

**Memorandum for Record**

**January 16, 2024**

**Subject: Suitability Determination Memorandum and Antidegradation Assessment for USACE Navigation Operations & Maintenance Dredging of the Grays Harbor Navigation Channel in Grays Harbor County, Washington.**

**Introduction**

This suitability determination memorandum (SDM) and antidegradation assessment documents the consensus regarding the suitability of the proposed dredged material for unconfined aquatic disposal and compliance of the post-dredge leave surface as determined by the Dredged Material Management Program (DMMP) agencies (U.S. Army Corps of Engineers (USACE), Washington Departments of Ecology and Natural Resources, and the U.S. Environmental Protection Agency (EPA)).

**Project Description**

Accumulated sediment primarily from the Chehalis River but also the Hoquiam, Humptulips, Wishkah, Johns, and Elk rivers settles in the navigation channel, with approximately 3.2 million cubic yards (cy) needing to be removed each year to maintain the authorized depths. Suitable material is dredged by hopper (in most of the outer reaches) or clamshell (in most of the inner reaches) and placed at one of the two estuarine dispersive disposal sites (Pt. Chehalis or South Jetty sites) or is placed in the nearshore areas in Half Moon Bay and South Beach as beach nourishment.

USACE performs O&M dredging in the Grays Harbor Navigation Channel every year. The 2023 sediment characterization is representative of each dredging event within the recency period, each of which may have up to 4 million cy of sediment.

The authorized channel depth ranges from -32 feet (ft) mean lower low water (MLLW) to -46 ft MLLW. A two-foot over-dredge is allowed in all sections (-34 ft to -48 ft MLLW). A summary of the Grays Harbor Navigation Channel characteristics is provided below.

Reach	Start Station	End Station	Authorized Depth (ft MLLW)	Width in Feet	Length in Miles	Side Slopes	
						Right	Left
<b>Outer Reaches</b>							
Bar	0+00.00	280+89	-46	varies up to 1000	5.4	1V:10H	1V:10H
Entrance Channel	280+89	386+89	varies -46 to -40	varies 600 to 1000	1.9	1V:10H	1V:10H
Pt. Chehalis	386+89	463+00	-40	600	1.4	1V:10H	1V:10H
South Reach	463+00	715+28	-38	varies 350 to 600	4.8	1V:5H	1V:5H
<b>Inner Reaches</b>							
Crossover Channel	715+28	871+12	-38	varies 350 to 450	2.8	1V:5H	1V:5H
North Channel	871+12	1000+63	-38	varies up to 350	2.6	varies 1V:5H; 1V:3H	varies 1V:5H; 1V:3H
Hoquiam Reach	1000+63	1159+50	-38	350	3.0	1V:3H	1V:3H

Reach	Start Station	End Station	Authorized Depth (ft MLLW)	Width in Feet	Length in Miles	Side Slopes	
						Right	Left
Cow Point Reach	1159+50	1234+98	-38	varies 350 to 950	1.5	varies 1V:1.5H; 1V:3H	1V:3H
Aberdeen Reach	1234+99	1319+34	-32	varies up to 200	1.6	1V:3H	1V:3H
South Aberdeen	1319+34	1451+53	varies; -32 to -35	varies up to 300	2.5	1V:3H	1V:3H

### Project Summary

Waterbody	Grays Harbor
Water classification	Marine
Project rank	Outer Harbor: Very low Inner Harbor: Low Cow Point New Areas: Low Moderate
Total proposed dredging volume (cy)	~3.2 million cy annually (up to 4 million cy)
Authorized dredging depth	Variable -32 ft to -46 ft MLLW
Max. proposed dredging depth (includes 2 feet overdepth)	-34 ft to -48 ft MLLW
Proposed disposal location(s)	Open-water disposal: Point Chehalis, South Jetty; Beneficial use: Half Moon Bay, South Beach
Dredged Material Management Units (DMMUs): No. of stations	8 DMMUs in Outer Harbor from 10 grab stations 28 DMMUs in Inner Harbor from 148 grab stations 4 DMMUs in Cow Point New Areas from 4 coring stations
DMMO tracking number	GRAYS1AF454
EIM Study ID	GRAYS23
USACE Regulatory Reference Number	Not applicable
Sampling and Analysis Plan (SAP) Approval Date	July 10, 2023 (EcoAnalysts 2023)
Sampling Date(s)	July 18 – 24, 2023
Sediment Characterization Report Approval Date	January 12, 2024 (EcoAnalysts 2024)
Testing Parameters	DMMP Marine COCs plus dioxins/furans (D/F)
Biological Testing	Bioassay testing not required
Suitability Outcome	All material found suitable for in-water disposal
Recency Expiration Date VL=10 years; L= 7 years;	Outer Reaches: July 2033 Inner Reaches: July 2030 Cow Point New Areas: Not applicable
Antidegradation Assessment	In compliance

### Sampling and Analysis Description

The sampling design was similar to the 2012 sediment characterization which included volume-based DMMUs in the outer reaches and distance-based DMMUs in the inner reaches. Additional sampling was conducted in Cow Point to support a feasibility study on potential turning basin modifications. Sampling locations were selected in areas with dredged material (e.g., shoals) based on a March 2023 bathymetric survey conducted by USACE. Table 1 provides the sampling design for the 2023 sediment characterization. Figure 1 provides an overview of the Grays Harbor inner and outer reaches. The sediment characterization report contains detailed figures with target and actual sampling locations (EcoAnalysts, 2024).

Power grab and vibrocore sampling were conducted by EcoAnalysts and Gravity Consulting from July 18 to July 23, 2023 from the R/V Ingalls and R/V Cayuse. Outer reach grabs were collected from the fishing vessel Pearl Necklace. Different vessels were used to safely navigate the different reaches. Table 2 provides the date and time samples were collected along with the actual sampling station coordinates and the distance from the target sample location. Table 3 and Table 4 provide additional details such as measured water depth, tidal stage, MLLW, penetration, percent recovery, and sampling depth intervals. Table 5 provides the DMMU sample compositing plan.

Horizontal positioning was determined by an onboard real time kinematic global positioning system (RTK GPS) based on target coordinates. After navigating to a target sample station and confirming the correct location, the actual water depth was measured using a lead line or a calibrated sounder. Real time vertical positioning was determined using the Westport NOAA tide station (9442396). The observed (actual) water level data from the NOAA tide station was used to calculate the mudline elevation (MLLW).

The Grays Harbor Navigation Channel is known to be a rapidly changing environment, so the actual mudline of sampling locations did not match the predicted mudline. Many grab sample stations had to be relocated further than 10' from the target sampling location to find accumulated dredged material. All samples were collected from within the navigation channel. Grab depths varied from 5 to 30 cm due to the different grab sizes used throughout the collection effort. Given the dynamic nature of the project area, all surface material is considered representative of current conditions.

The four cores collected in Cow Point met % recovery goals; however, two locations did not reach the 10 ft target depth (7 ft and 8.5 ft). Since these samples were exploratory only, data quality objectives were still met.

### **Data Validation**

EcoChem conducted an EPA Stage 2B review and validation of all DMMP chemistry data and an EPA Stage 4 review of 10% of the D/F results. The validation process resulted in some additional J and UJ qualified data (estimated values) and U qualified data (estimated maximum possible concentrations [EMPCs] and analytes associated with method blank detections) beyond those assigned by the lab, based on specified protocol or technical advisory. Due to laboratory quality assurance/quality control (QA/QC) issues, some analyses were re-extracted and/or re-analyzed to meet project data quality objectives (DQOs). In these instances, the data associated with passing QA/QC or that met the project DQOs (i.e., method detection limits [MDLs] below screening levels [SLs]) were used and the original results were qualified as "Do Not Report" to provide just one reportable result per sample parameter. Completeness was 100%; all reported data are usable as qualified.

Table 6 provides definitions of the various qualifiers used by the laboratory and data validator.

### **Analytical Testing Results**

**Conventionals and DMMP Chemicals of Concern.** Tables 7 through 17 summarize the analytical results for the 40 DMMU composites alongside the DMMP marine guidelines (DMMP, 2021).

The physical characteristics of the outer reaches consisted predominantly of coarse sand with less than 2% fines. The exception is the South Reach sample which contained 29% fines. The percent fines of the inner reach sediment samples increased moving upstream from Crossover Reach (13.7 to 29.6 % fines)

to Cow Point Reach (72 to 81 % fines). Fines decrease in the uppermost reaches (Aberdeen and South Aberdeen) past Cow Point.

Total organic carbon (TOC) in the outer reaches was below 0.5% except for South Reach which was 0.79%. In the inner reaches, TOC generally increases with the % fines content.

Exclusions from testing are allowed if grain size is at least 80% sand and gravel and TOC is less than 0.5%. The outer reaches typically meet the exclusionary guidelines and thus were not sampled or analyzed for chemistry. South Reach usually has more sand but there was little accumulation in this reach and the sample was taken from the shoal on the edge of the DMMU, near the border of the inner Crossover Reach, which has higher fines. Chemical analyses were not triggered for this sample, but chemistry testing in the South Reach should be tiered to conventional testing results for the next sediment characterization.

As seen in previous characterizations, the DMMP chemicals of concern (COCs) were non-detect or at low concentrations in the inner reach samples. All detected COCs were below SLs. All non-detect reporting limits and/or method detection limits (MDLs) were also below SLs except for total chlordane, which had an elevated MDL from matrix interference. Four DMMU samples (DMMU-NC-05, DMMU-HR-04, DMMU-HR-05, and DMMU-AR-01) had MDLs (2.9 to 3.4 µg/kg) that slightly exceed the DMMP SL for total chlordane (2.8 µg/kg). Using historical data and best professional judgment (BPJ), the DMMP determined that reanalysis was not required, and these results would not be managed as typical SL exceedances requiring bioassays.

