,300	8		8	
Mercury	7439-97-6	0.002	0.025	0.66	0.8	0.014	J	0.017	J
Nickel	7440-02-0	0.08	0.5	26	110	12		12	
Selenium	7782-49-2	0.13	0.5	11	>20	0.192	J	0.181	J
Silver	7440-22-4	0.04	0.3	0.57	1.7	0.4	U	0.4	U
Zinc	7440-66-6	0.15	1	3,200	>4,200	59		58	
Total PAHS (µg/kg dry wt.)				17,000	30,000	81		77	
LOW-MOLECULAR WEIGHT PAHS									
Naphthalene	91-20-3	2.63	5	—	—	4.6	J	3.2	J
Acenaphthylene	208-96-8	1.26	5	—	—	4.7	U	4.8	U
Acenaphthene	83-32-9	1.32	5	—	—	4.7	U	4.8	U
Fluorene	86-73-7	1.29	5	—	—	2.3	J	4.8	UJ
Phenanthrene	85-01-8	1.98	5	—	—	6.6	J	5.3	J
Anthracene	120-12-7	1.46	5	—	—	4.7	UJ	4.8	UJ
2-Methylnaphthalene	91-57-6	1.52	5	—	—	9		4.8	U
HIGH-MOLECULAR WEIGHT PAHS									
Fluoranthene	206-44-0	1.77	5	—	—	9.3		7.8	
Pyrene	129-00-0	2.22	5	—	—	6.6		6.8	
Benz(a)anthracene	56-55-3	1.6	5	—	—	2.8	J	4.8	UJ
Chrysene	218-01-9	1.88	5	—	—	4.2	J	3.3	J
Benzofluoranthenes (b,j,k)	—	—	—	—	—	4.5	J	2.5	J
Benzo(a)pyrene	50-32-8	1.75	5	—	—	4.7	U	4.8	U
Indeno(1,2,3-c,d)pyrene	193-39-5	3.47	5	—	—	4.7	U	4.8	U
Dibenz(a,h)anthracene	53-70-3	2.38	5	—	—	4.7	UJ	4.8	UJ
Benzo(g,h,i)perylene	191-24-2	3.05	5	—	—	3	J	4.8	U
PHTHALATES (µg/kg dry wt.)									
Di-n-butyl phthalate	84-74-2	8.16	20	380	1,000	19	U	19	U
Bis(2-ethylhexyl) phthalate	117-81-7	14.6	25	500	22,000	47	U	48	U
Di-n-octyl phthalate	117-84-0	5.84	20	39	>1,100	19	U	19	U

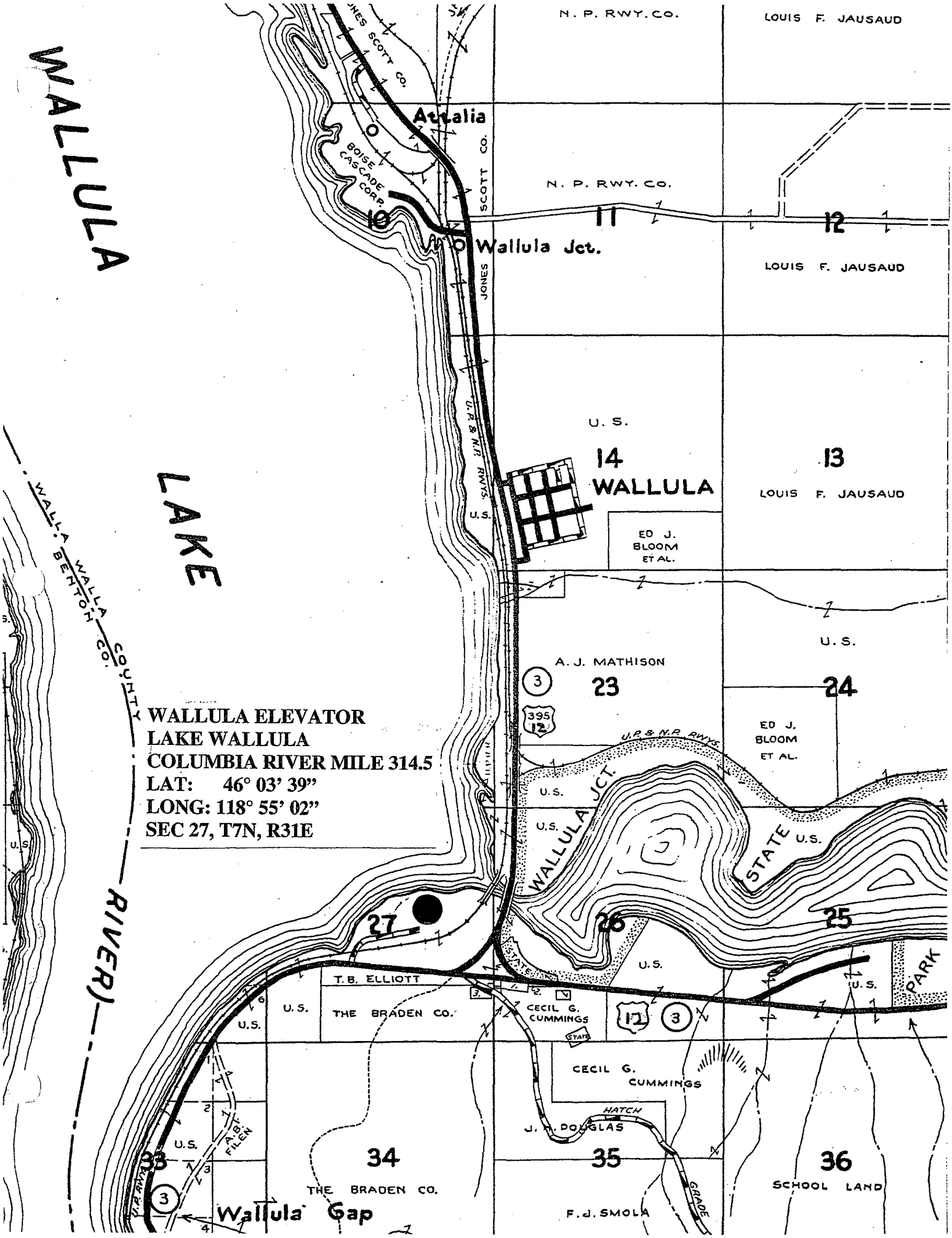
Parameter	CAS	MDLs	MRLs	WA Freshwater Standard		WGT-P		WGT-Z	
				SQS	CSL	Result	Q	Result	Q
PHENOLS (µg/kg dry wt.)									
Phenol	108-95-2	8.64	20	120	210	41		19	U
4-Methylphenol	106-44-5	8.64	20	260	2,000	35		21	
Pentachlorophenol	87-86-5	6.63	200	1,200	>1,200	94	U	96	U
MISC. EXTRACTABLES (µg/kg dry wt.)									
Benzoic acid	65-85-0	48.5	200	2,900	3,800	290		120	J
Dibenzofuran	132-64-9	4.1	20	200	680	19	U	19	U
beta-Hexachlorocyclohexane	319-85-7	0.139	0.5	7.2	11	5.6	U	2	U
PESTICIDES (µg/kg dry wt.)									
4,4'-DDD	72-54-8	0.124	1	310	860	3		3.7	
4,4'-DDE	72-55-9	0.135	1	21	33	0.98	J	1.2	
4,4'-DDT	50-29-3	0.192	1	100	8,100	0.98	U	0.95	U
Carbazole	86-74-8	2.69	20	900	1,100	10	J	19	U
Dieldrin	60-57-1	0.1	1	4.9	9.3	0.98	U	0.95	U
Endrin ketone	53494-70-5	0.119	1	8.5	no CSL	0.98	U	0.95	U
Heptachlor	76-44-8	0.132	0.5	1.5	1.5	0.49	U	0.48	U
Total PCBS (AROCLORS)		10	20	110	2,500	19	U	18	U
TOTAL PETROLEUM (mg/kg dry wt.)									
TPH-diesel	68476-34-6	1.35	5	340	510	30		9.6	
TPH-residual	—	2.48	10	3,600	4,400	90		43	