**Dioxins/furans.** Tables 8 through 18 provide a summary of the dioxin/furan analyses conducted on sediment from the inner reaches. TEQs were calculated with non-detect values (based on interpretive qualifier) equal to ½ the estimated detection limit.

Results for 2,3,7,8-TCDD ranged from 0.11 (DMMU-SA-05) to 2.30 pptr (DMMU-CP-01) and the TEQs values were from 0.336 (DMMU-SA-02) to 6.55 pptr TEQ (DMMU-CP-01). All results from the inner reach DMMUs were below the current DMMP bioaccumulation trigger guideline value of 15 pptr TEQ for Grays Harbor.

## **DMMP Determinations**

### **Suitability Determination**

Chemical concentrations in the dredge prism composite samples were below the DMMP marine SLs as discussed above. The characterization represented up to 4 million cy of material from the Grays Harbor Navigation Channel. The DMMP agencies have concluded that all the characterized material is suitable for open-water disposal at the Point Chehalis and South Jetty dispersive disposal sites, and for beach nourishment at the Half Moon Bay and South Beach beneficial use sites. Barring changed conditions in the project area (e.g., a spill), the disposal and placement activities covered by this suitability determination for the characterized dredging prism are authorized until the recency expiration date of July 2030 (inner reaches) and July 2033 (outer reaches).

### **Antidegradation Determination**

The sediment to be exposed by dredging must either meet the State of Washington Sediment Management Standards (SMS) or the State's Antidegradation Standard (Ecology, 2013) as outlined by DMMP guidance (DMMP, 2008). Since concentrations of all DMMP chemicals of concern were below the

current marine SLs, the post-dredge surface is considered compliant with the State of Washington Antidegradation Standard.

#### Cow Point Exploratory Area

Four cores were collected in Cow Point to characterize potential new dredge areas in the turning basin. The shoal area north of the existing turning basin is small and was represented by one core composited into one surface DMMU and one subsurface DMMU. Deeper material was archived in case SL exceedances were found in the subsurface DMMU. The core lithology was fairly uniform and consisted of a gray clay. There was a 1 ft layer of sand/silt/organics (at 7 ft below mudline) that was included in the subsurface DMMU. The surface and subsurface samples had low concentrations, all below SLs. Dioxins and furans ranged from 2.0 to 2.7 pptr TEQ.

The southern portion of the turning basin was represented by 3 cores composited into one surface DMMU and one subsurface DMMU. The core lithology in this area ranged from gray sandy clay to gray sandy silt with some gravel and cobble at the bottom of two cores. Small bands of organics were observed in some cores. The surface and subsurface samples had low concentrations, all below SLs. Dioxins and furans ranged from 2.6 to 3.1 pptr TEQ.

If these two areas are added to the navigation channel dredge prism, additional characterization based on the dredge design specifications should be conducted.

#### Debris Management

The DMMP agencies implemented a debris management requirement following the 2015 SMARM to prevent the disposal of debris (natural or anthropogenic) greater than 12 inches in any dimension at open-water disposal sites in Puget Sound. Debris screens are required unless it can be demonstrated that debris is unlikely to be present or that the debris is large woody debris that can be easily observed and removed by other means during dredging.

Because this area is dredged every year and large woody debris has not been observed during recent dredging events, a debris screen is not required. However, if large woody debris is encountered during dredging a 1 ft by 1ft debris screen should be utilized.

#### Notes and Clarifications

The decisions documented in this memorandum do **not** constitute final agency approval of the project. During the public comment period that follows a public notice, resource agencies will provide input on the overall 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.

USACE Navigation maintains the appropriate environmental documentation to cover beneficial use at the South Beach and Half Moon Bay beneficial use sites.

#### 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, 2021. *Dredged Material Evaluation and Disposal Procedures (User Manual)*. Dredged Material Management Program, updated July 2021.

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

EcoAnalysts 2023. Sampling and Analysis Plan: Dredged Material Characterization Grays Harbor Navigation Channel, Grays Harbor, Washington. July 2023.

EcoAnalysts 2024. Sediment Characterization Report: Dredged Material Characterization Grays Harbor Navigation Channel, Grays Harbor, Washington. January 2024.

**Agency Signatures**

The signed copy is on file in the Dredged Material Management Office, Seattle District U.S. Army Corps of Engineers

\_\_\_\_\_  
Date Joy Dunay – U.S. Army Corps of Engineers, Seattle District

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Date Justine Barton – U.S. Environmental Protection Agency, Region 10

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Date Laura Inouye, PhD. – Washington State Department of Ecology

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Date Shannon Soto – Washington State Department of Natural Resources

**Copies Furnished:**

- DMMP agencies
- Elizabeth Chien, USACE Navigation Project Manager
- Regina Edwards, EcoAnalysts, Inc.
- DMMO File

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## **TABLES**

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Table 1. DMMU and Sample Requirements

Reach	Miles	Avg. Annual Vol (cy)	Rank	vol/ DMMU	# of DMMUs	vol/ sample	# of grab samples	Analyses
<b>Outer Reaches</b>								
Bar	5.4	300,000	VL	300,000	1	100,000	3	grain size/TOC
Entrance	1.9	200,000	VL	100,000	2	100,000	2	grain size/TOC
Pt. Chehalis	1.4	400,000	VL	100,000	4	100,000	4	grain size/TOC
South	4.8	100,000	VL	100,000	1	100,000	1	grain size/TOC
<b>Outer Reach Total</b>		<b>1,000,000</b>			<b>8</b>		<b>10</b>	
Reach	Miles	Avg. Annual Vol (cy)	Rank	River Miles for Reach	Distance per DMMU	# of DMMUs	# of grab samples	Analyses
<b>Inner Reaches</b>								
Crossover	2.8	300,000	L	2.8	0.5	6	24	full COC + DF
North Channel	2.6	100,000	L	2.6	0.5	5	20	full COC + DF
Hoquiam	3	100,000	L	3	0.5	6	48	full COC + DF
Cow Point	1.5	600,000	L	1.5	0.5	3	24	full COC + DF
Aberdeen	1.6	100,000	L	1.6	0.5	3	12	full COC + DF
South Aberdeen	2.5	---	L	2.5	0.5	5	20	full COC + DF
<b>Inner Reach Total</b>		<b>1,200,000</b>				<b>28</b>	<b>148</b>	
Reach	New Dredge Area	Estimated volume (cy)	Rank	Cores	# of DMMUs	DMMU Type	Interval (ft)	Analyses
<b>Cow Point</b>	Shoal	<b>600</b>	LM	1	2	Surface	0-4	full COC + DF
						Subsurface	4-8	full COC + DF
						Subsurface 2	8-10	Archive
	Turning Basin 3b	<b>35,000</b>	LM	3	2	Surface	0-4	full COC + DF
						Subsurface	4-8	full COC + DF
						Subsurface 2	8-10	Archive
<b>New Characterization Total</b>		<b>35,600</b>		4	4			
<b>Estimated volume (cy)</b>			<b># of DMMUs</b>			<b># of Cores</b>	<b># of grab samples</b>	
<b>Grand Total</b>		<b>2,235,600</b>			<b>40</b>	<b>4</b>	<b>158</b>	

**Table 2. Actual Station Locations**

Reach	DMMU	Sample/Core ID	Date	Time	Attempt	Latitude	Longitude	Easting	Northing	Distance from Target (ft)
Bar Reach	DMMU-BR-01	BR-01-01	07/23/23	12:15	1 of 1	46.899680	-124.194930	717110	592827	2
		BR-01-02	07/23/23	12:06	1 of 1	46.902280	-124.194200	717337	593766	2
		BR-01-03	07/23/23	11:57	1 of 1	46.904600	-124.189860	718460	594560	85
Entrance Channel	DMMU-EC-01	EC-01-01 R1	07/23/23	12:30	1 of 2	46.910160	-124.159510	726132	596233	2
		EC-01-01 R2	07/23/23	12:36	2 of 2	46.910160	-124.159510	726132	596233	2
	DMMU-EC-02	EC-02-01	07/19/23	7:08	1 of 1	46.909608	-124.146058	729481	595876	99
Point Chehalis	DMMU-PC-01	PC-01-01	07/19/23	6:57	1 of 1	46.909875	-124.144288	729927	595953	26
	DMMU-PC-02	PC-02-01	07/19/23	6:47	1 of 1	46.908498	-124.140073	730957	595402	10
	DMMU-PC-03	PC-03-01	07/19/23	6:37	1 of 1	46.911426	-124.135253	732209	596414	12
	DMMU-PC-04	PC-04-01	07/19/23	6:26	1 of 1	46.912393	-124.133142	732752	596742	10
South Reach	DMMU-SR-01	SR-01-01	07/18/23	7:50	1 of 1	46.932060	-124.017523	761938	602598	31
Crossover Reach	DMMU-CR-01	CR-01-01	07/18/23	8:12	1 of 1	46.932411	-124.016385	762227	602713	26
		CR-01-02	07/18/23	8:19	1 of 1	46.933834	-124.014882	762626	603215	12
		CR-01-03	07/18/23	8:32	1 of 1	46.934525	-124.013847	762895	603455	13
		CR-01-04	07/18/23	8:45	1 of 1	46.936433	-124.010918	763657	604118	2
	DMMU-CR-02	CR-02-01	07/18/23	9:07	1 of 1	46.937215	-124.010264	763833	604395	4
		CR-02-02	07/18/23	9:18	1 of 1	46.939300	-124.007886	764460	605128	15
		CR-02-03	07/18/23	9:35	2 of 2	46.940252	-124.006840	764737	605463	9
		CR-02-04	07/18/23	9:45	1 of 1	46.941645	-124.004991	765221	605951	3
	DMMU-CR-03	CR-03-01	07/18/23	9:58	1 of 1	46.942755	-124.003680	765566	606341	2
		CR-03-02	07/18/23	10:08	1 of 1	46.943199	-124.001976	765998	606483	89
		CR-03-03	07/18/23	10:16	1 of 1	46.945510	-124.000229	766472	607306	33
		CR-03-04	07/18/23	10:25	1 of 1	46.946450	-123.997764	767102	607621	23
	DMMU-CR-04	CR-04-01	07/18/23	10:40	1 of 1	46.947518	-123.997740	767125	608010	38
		CR-04-02	07/18/23	10:48	1 of 1	46.949089	-123.993923	768103	608540	16
		CR-04-03	07/18/23	10:57	1 of 1	46.950362	-123.992301	768528	608986	11
		CR-04-04	07/18/23	11:06	1 of 1	46.951663	-123.990949	768886	609445	23

**Table 2. Actual Station Locations**

Reach	DMMU	Sample/Core ID	Date	Time	Attempt	Latitude	Longitude	Easting	Northing	Distance from Target (ft)
Crossover Reach	DMMU-CR-05	CR-05-01	07/18/23	11:16	1 of 1	46.952220	-123.990108	769105	609639	45
		CR-05-02	07/18/23	11:22	1 of 1	46.953845	-123.989682	769238	610226	4
		CR-05-03	07/18/23	11:45	3 of 3	46.954846	-123.986917	769944	610560	50
		CR-05-04	07/18/23	11:57	1 of 1	46.956229	-123.986814	769992	611063	17
	DMMU-CR-06	CR-06-01	07/18/23	12:42	1 of 1	46.957184	-123.983931	770726	611379	25
		CR-06-02	07/18/23	12:52	1 of 1	46.958508	-123.982319	771150	611844	30
		CR-06-03	07/18/23	13:02	1 of 1	46.959829	-123.980089	771727	612301	27
CR-06-04		07/18/23	13:14	1 of 1	46.960667	-123.978145	772226	612585	24	
North Channel	DMMU-NC-01	NC-01-01	07/18/23	13:32	1 of 1	46.961197	-123.975426	772912	612748	31
		NC-01-02	07/18/23	13:44	1 of 1	46.961431	-123.972900	773546	612805	30
		NC-01-03	07/18/23	13:52	1 of 1	46.961670	-123.970555	774135	612867	21
		NC-01-04	07/18/23	14:06	1 of 1	46.961932	-123.966855	775062	612922	24
	DMMU-NC-02	NC-02-01	07/18/23	14:22	1 of 1	46.962199	-123.964018	775774	612988	98
		NC-02-02	07/18/23	14:35	1 of 1	46.962987	-123.962834	776082	613262	1
		NC-02-03	07/18/23	14:42	1 of 1	46.962582	-123.961056	776519	613095	34
		NC-02-04	07/18/23	14:52	1 of 1	46.963531	-123.957410	777444	613400	27
	DMMU-NC-03	NC-03-01	07/18/23	15:13	1 of 1	46.963836	-123.954962	778059	613485	11
		NC-03-02	07/18/23	15:24	1 of 1	46.964135	-123.952781	778608	613570	38
		NC-03-03	07/18/23	15:36	1 of 1	46.964815	-123.948406	779710	613770	44
		NC-03-04	07/18/23	15:54	2 of 2	46.965450	-123.944977	780576	613964	49
	DMMU-NC-04	NC-04-01	07/19/23	8:02	1 of 1	46.965421	-123.944360	780729	613947	24
		NC-04-02	07/19/23	8:11	1 of 1	46.965305	-123.941830	781358	613877	39
		NC-04-03	07/19/23	8:18	1 of 1	46.966662	-123.939852	781873	614350	15
		NC-04-04	07/19/23	8:25	1 of 1	46.966480	-123.937242	782521	614255	33
DMMU-NC-05	NC-05-01	07/19/23	8:41	1 of 1	46.967876	-123.931707	783924	614703	23	
	NC-05-02	07/19/23	8:51	1 of 1	46.968324	-123.930055	784343	614849	31	
	NC-05-03	07/19/23	8:56	1 of 1	46.968672	-123.928950	784624	614964	15	
	NC-05-04	07/19/23	9:04	1 of 1	46.968826	-123.927231	785056	615001	16	

Table 2. Actual Station Locations

Reach	DMMU	Sample/Core ID	Date	Time	Attempt	Latitude	Longitude	Easting	Northing	Distance from Target (ft)
Hoquiam Reach	DMMU-HR-01	HR-01-01	07/19/23	9:16	1 of 1	46.969059	-123.925786	785420	615070	5
		HR-01-02	07/19/23	9:23	1 of 1	46.969094	-123.924672	785698	615071	38
		HR-01-03	07/19/23	9:30	1 of 1	46.969175	-123.923711	785939	615090	9
		HR-01-04	07/19/23	9:36	1 of 1	46.969047	-123.922561	786224	615031	32
		HR-01-05	07/19/23	9:43	1 of 1	46.968956	-123.921434	786504	614986	29
		HR-01-06	07/19/23	9:52	1 of 1	46.969010	-123.920052	786849	614991	24
		HR-01-07	07/19/23	9:59	1 of 1	46.968916	-123.918463	787244	614939	35
		HR-01-08	07/19/23	10:05	1 of 1	46.968783	-123.917690	787435	614882	13
	DMMU-HR-02	HR-02-01	07/19/23	10:19	1 of 1	46.968692	-123.915477	787985	614825	25
		HR-02-02	07/19/23	10:24	1 of 1	46.968604	-123.914123	788322	614778	14
		HR-02-03	07/19/23	10:29	1 of 1	46.968533	-123.912510	788723	614735	13
		HR-02-04	07/19/23	10:34	1 of 1	46.968464	-123.911065	789082	614694	21
		HR-02-05	07/19/23	10:40	1 of 1	46.968391	-123.909463	789480	614651	24
		HR-02-06	07/19/23	10:46	1 of 1	46.969087	-123.907400	790006	614882	12
		HR-02-07	07/19/23	10:51	1 of 1	46.968221	-123.906496	790218	614556	32
		HR-02-08	07/19/23	10:58	1 of 1	46.968997	-123.905639	790444	614830	22
	DMMU-HR-03	HR-03-01	07/19/23	11:09	1 of 1	46.969001	-123.904746	790667	614822	17
		HR-03-02	07/19/23	11:14	1 of 1	46.968028	-123.903180	791042	614450	4
		HR-03-03	07/19/23	11:20	1 of 1	46.968809	-123.901845	791387	614721	10
		HR-03-04	07/19/23	11:25	1 of 1	46.968652	-123.900193	791797	614646	5
		HR-03-05	07/19/23	11:29	1 of 1	46.967820	-123.898423	792225	614324	7
		HR-03-06	07/19/23	11:35	1 of 1	46.968483	-123.898225	792285	614563	11
		HR-03-07	07/19/23	11:39	1 of 1	46.968185	-123.896737	792651	614438	2
		HR-03-08	07/19/23	11:44	1 of 1	46.968423	-123.895596	792940	614513	2
	DMMU-HR-04	HR-04-01	07/19/23	12:42	1 of 1	46.968339	-123.894358	793247	614469	9
		HR-04-02	07/19/23	12:47	1 of 1	46.967846	-123.893284	793507	614278	3
		HR-04-03	07/19/23	12:53	1 of 1	46.968352	-123.892196	793787	614451	9
		HR-04-04	07/19/23	13:00	1 of 1	46.967915	-123.890642	794168	614274	11

Table 2. Actual Station Locations

Reach	DMMU	Sample/Core ID	Date	Time	Attempt	Latitude	Longitude	Easting	Northing	Distance from Target (ft)
Hoquiam Reach	DMMU-HR-04	HR-04-05	07/19/23	13:06	1 of 1	46.968475	-123.889526	794455	614467	3
		HR-04-06	07/19/23	13:18	1 of 1	46.968161	-123.889190	794534	614349	8
		HR-04-07	07/19/23	13:25	1 of 1	46.968458	-123.888000	794835	614444	1
		HR-04-08	07/19/23	13:31	1 of 1	46.968528	-123.886030	795327	614449	8
	DMMU-HR-05	HR-05-01	07/19/23	13:44	1 of 1	46.967781	-123.880209	796768	614114	8
		HR-05-02	07/19/23	13:52	1 of 1	46.967958	-123.879168	797030	614167	21
		HR-05-03	07/19/23	13:59	1 of 1	46.967879	-123.878235	797262	614129	3
		HR-05-04	07/19/23	14:06	1 of 1	46.968237	-123.877283	797505	614249	28
		HR-05-05	07/19/23	14:14	1 of 1	46.967857	-123.876392	797721	614101	5
		HR-05-06	07/19/23	14:19	1 of 1	46.967829	-123.875459	797953	614081	8
		HR-05-07	07/19/23	14:27	1 of 1	46.967761	-123.874439	798207	614045	16
		HR-05-08	07/19/23	14:33	1 of 1	46.967611	-123.873868	798347	613984	10
	DMMU-HR-06	HR-06-01	07/20/23	14:08	1 of 1	46.967478	-123.873123	798531	613928	7
		HR-06-02	07/20/23	14:28	2 of 2	46.967278	-123.871712	798879	613840	16
		HR-06-03	07/20/23	14:39	1 of 1	46.968038	-123.870595	799170	614105	42
		HR-06-04	07/20/23	14:48	1 of 1	46.966990	-123.869553	799413	613712	26
		HR-06-05	07/20/23	15:03	1 of 1	46.966841	-123.867995	799800	613641	14
		HR-06-06	07/20/23	15:13	1 of 1	46.967671	-123.867126	800029	613934	14
		HR-06-07	07/20/23	15:38	3 of 3	46.966346	-123.864277	800719	613421	70
HR-06-08		07/20/23	15:48	1 of 1	46.967233	-123.863441	800942	613735	0	
Cow Point	DMMU-CP-01	CP-01-01	07/21/23	7:15	2 of 2	46.967172	-123.863199	801001	613711	12
		CP-01-02	07/21/23	7:25	1 of 1	46.965487	-123.861100	801498	613074	19
		CP-01-03	07/21/23	7:33	1 of 1	46.965086	-123.860162	801726	612918	14
		CP-01-04	07/21/23	7:39	1 of 1	46.964838	-123.858913	802034	612814	22
		CP-01-05	07/21/23	7:46	1 of 1	46.964418	-123.858314	802177	612655	28
		CP-01-06	07/21/23	7:52	1 of 1	46.963931	-123.857109	802470	612465	17
		CP-01-07	07/21/23	8:04	3 of 3	46.963593	-123.855911	802763	612329	32
		CP-01-08	07/21/23	8:09	1 of 1	46.963233	-123.854971	802992	612188	6