Notes:

CAS: Chemical Abstract Service Registry Number
MDL: Method Detection Limit
MRL: Method Reporting Limit
SQS: Sediment Quality Standards
CSL: Cleanup Screening Level
Q: Validated Laboratory Data Qualifier

Table 3. Dioxin TEQs for NWGG Wallula

Chemical Name	TEF	STATION							
		WGT-P				WGT-Z			
		Result (ng/kg)	Flag	TEQ (U=0)	TEQ (U=1/2 DL)	Result (ng/kg)	Flag	TEQ (U = 0)	TEQ (U=1/2 DL)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1	0.168	U	0	0.084	0.0557	U	0	0.0279
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	1	0.0869	U	0	0.0435	0.181	U	0	0.0905
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1	0.156	U	0	0.0078	0.215	U	0	0.0108
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1	0.462	U	0	0.0231	0.438	U	0	0.0219
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	0.1	0.383	U	0	0.0192	0.344	U	0	0.0172
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	0.01	7.59		0.0759	0.0759	8.19		0.0819	0.0819
Octachlorodibenzo-p-dioxin (OCDD)	0.0003	63		0.0189	0.0189	59.1		0.0177	0.0177
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	0.1	0.908	J	0.0908	0.0908	1.15		0.115	0.115
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	0.03	0.0948	U	0	0.0014	0.0617	U	0	0.0009
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	0.3	0.0652	U	0	0.0098	0.0856	J	0.0257	0.0257
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.1	0.0908	U	0	0.0045	0.125	U	0	0.0063
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.1	0.0967	U	0	0.0048	0.139	U	0	0.007
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	0.1	0.103	U	0	0.0052	0.181	U	0	0.0091
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	0.1	0.132	U	0	0.0066	0.0697	U	0	0.0035
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.01	2.15		0.0215	0.0215	1.82		0.0182	0.0182
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	0.01	0.197	U	0	0.001	0.157	U	0	0.0008
Octachlorodibenzofuran (OCDF)	0.0003	12.3		0.0037	0.0037	10.6		0.0032	0.0032
Total TEQ				0.2108	0.4217			0.2617	0.4576


WALLULA LAKE
WALLA WALLA CO.
COUNTY
RIVER
WALLULA ELEVATOR
LAKE WALLULA
COLUMBIA RIVER MILE 314.5
LAT: 46° 03' 39"
LONG: 118° 55' 02"
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WALLULA ELEVATOR
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COLUMBIA RIVER MILE 314.5
LAT: 46° 03' 39"
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SEC 27, T7N, R31E

WALLULA SITE