Table 2. Actual Station Locations

Reach	DMMU	Sample/Core ID	Date	Time	Attempt	Latitude	Longitude	Easting	Northing	Distance from Target (ft)
Cow Point	DMMU-CP-02	CP-02-01	07/21/23	8:27	1 of 1	46.962953	-123.854247	803169	612078	12
		CP-02-02	07/21/23	8:34	2 of 2	46.962802	-123.853756	803289	612018	11
		CP-02-03	07/21/23	8:42	1 of 1	46.961351	-123.851598	803805	611466	19
		CP-02-04	07/21/23	8:47	1 of 1	46.960733	-123.851046	803933	611235	10
		CP-02-05	07/21/23	8:52	1 of 1	46.960008	-123.850670	804015	610967	14
		CP-02-06	07/21/23	8:57	1 of 1	46.959443	-123.850109	804147	610755	20
		CP-02-07	07/21/23	9:04	1 of 1	46.959069	-123.848021	804662	610597	7
		CP-02-08	07/21/23	9:10	1 of 1	46.960650	-123.845156	805401	611142	17
	DMMU-CP-03	CP-03-01	07/21/23	9:31	1 of 1	46.960518	-123.844600	805538	611089	2
		CP-03-02	07/21/23	9:38	1 of 1	46.960564	-123.843322	805857	611092	15
		CP-03-03	07/21/23	9:43	1 of 1	46.960271	-123.842239	806123	610974	19
		CP-03-04	07/21/23	9:48	1 of 1	46.960330	-123.840540	806548	610977	29
		CP-03-05	07/21/23	9:53	1 of 1	46.960051	-123.839239	806868	610862	9
		CP-03-06	07/21/23	9:58	1 of 1	46.960331	-123.837901	807206	610950	10
		CP-03-07	07/21/23	10:03	1 of 1	46.959231	-123.836562	807523	610535	3
		CP-03-08	07/21/23	10:09	1 of 1	46.960436	-123.835444	807820	610962	20
	DMMU-CPS-01/02	CPS-C-01	07/22/23	8:35	1 of 1	46.961129	-123.846755	805009	611334	20
	DMMU-CPTB-01/02	CPTB-C-01	07/22/23	11:14	2 of 2	46.958621	-123.846178	805115	610414	137
CPTB-C-02		07/22/23	12:10	1 of 1	46.958667	-123.844173	805616	610410	45	
CPTB-C-03		07/22/23	17:19	3 of 4	46.958599	-123.841763	806216	610359	95	
Aberdeen Reach	DMMU-AR-01	AR-01-01	07/20/23	16:14	1 of 1	46.960700	-123.834562	808044	611049	19
		AR-01-02	07/20/23	16:24	1 of 1	46.961194	-123.832391	808594	611206	13
		AR-01-03	07/20/23	16:45	3 of 3	46.962948	-123.827599	809816	611794	85
		AR-01-04	07/20/23	16:55	1 of 1	46.963349	-123.826507	810095	611929	47
	DMMU-AR-02	AR-02-01	07/21/23	10:23	1 of 1	46.963964	-123.824785	810534	612135	8
		AR-02-02	07/21/23	10:37	2 of 2	46.964942	-123.823110	810967	612474	23
		AR-02-03	07/21/23	10:52	2 of 2	46.966276	-123.819940	811778	612927	32
		AR-02-04	07/21/23	11:03	2 of 2	46.967503	-123.817497	812406	613348	4

**Table 2. Actual Station Locations**

Reach	DMMU	Sample/Core ID	Date	Time	Attempt	Latitude	Longitude	Easting	Northing	Distance from Target (ft)
Aberdeen Reach	DMMU-AR-03	AR-03-01	07/21/23	11:15	2 of 2	46.968747	-123.815309	812971	613779	8
		AR-03-02	07/21/23	11:24	2 of 2	46.969204	-123.815037	813046	613942	1
		AR-03-03	07/21/23	11:33	2 of 2	46.969764	-123.813999	813313	614135	14
		AR-03-04	07/21/23	11:41	1 of 1	46.972604	-123.807921	814873	615107	15
South Aberdeen Reach	DMMU-SA-01	SA-01-01	07/21/23	12:54	1 of 1	46.972915	-123.807263	815042	615213	10
		SA-01-02	07/21/23	13:02	1 of 1	46.973515	-123.804853	815652	615406	12
		SA-01-03	07/21/23	13:09	1 of 1	46.974859	-123.801300	816559	615859	18
		SA-01-04	07/21/23	13:14	1 of 1	46.975230	-123.799053	817125	615971	17
	DMMU-SA-02	SA-02-01	07/21/23	13:28	1 of 1	46.975516	-123.797733	817458	616061	6
		SA-02-02	07/21/23	13:33	2 of 2	46.976242	-123.795381	818056	616301	20
		SA-02-03	07/21/23	13:46	2 of 2	46.976336	-123.794838	818193	616330	25
		SA-02-04	07/21/23	13:55	2 of 2	46.976672	-123.793116	818627	616434	16
	DMMU-SA-03	SA-03-01	07/21/23	14:12	2 of 2	46.977204	-123.783379	821064	616527	18
		SA-03-02	07/21/23	14:17	1 of 1	46.976131	-123.781968	821400	616121	9
		SA-03-03	07/21/23	14:29	3 of 3	46.974975	-123.781451	821511	615694	21
		SA-03-04	07/21/23	14:35	1 of 1	46.974340	-123.780569	821721	615454	9
	DMMU-SA-04	SA-04-01	07/21/23	15:04	5 of 5	46.973249	-123.780592	821699	615056	34
		SA-04-02	07/21/23	15:15	2 of 2	46.970079	-123.779363	821957	613889	7
		SA-04-03	07/21/23	15:23	2 of 2	46.968111	-123.778900	822043	613167	9
		SA-04-04	07/21/23	15:45	4 of 4	46.967073	-123.778413	822149	612784	22
	DMMU-SA-05	SA-05-01	07/21/23	16:11	4 of 4	46.966465	-123.778394	822144	612562	33
		SA-05-02	07/21/23	16:32	4 of 4	46.965205	-123.778062	822208	612099	23
		SA-05-03	07/21/23	16:45	1 of 1	46.963664	-123.776483	822579	611521	11
		SA-05-04	07/21/23	16:50	1 of 1	46.961488	-123.774678	822996	610710	44

**Table 3. Grab Sample Specific Information**

Reach	DMMU	Sample ID	Project Depth (MLLW)	Water Depth (ft)	Tidal Stage (ft)	Actual Mudline (MLLW)	Penetration (cm)	Volume Retained
Bar Reach	DMMU-BR-01	BR-01-01	-48	50.3	7.13	-43.17	5	1 L
		BR-01-02	-48	50.1	7.18	-42.92	5	1 L
		BR-01-03	-48	50.1	7.22	-42.88	5	1 L
Entrance Channel	DMMU-EC-01	EC-01-01 R1*	-48	49.0	7.01	-41.99	5	1 L
	DMMU-EC-01	EC-01-01 R2*	-48	46.3	6.93	-39.37	5	1 L
	DMMU-EC-02	EC-02-01	-42	47.8	0.11	-47.69	10	52 oz
Point Chehalis	DMMU-PC-01	PC-01-01	-42	44.3	0.28	-44.02	10	52 oz
	DMMU-PC-02	PC-02-01	-42	38.3	0.66	-37.64	6	52 oz
	DMMU-PC-03	PC-03-01	-42	42.8	0.86	-41.94	8	52 oz
	DMMU-PC-04	PC-04-01	-42	40.8	1.26	-39.54	11	52 oz
South Reach	DMMU-SR-01	SR-01-01	-40	37.0	-1.61	-38.61	13	52 oz
Crossover Reach	DMMU-CR-01	CR-01-01	-40	39.0	-1.56	-40.56	11	2 L
		CR-01-02	-40	34.0	-1.51	-35.51	17	2 L
		CR-01-03	-40	35.0	-1.37	-36.37	13	2 L
		CR-01-04	-40	38.0	-1.15	-39.15	14	2 L
	DMMU-CR-02	CR-02-01	-40	37.1	-0.68	-37.78	15	1.5 L
		CR-02-02	-40	36.0	-0.39	-36.39	15	1.5 L
		CR-02-03	-40	38.4	-0.04	-38.44	15	1.5 L
		CR-02-04	-40	40.5	0.23	-40.27	13	1.5 L
	DMMU-CR-03	CR-03-01	-40	40.7	0.41	-40.29	13	1 L
		CR-03-02	-40	40.7	0.76	-39.94	11	1 L
		CR-03-03	-40	40.3	0.93	-39.37	14	1 L
		CR-03-04	-40	41.8	1.27	-40.53	13	1 L
	DMMU-CR-04	CR-04-01	-40	41.8	1.59	-40.21	14	1 L
		CR-04-02	-40	38.5	1.93	-36.57	15	1 L
		CR-04-03	-40	40.3	2.1	-38.2	15	1 L
		CR-04-04	-40	40.8	2.43	-38.37	14	1 L
	DMMU-CR-05	CR-05-01	-40	38.4	2.62	-35.78	15	1 L
		CR-05-02	-40	40.4	2.98	-37.42	14	1 L
		CR-05-03	-40	38.5	3.47	-35.03	18	1 L
		CR-05-04	-40	41.0	3.83	-37.17	13	1 L
	DMMU-CR-06	CR-06-01	-40	39.3	5.17	-34.13	16	1 L
		CR-06-02	-40	41.7	5.31	-36.39	14	1 L
		CR-06-03	-40	37.2	5.58	-31.62	12	1 L
		CR-06-04	-40	37.1	5.84	-31.26	11	1 L



**Table 3. Grab Sample Specific Information**

Reach	DMMU	Sample ID	Project Depth (MLLW)	Water Depth (ft)	Tidal Stage (ft)	Actual Mudline (MLLW)	Penetration (cm)	Volume Retained
North Channel	DMMU-NC-01	NC-01-01	-40	41.7	6.18	-35.52	12	2 L
		NC-01-02	-40	40.3	6.45	-33.85	13	2 L
		NC-01-03	-40	43.0	6.57	-36.43	10	2 L
		NC-01-04	-40	43.8	6.77	-37.03	12	2 L
	DMMU-NC-02	NC-02-01	-40	45.1	6.93	-38.17	13	2 L
		NC-02-02	-40	47.8	7.01	-40.79	13	2 L
		NC-02-03	-40	46.5	7.1	-39.4	13	2 L
		NC-02-04	-40	47.2	7.11	-40.09	11	2 L
	DMMU-NC-03	NC-03-01	-40	48.2	7.11	-41.09	13	2 L
		NC-03-02	-40	47.1	7.07	-40.03	13	2 L
		NC-03-03	-40	46.7	6.96	-39.74	13	2 L
		NC-03-04	-40	45.8	6.77	-39.03	14	2 L
	DMMU-NC-04	NC-04-01	-40	40.0	-1.32	-41.32	14	2 L
		NC-04-02	-40	39.7	-1.43	-41.13	14	2 L
		NC-04-03	-40	37.5	-1.45	-38.95	14	2 L
		NC-04-04	-40	38.2	-1.45	-39.65	12	2 L
DMMU-NC-05	NC-05-01	-40	38.2	-1.44	-39.64	15	2 L	
	NC-05-02	-40	33.5	-1.38	-34.88	14	2 L	
	NC-05-03	-40	34.1	-1.28	-35.38	14	2 L	
	NC-05-04	-40	32.5	-1.24	-33.74	13	2 L	
Hoquiam Reach	DMMU-HR-01	HR-01-01	-40	36.3	-1.03	-37.33	12	1.5 L
		HR-01-02	-40	35.5	-1.03	-36.53	13	1.5 L
		HR-01-03	-40	36.8	-1.48	-38.28	13	1.5 L
		HR-01-04	-40	35.2	-0.63	-35.83	13	1.5 L
		HR-01-05	-40	32.5	-0.63	-33.13	14	1.5 L
		HR-01-06	-40	37.5	-0.25	-37.75	13	1.5 L
		HR-01-07	-40	37.6	-0.25	-37.85	14	1.5 L
		HR-01-08	-40	36.8	0.01	-36.79	15	1.5 L
	DMMU-HR-02	HR-02-01	-40	39.7	0.34	-39.36	14	1.5 L
		HR-02-02	-40	40.8	0.5	-40.3	12	1.5 L
		HR-02-03	-40	40.3	0.66	-39.64	13	1.5 L
		HR-02-04	-40	39.6	0.66	-38.94	14	1.5 L
		HR-02-05	-40	40.1	0.82	-39.28	15	1.5 L
		HR-02-06	-40	40.4	1.11	-39.29	13	1.5 L
		HR-02-07	-40	40.2	1.11	-39.09	14	1.5 L
		HR-02-08	-40	40.3	1.26	-39.04	14	1.5 L

**Table 3. Grab Sample Specific Information**

Reach	DMMU	Sample ID	Project Depth (MLLW)	Water Depth (ft)	Tidal Stage (ft)	Actual Mudline (MLLW)	Penetration (cm)	Volume Retained
Hoquiam Reach	DMMU-HR-03	HR-03-01	-40	39.8	1.62	-38.18	17	1.5 L
		HR-03-02	-40	40.4	1.79	-38.61	15	1.5 L
		HR-03-03	-40	38.2	2.11	-36.09	18	1.5 L
		HR-03-04	-40	38.0	2.11	-35.89	17	1.5 L
		HR-03-05	-40	41.4	2.11	-39.29	7	1.5 L
		HR-03-06	-40	39.5	2.46	-37.04	18	1.5 L
		HR-03-07	-40	40.5	2.46	-38.04	15	1.5 L
		HR-03-08	-40	38.9	2.64	-36.26	18	1.5 L
	DMMU-HR-04	HR-04-01	-40	40.7	4.36	-36.34	17	1.5 L
		HR-04-02	-40	44.2	4.53	-39.67	7	1.5 L
		HR-04-03	-40	40.3	4.53	-35.77	17	1.5 L
		HR-04-04	-40	45.2	4.83	-40.37	12	1.5 L
		HR-04-05	-40	39.2	4.83	-34.37	18	1.5 L
		HR-04-06	-40	45.1	5.29	-39.81	13	1.5 L
		HR-04-07	-40	42.9	5.29	-37.61	15	1.5 L
		HR-04-08	-40	46.1	5.57	-40.53	13	1.5 L
	DMMU-HR-05	HR-05-01	-40	44.2	5.81	-38.39	13	1.5 L
		HR-05-02	-40	45.2	5.94	-39.26	14	1.5 L
		HR-05-03	-40	41.3	6.19	-35.11	14	1.5 L
		HR-05-04	-40	47.5	6.3	-41.2	13	1.5 L
		HR-05-05	-40	43.8	6.39	-37.41	14	1.5 L
		HR-05-06	-40	45.1	6.51	-38.59	15	1.5 L
		HR-05-07	-40	45.8	6.62	-39.18	13	1.5 L
		HR-05-08	-40	46.8	6.71	-40.09	13	1.5 L
DMMU-HR-06	HR-06-01	-40	43.3	5.81	-37.49	30	1.5 L	
	HR-06-02	-40	47.2	6.22	-40.98	18	1.5 L	
	HR-06-03	-40	47.0	6.46	-40.54	10	1.5 L	
	HR-06-04	-40	48.0	6.66	-41.34	15	1.5 L	
	HR-06-05	-40	46.6	6.84	-39.76	23	1.5 L	
	HR-06-06	-40	49.2	7.08	-42.12	22	1.5 L	
	HR-06-07	-40	49.2	7.26	-41.94	9	1.5 L	
	HR-06-08	-40	45.8	7.36	-38.44	30	1.5 L	
Cow Point	DMMU-CP-01	CP-01-01	-40	42.7	2.36	-40.34	21	1 L
		CP-01-02	-40	40.3	1.99	-38.26	19	1 L
		CP-01-03	-40	38.3	1.78	-36.52	27	1 L
		CP-01-04	-40	39.2	1.44	-37.76	27	1 L
		CP-01-05	-40	38.7	1.28	-37.42	30	1 L
		CP-01-06	-40	34.6	1.1	-33.5	30	1 L
		CP-01-07	-40	36.1	0.78	-35.32	30	1 L
		CP-01-08	-40	36.2	0.78	-35.42	30	1 L

**Table 3. Grab Sample Specific Information**

Reach	DMMU	Sample ID	Project Depth (MLLW)	Water Depth (ft)	Tidal Stage (ft)	Actual Mudline (MLLW)	Penetration (cm)	Volume Retained
Cow Point	DMMU-CP-02	CP-02-01	-40	36.2	0.35	-35.85	30	1 L
		CP-02-02	-40	36.3	0.06	-36.24	30	1 L
		CP-02-03	-40	38.6	-0.05	-38.65	30	1 L
		CP-02-04	-40	39.0	-0.12	-39.12	30	1 L
		CP-02-05	-40	34.2	-0.19	-34.39	30	1 L
		CP-02-06	-40	33.6	-0.19	-33.79	30	1 L
		CP-02-07	-40	37.7	-0.32	-38.02	30	1 L
		CP-02-08	-40	29.4	-0.38	-29.78	30	1 L
	DMMU-CP-03	CP-03-01	-40	28.9	-0.53	-29.43	27	1 L
		CP-03-02	-40	25.2	-0.53	-25.73	30	1 L
		CP-03-03	-40	32.5	-0.53	-33.03	29	1 L
		CP-03-04	-40	31.5	-0.51	-32.01	29	1 L
		CP-03-05	-40	32.6	-0.49	-33.09	28	1 L
		CP-03-06	-40	32.5	-0.45	-32.95	27	1 L
		CP-03-07	-40	33.1	-0.39	-33.49	30	1 L
		CP-03-08	-40	30.1	-0.29	-30.39	22	1 L
Aberdeen Reach	DMMU-AR-01	AR-01-01	-34	36.1	7.29	-28.81	30	1 L
		AR-01-02	-34	36.0	7.25	-28.75	30	1 L
		AR-01-03	-34	36.7	7.1	-29.6	13	1 L
		AR-01-04	-34	35.6	7	-28.6	11	1 L
	DMMU-AR-02	AR-02-01	-34	29.4	-0.1	-29.5	18	1 L
		AR-02-02	-34	29.9	0.1	-29.8	8	1 L
		AR-02-03	-34	30.5	0.48	-30.02	12	1 L
		AR-02-04	-34	30.5	0.59	-29.91	12	1 L
	DMMU-AR-03	AR-03-01	-34	30.4	0.88	-29.52	12	1 L
		AR-03-02	-34	32.1	1.11	-30.99	7	1 L
		AR-03-03	-34	32.9	1.23	-31.67	13	1 L
		AR-03-04	-34	31.9	1.5	-30.4	13	1 L
South Aberdeen Reach	DMMU-SA-01	SA-01-01	-34	32.1	3.47	-28.63	17	1 L
		SA-01-02	-34	33.5	3.63	-29.87	17	1 L
		SA-01-03	-34	35.7	3.78	-31.92	12	1 L
		SA-01-04	-34	35.8	3.94	-31.86	14	1 L
	DMMU-SA-02	SA-02-01	-34	36.6	4.58	-32.02	16	1 L
		SA-02-02	-34	36.6	4.58	-32.02	9	1 L
		SA-02-03	-34	36.6	4.93	-31.67	13	1 L
		SA-02-04	-34	37.8	5.1	-32.7	5	1 L

**Table 3. Grab Sample Specific Information**

Reach	DMMU	Sample ID	Project Depth (MLLW)	Water Depth (ft)	Tidal Stage (ft)	Actual Mudline (MLLW)	Penetration (cm)	Volume Retained
South Aberdeen Reach	DMMU-SA-03	SA-03-01	-34	34.9	5.58	-29.32	17	1 L
		SA-03-02	-34	34.4	5.74	-28.66	21	1 L
		SA-03-03	-34	34.1	6.01	-28.09	17	1 L
		SA-03-04	-34	32.6	6.14	-26.46	18	1 L
	DMMU-SA-04	SA-04-01	-34	36.2	6.75	-29.45	15	1 L
		SA-04-02	-34	35.2	6.86	-28.34	24	1 L
		SA-04-03	-34	35.4	7.06	-28.34	17	1 L
		SA-04-04	-34	32.4	7.4	-25	14	1 L
	DMMU-SA-05	SA-05-01	-34	33.8	7.59	-26.21	18	1 L
		SA-05-02	-34	36.1	7.58	-28.52	10	1 L
		SA-05-03	-34	34.0	7.59	-26.41	13	1 L
		SA-05-04	-34	37.5	7.56	-29.94	13	1 L

\* Co-located grabs required to ensure adequate sediment volume

**Table 4. Core Sample Specific Information**

DMMU	Core ID	Water Depth (ft)	Tidal Stage (ft)	Actual Mudline (MLLW)	Core Length (ft)	Penetration (ft)	% Recovery	Core Retained (ft)	Elevation Interval (ft MLLW)	Interval below Mudline (ft)	Sample Length (ft)	Sample ID
DMMU-CPS-01	CPS-C-01	15.3	1.36	-13.9	11.6	12	97%	11.6	-13.9 to -17.9	0.0 to 4.0	4.0	CPS-01-01-SUR
DMMU-CPS-02									-17.9 to -21.9	4.0 to 8.0	4.0	CPS-02-01-SUB
DMMU-CPS-03									-21.9 to -23.9	8.0 to 10.0	2.0	CPS-03-01-SUB2
DMMU-CPS-04									-23.9 to -25.5	10.0 to 11.6	1.6	CPS-04-01-SUB3
DMMU-CPTB-01	CPTB-C-01	16.3	0.65	-15.7	11.4	11.4	100%	11.4	-15.65 to -19.7	0.0 to 4.0	4.0	CPTB-01-01-SUR
DMMU-CPTB-02									-19.7 to -23.7	4.0 to 8.0	4.0	CPTB-02-01-SUB
DMMU-CPTB-03									-23.7 to -25.7	8.0 to 10.0	2.0	CPTB-03-01-SUB2
DMMU-CPTB-04									-25.7 to -27.1	10.0 to 11.4	1.4	CPTB-04-01-SUB3
DMMU-CPTB-01	CPTB-C-02	17.5	1.78	-15.7	8.3	8.5	98%	8.3	-15.7 to -19.7	0.0 to 4.0	4.0	CPTB-01-02-SUR
DMMU-CPTB-02									19.7 to -23.7	4.0 to 8.0	4.0	CPTB-02-02-SUB
DMMU-CPTB-03									-23.7 to -24.0	8.0 to 8.3	0.3	CPTB-03-02-SUB2
DMMU-CPTB-01	CPTB-C-03	25.0	7.63	-17.4	5.9	7	84%	5.9	-17.4 to -21.4	0.0 to 4.0	4.0	CPTB-01-03-SUR
DMMU-CPTB-02									-21.4 to -23.3	4.0 to 5.9	1.9	CPTB-02-03-SUB

Table 5. DMMU Composite Plan and Chemical Performed

Reach	DMMU	Core ID	Sample ID	Chemical analysis				Archive								
				Grain Size / TOC only	Sed. Conventionals	DMMP COC	Dioxin / Furans	Individual	DMMU Comp.	Bioassay						
Bar Reach	DMMU-BR-01		BR-01-01	X												
			BR-01-02								X	X				
			BR-01-03													
Entrance Channel	DMMU-EC-01		EC-01-01	X							X					
	DMMU-EC-02		EC-02-01	X												
Point Chehalis	DMMU-PC-01		PC-01-01	X							X					
	DMMU-PC-02		PC-02-01	X												
	DMMU-PC-03		PC-03-01	X												
	DMMU-PC-04		PC-04-01	X												
South Reach	DMMU-SR-01		SR-01-01	X							X					
Crossover Reach	DMMU-CR-01		CR-01-01									X	X	X		X
			CR-01-02													
		CR-01-03														
		CR-01-04														
	DMMU-CR-02	CR-02-01	X		X	X	X									
		CR-02-02														
		CR-02-03														
		CR-02-04														
	DMMU-CR-03	CR-03-01	X		X	X	X									
		CR-03-02														
		CR-03-03														
		CR-03-04														
	DMMU-CR-04	CR-04-01	X		X	X	X									
		CR-04-02														
		CR-04-03														
		CR-04-04														
Crossover Reach	DMMU-CR-05	CR-05-01			X	X	X		X							
		CR-05-02														
		CR-05-03														
		CR-05-04														

**Table 5. DMMU Composite Plan and Chemical Performed**

Reach	DMMU	Core ID	Sample ID	Chemical analysis				Archive		
				Grain Size / TOC only	Sed. Conventionals	DMMP COC	Dioxin / Furans	Individual	DMMU Comp.	Bioassay
Crossover Reach	DMMU-CR-06		CR-06-01		X	X	X		X	
			CR-06-02							
			CR-06-03							
			CR-06-04							
North Channel	DMMU-NC-01		NC-01-01		X	X	X		X	X
			NC-01-02							
			NC-01-03							
			NC-01-04							
	DMMU-NC-02		NC-02-01		X	X	X		X	X
			NC-02-02							
			NC-02-03							
			NC-02-04							
	DMMU-NC-03		NC-03-01		X	X	X		X	X
			NC-03-02							
			NC-03-03							
			NC-03-04							
	DMMU-NC-04		NC-04-01		X	X	X		X	X
			NC-04-02							
			NC-04-03							
			NC-04-04							
	DMMU-NC-05		NC-05-01		X	X	X		X	X
			NC-05-02							
			NC-05-03							
			NC-05-04							

**Table 5. DMMU Composite Plan and Chemical Performed**

Reach	DMMU	Core ID	Sample ID	Chemical analysis				Archive			
				Grain Size / TOC only	Sed. Conventionals	DMMP COC	Dioxin / Furans	Individual	DMMU Comp.	Bioassay	
Crossover Reach	DMMU-CR-06		CR-06-01		X	X	X		X		
			CR-06-02								
			CR-06-03								
			CR-06-04								
North Channel	DMMU-NC-01		NC-01-01		X	X	X		X	X	
			NC-01-02								
			NC-01-03								
			NC-01-04								
	DMMU-NC-02		NC-02-01		X	X	X			X	X
			NC-02-02								
			NC-02-03								
			NC-02-04								
	DMMU-NC-03		NC-03-01		X	X	X			X	X
			NC-03-02								
			NC-03-03								
			NC-03-04								
	DMMU-NC-04		NC-04-01		X	X	X			X	X
			NC-04-02								
			NC-04-03								
			NC-04-04								
	DMMU-NC-05		NC-05-01		X	X	X			X	X
			NC-05-02								
			NC-05-03								
			NC-05-04								



**Table 5. DMMU Composite Plan and Chemical Performed**

Reach	DMMU	Core ID	Sample ID	Chemical analysis				Archive				
				Grain Size / TOC only	Sed. Conventionals	DMMP COC	Dioxin / Furans	Individual	DMMU Comp.	Bioassay		
Hoquiam Reach	DMMU-HR-01	[REDACTED]	HR-01-01	[REDACTED]	X	X	X	[REDACTED]	X	X		
			HR-01-02									
			HR-01-03									
			HR-01-04									
			HR-01-05									
			HR-01-06									
			HR-01-07									
			HR-01-08									
	DMMU-HR-02		HR-02-01		X	X	X		X	X	X	X
			HR-02-02									
			HR-02-03									
			HR-02-04									
			HR-02-05									
			HR-02-06									
			HR-02-07									
			HR-02-08									
	DMMU-HR-03		HR-03-01		X	X	X		X	X	X	X
			HR-03-02									
			HR-03-03									
			HR-03-04									
			HR-03-05									
			HR-03-06									
			HR-03-07									
			HR-03-08									
	DMMU-HR-04		HR-04-01		X	X	X		X	X	X	X
			HR-04-02									
			HR-04-03									
			HR-04-04									
			HR-04-05									
			HR-04-06									
			HR-04-07									
			HR-04-08									

**Table 5. DMMU Composite Plan and Chemical Performed**

Reach	DMMU	Core ID	Sample ID	Chemical analysis				Archive				
				Grain Size / TOC only	Sed. Conventionals	DMMP COC	Dioxin / Furans	Individual	DMMU Comp.	Bioassay		
Hoquiam Reach	DMMU-HR-01	[REDACTED]	HR-01-01	[REDACTED]	X	X	X	[REDACTED]	X	X		
			HR-01-02									
			HR-01-03									
			HR-01-04									
			HR-01-05									
			HR-01-06									
			HR-01-07									
			HR-01-08									
	DMMU-HR-02		HR-02-01		X	X	X		X	X	X	X
			HR-02-02									
			HR-02-03									
			HR-02-04									
			HR-02-05									
			HR-02-06									
			HR-02-07									
			HR-02-08									
	DMMU-HR-03		HR-03-01		X	X	X		X	X	X	X
			HR-03-02									
			HR-03-03									
			HR-03-04									
			HR-03-05									
			HR-03-06									
			HR-03-07									
			HR-03-08									
	DMMU-HR-04		HR-04-01		X	X	X		X	X	X	X
			HR-04-02									
			HR-04-03									
			HR-04-04									
			HR-04-05									
			HR-04-06									
			HR-04-07									
			HR-04-08									

**Table 5. DMMU Composite Plan and Chemical Performed**

Reach	DMMU	Core ID	Sample ID	Chemical analysis				Archive				
				Grain Size / TOC only	Sed. Conventionals	DMMP COC	Dioxin / Furans	Individual	DMMU Comp.	Bioassay		
Hoquiam Reach	DMMU-HR-05	[REDACTED]	HR-05-01	[REDACTED]	X	X	X	[REDACTED]	X	X		
			HR-05-02									
			HR-05-03									
			HR-05-04									
			HR-05-05									
			HR-05-06									
			HR-05-07									
			HR-05-08									
	DMMU-HR-06		HR-06-01		X	X	X		X	X	X	X
			HR-06-02									
			HR-06-03									
			HR-06-04									
			HR-06-05									
			HR-06-06									
			HR-06-07									
			HR-06-08									
Cow Point	DMMU-CP-01	CP-01-01	[REDACTED]	X	X	X	[REDACTED]	X	X			
		CP-01-02										
		CP-01-03										
		CP-01-04										
		CP-01-05										
		CP-01-06										
		CP-01-07										
		CP-01-08										
	DMMU-CP-02	CP-02-01		X	X	X		X	X	X	X	
		CP-02-02										
		CP-02-03										
		CP-02-04										
		CP-02-05										
		CP-02-06										
		CP-02-07										
		CP-02-08										

**Table 5. DMMU Composite Plan and Chemical Performed**

Reach	DMMU	Core ID	Sample ID	Chemical analysis				Archive					
				Grain Size / TOC only	Sed. Conventionals	DMMP COC	Dioxin / Furans	Individual	DMMU Comp.	Bioassay			
Cow Point	DMMU-CP-03		CP-03-01		X	X	X		X	X			
			CP-03-02										
			CP-03-03										
			CP-03-04										
			CP-03-05										
			CP-03-06										
			CP-03-07										
			CP-03-08										
	DMMU-CPS-01	CPS-C-01	CPS-01-01-SUR		X	X	X	X	X	X			
	DMMU-CPS-02		CPS-02-01-SUB		X	X	X	X	X	X			
	DMMU-CPS-03		CPS-03-01-SUB2					X					
	DMMU-CPS-04		CPS-04-01-SUB3					X					
	DMMU-CPTB-01		CPTB-C-01	CPTB-01-01-SUR	X	X	X		X	X	X		
			CPTB-C-02	CPTB-01-02-SUR									
			CPTB-C-03	CPTB-01-03-SUR									
	DMMU-CPTB-02		CPTB-C-01	CPTB-02-01-SUB	X	X	X		X	X	X		
			CPTB-C-02	CPTB-02-02-SUB									
			CPTB-C-03	CPTB-02-03-SUB									
	DMMU-CPTB-03		CPTB-C-01	CPTB-03-01-SUB2					X				
			CPTB-C-02	CPTB-03-02-SUB2									
CPTB-C-03			CPTB-03-03-SUB2										
DMMU-CPTB-04		CPTB-C-01	CPTB-04-01-SUB3					X					
Aberdeen Reach	DMMU-AR-01		AR-01-01		X	X	X		X				
			AR-01-02										
			AR-01-03										
			AR-01-04										
	DMMU-AR-02		AR-02-01			X	X		X			X	
			AR-02-02										
			AR-02-03										
			AR-02-04										

**Table 5. DMMU Composite Plan and Chemical Performed**

Reach	DMMU	Core ID	Sample ID	Chemical analysis				Archive			
				Grain Size / TOC only	Sed. Conventionals	DMMP COC	Dioxin / Furans	Individual	DMMU Comp.	Bioassay	
Aberdeen Reach	DMMU-AR-03		AR-03-01		X	X	X		X		
			AR-03-02								
			AR-03-03								
			AR-03-04								
South Aberdeen Reach	DMMU-SA-01		SA-01-01		X	X	X		X		
			SA-01-02								
			SA-01-03								
			SA-01-04								
	DMMU-SA-02		SA-02-01		X	X	X				X
			SA-02-02								
			SA-02-03								
			SA-02-04								
	DMMU-SA-03		SA-03-01		X	X	X				X
			SA-03-02								
			SA-03-03								
			SA-03-04								
	DMMU-SA-04		SA-04-01		X	X	X				X
			SA-04-02								
			SA-04-03								
			SA-04-04								
	DMMU-SA-05		SA-05-01		X	X	X				X
			SA-05-02								
			SA-05-03								
			SA-05-04								

**Table 6. Laboratory and Validator Qualifier Definitions**

<b>Laboratory Qualifier Definitions</b>			
J	Results is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.		
U	Not Detected at the RL (or MDL if shown).		
F1	MS and/or MSD recovery exceeds control limits.		
F2	MS/MSD RPD exceeds control limits		
B	Compound was found in the blank and sample.		
H	Sample was prepped or analyzed beyond the specified holding time.		
q	The reported result is the estimated maximum possible concentration of this analyte, quantitated using the theoretical ion ratio. The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.		
1	LCS/LCSD RPD exceeds control limits.		
3	ISTD response or retention time outside acceptable limits.		
<b>Validator Qualifier Definitions</b>			
U	The analyte was analyzed but was not detected above the reported sample quantitation limit.		
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.		
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.		
<b>Abbreviations</b>			
SL	Screening Level	MDL	Method Detection Limit
BT	Bioaccumulation Trigger	µg/kg	microgram/kilogram
ML	Maximum Level	mg/kg	milligram/kilogram
RL	Reporting Limit	mg/kg OC	milligram/kilogram organic carbon normalized
SCO	Sediment Cleanup Objective	CSL	Cleanup Screening Level
VQ	Validated Qualifier		

Table 7. Gran Size & TOC Only Analysis Results

Parameter	DMMU-BR-01					DMMU-EC-01					DMMU-EC-02					DMMU-PC-01				
	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
				Lab	VQ				Lab	VQ				Lab	VQ				Lab	VQ
Total organic carbon (TOC) (%)	0.049	0.20	0.0097	J	U	0.031	0.20	0.0097	J	U	0.068	0.20	0.0097	J	J	0.087	0.20	0.0097	J	J
Particle/Grain Size, Gravel (%)	0.00					3.7					0.40					24				
Particle/Grain Size, Sand (%)	98					95					98					75				
Particle/Grain Size, Silt (%)	0.40					0.20					0.50					0.10				
Particle/Grain Size, Clay (%)	1.2					0.80					1.3					0.60				
Percent Fines (Silt + Clay)	1.6					1.0					1.8					0.70				
Parameter	DMMU-PC-02					DMMU-PC-03					DMMU-PC-04					DMMU-SR-01				
	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
				Lab	VQ				Lab	VQ				Lab	VQ				Lab	VQ
Total organic carbon (TOC) (%)	0.12	0.20	0.0097	J	J	0.083	0.20	0.0097	J	J	0.050	0.20	0.0097	J	U	0.79	0.20	0.0097		
Particle/Grain Size, Gravel (%)	0.00					0.00					0.00					0.00				
Particle/Grain Size, Sand (%)	99					99					99					71				
Particle/Grain Size, Silt (%)	0.30					0.10					0.20					23				
Particle/Grain Size, Clay (%)	1.1					1.0					0.80					6.2				
Percent Fines (Silt + Clay)	1.4					1.1					1.0					29.2				

Table 8. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CR-01, DMMU-CR-02, DMMU-CR-03)

Parameter	DMMP Marine Guidelines			DMMU-CR-01					DMMU-CR-02					DMMU-CR-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
SEDIMENT CONVENTIONALS																		
Total solids (%)				65.76	0.04	0.04			62.45	0.04	0.04			67.33	0.04	0.04		
Total volatile solids (TVS) (%)				2.53	0.01	0.01			3.03	0.01	0.01			2.07	0.01	0.01		
Total organic carbon (TOC) (%)				0.56	0.20	0.0097			0.60	0.20	0.0097			0.39	0.20	0.0097		
Total Sulfides (mg/kg)				26.5	1.52	1.52		J	33.7	3.19	3.19		J	28.1	1.48	1.48		J
Ammonia (mg/kg NH3-N)				37	37	13	U H F1	UJ	38	38	13	U H	UJ	36	36	13	U H	UJ
Particle/Grain Size, Gravel (%)				0.00					0.20					0.00				
Particle/Grain Size, Sand (%)				75					73					84				
Particle/Grain Size, Silt (%)				19					21					12				
Particle/Grain Size, Clay (%)				5.5					5.8					4.4				
Percent Fines (Silt + Clay)				24.5					26.8					16.4				
METALS (mg/kg dry weight)																		
Antimony	150	---	200	0.080	0.32	0.037	J	J	0.11	0.36	0.041	J	J	0.092	0.29	0.032	J	J
Arsenic	57	507.1	700	6.4	0.27	0.054			6.6	0.30	0.06			6.6	0.24	0.048		
Cadmium	5.1	--	14	0.078	0.43	0.042	J	J	0.071	0.48	0.046	J	J	0.052	0.38	0.037	J	J
Chromium	260	--	---	24	0.54	0.034			24	0.60	0.038			22	0.48	0.03		
Copper	390	--	1,300	16	0.54	0.12			17	0.60	0.13			15	0.48	0.10		
Lead	450	975	1,200	3.7	0.27	0.026			3.8	0.30	0.029			3.3	0.24	0.023		
Mercury	0.41	1.5	2.3	0.018	0.033	0.010	J	J	0.024	0.039	0.012	J	J	0.018	0.038	0.011	J	J
Selenium	---	3	---	0.22	0.35	0.18	J	J	0.36	0.36	0.19	U	U	0.36	0.36	0.18	U	U
Silver	6.1	--	8.4	0.021	0.11	0.011	J	J	0.021	0.12	0.012	J	J	0.018	0.095	0.0095	J	J
Zinc	410	--	3,800	50	2.8	0.87			53	3.1	0.97			47	2.4	0.77		
ORGANICS																		
PAHs (µg/kg dry weight)																		
LPAH																		
Naphthalene	2,100	---	2,400	8.8	20.0	4.2	J	J	8.9	19.9	4.2	J	J	19.9	19.9	4.2	U	U
Acenaphthylene	560	---	1,300	20.0	20.0	6.2	J,U	UJ	19.9	19.9	6.2	U	U	19.9	19.9	6.2	U	U
Acenaphthene	500	---	2,000	20.0	20.0	5.2	J,U	UJ	5.3	19.9	5.2	J	J	19.9	19.9	5.2	U	U
Fluorene	540	---	3,600	20.0	20.0	14.6	J,U	UJ	19.9	19.9	14.5	U	U	19.9	19.9	14.5	U	U
Phenanthrene	1,500	---	21,000	11.6	20.0	8.7	J	J	20.2	19.9	8.7			19.9	19.9	8.7	U	U



Table 8. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CR-01, DMMU-CR-02, DMMU-CR-03)

Parameter	DMMP Marine Guidelines			DMMU-CR-01					DMMU-CR-02					DMMU-CR-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
Anthracene	960	---	13,000	20.0	20.0	7.2	J,U	UJ	19.9	19.9	7.2	U	U	19.9	19.9	7.2	U	U
2-Methylnaphthalene	670	---	1,900	6.0	20.0	4.5	J	J	6.7	19.9	4.5	J	J	19.9	19.9	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	20.4			J	J	34.4			J	J	19.9			U	U
<b>HPAH</b>																		
Fluoranthene	1,700	4,600	30,000	9.5	20.0	6.1	J	J	23.9	19.9	6.1			19.9	19.9	6.1	U	U
Pyrene	2,600	11,980	16,000	9.7	20.0	5.7	J	J	36.8	19.9	5.7			19.9	19.9	5.7	U	U
Benz(a)anthracene	1,300	---	5,100	20.0	20.0	6.0	J,U	UJ	18.2	19.9	5.9	J	J	19.9	19.9	5.9	U	U
Chrysene	1,400	---	21,000	20.0	20.0	6.1	J,U	UJ	24.7	19.9	6.0			19.9	19.9	6.0	U	U
Benzo(a)fluoranthene (b, j, k)	3,200	---	9,900	40.0	40.0	21.0	J,U	UJ	39.8	39.8	20.9	U	U	39.9	39.9	20.9	U	U
Benzo(a)pyrene	1,600	---	3,600	5.5	20.0	4.2	J	J	13.0	19.9	4.2	J	UJ	19.9	19.9	4.2	U	UJ
Indeno(1,2,3-c,d)pyrene	600	---	4,400	20.0	20.0	14.6	J,U	UJ	19.9	19.9	14.6	U	UJ	19.9	19.9	14.6	U	UJ
Dibenz(a,h)anthracene	230	---	1,900	20.0	20.0	17.2	J,U	UJ	19.9	19.9	17.2	U	UJ	19.9	19.9	17.2	U	UJ
Benzo(g,h,i)perylene	670	---	3,200	20.0	20.0	13.6	J,U	UJ	19.9	19.9	13.5	U	U	19.9	19.9	13.5	U	U
<b>Total HPAH</b>	12,000	---	69,000	24.7			J	J	103.6			J	J	39.9			U	U
<b>CHLORINATED HYDROCARBONS (µg/kg dry weight)</b>																		
1,4-Dichlorobenzene	110	---	120	1.0	5.0	0.6	J	J	0.7	5.0	0.6	J	J	5.0	5.0	0.6	U	U
1,2-Dichlorobenzene	35	---	110	0.9	5.0	0.7	J	J	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	J,U	UJ	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	0.9	5.0	0.7	J	J	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
<b>PHTHALATES (µg/kg dry weight)</b>																		
Dimethyl phthalate	71	---	1,400	20.0	20.0	4.4	J,U	UJ	19.9	19.9	4.4	U	U	19.9	19.9	4.4	U	U
Diethyl phthalate	200	---	1,200	50.0	50.0	19.7	J,U	UJ	49.8	49.8	19.6	U	U	49.8	49.8	19.6	U	U
Di-n-butyl phthalate	1,400	---	5,100	20.0	20.0	5.6	J,U	UJ	19.9	19.9	5.6	U	U	19.9	19.9	5.6	U	U
Butyl benzyl phthalate	63	---	970	20.0	20.0	9.4	J,U	UJ	19.9	19.9	9.4	U	U	19.9	19.9	9.4	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	50.0	50.0	14.1	J,U	UJ	49.8	49.8	14.0	U	U	49.8	49.8	14.0	U	U
Di-n-octyl phthalate	6,200	---	6,200	20.0	20.0	4.4	J,U	UJ	19.9	19.9	4.4	U	U	19.9	19.9	4.4	U	U
<b>PHENOLS (µg/kg dry weight)</b>																		
Phenol	420	---	1,200	5.6	20.0	4.4	J	J	5.1	19.9	4.4	J	J	19.9	19.9	4.4	U	U
2-Methylphenol	63	---	77	20.0	20.0	6.7	J,U	UJ	19.9	19.9	6.6	U	UJ	19.9	19.9	6.6	U	UJ
4-Methylphenol	670	---	3,600	20.0	20.0	7.4	J,U	UJ	19.9	19.9	7.4	U	UJ	19.9	19.9	7.4	U	UJ

Table 8. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CR-01, DMMU-CR-02, DMMU-CR-03)

Parameter	DMMP Marine Guidelines			DMMU-CR-01					DMMU-CR-02					DMMU-CR-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
2,4-Dimethylphenol	29	---	210	20.0	20.0	2.2	J,U	UJ	19.9	19.9	2.2	U	U	19.9	19.9	2.2	U	U
Pentachlorophenol	400	504	690	100	100	31.2	J,U	UJ	99.6	99.6	31.1	U	UJ	99.6	99.6	31.1	U	UJ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)																		
Benzyl alcohol	57	---	870	20.0	20.0	16.3	J,U	UJ	19.9	19.9	16.2	U	U	19.9	19.9	16.2	U	U
Benzoic acid	650	---	760	200	200	39.0	J,U	UJ	199	199	38.9	U	UJ	199	199	38.9	U	UJ
Dibenzofuran	540	---	1,700	20.0	20.0	14.1	J,U	UJ	19.9	19.9	14.1	U	U	19.9	19.9	14.1	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	J,U	UJ	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	J,U	UJ	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)																		
4,4'-DDD	16	---	---	0.72	6.2	0.72	U	U	0.74	6.4	0.74	U	U	0.67	5.8	0.67	U	U
4,4'-DDE	9	---	---	1.2	6.2	1.2	U	U	1.2	6.4	1.2	U	U	1.1	5.8	1.1	U	U
4,4'-DDT	12	---	---	1.2	6.2	1.2	U	U	1.2	6.4	1.2	U	U	1.1	5.8	1.1	U	U
Total DDT	---	50	69	1.2			U	U	1.2			U	U	1.1			U	U
Aldrin	9.5	---	---	1.2	9.4	1.2	U	U	1.2	9.6	1.2	U	U	1.1	8.8	1.1	U	U
cis-Chlordane				2.3	6.2	2.3	U	U	2.4	6.4	2.4	U	U	2.2	5.8	2.2	U	U
cis-Nonachlor				2.7	16	2.7	U	U	2.7	16	2.7	U	U	2.5	15	2.5	U	U
Oxychlordane				2.4	12	2.4	U	U	2.5	13	2.5	U	U	2.3	12	2.3	U	U
trans-Chlordane				1.0	9.4	1.0	U	U	1.0	9.6	1.0	U	U	0.94	8.8	0.94	U	U
trans-Nonachlor				2.7	12	2.7	U	U	2.7	13	2.7	U	U	2.5	12	2.5	U	U
Total Chlordane	2.8	37	---	2.7			U	U	2.7			U	U	2.5			U	U
Dieldrin	1.9	---	1700	1.1	6.2	1.1	U	U	1.1	6.4	1.1	U	U	1.0	5.8	1.0	U	U
Heptachlor	1.5	---	270	0.59	9.4	0.59	U	U	0.61	9.6	0.61	U	U	0.56	8.8	0.56	U	U
PCB-Aroclor 1016				3.1	3.1	1.2	U	U	3.2	3.2	1.2	U	U	2.9	2.9	1.1	U	U
PCB-Aroclor 1221				3.1	3.1	1.9	U	U	3.2	3.2	1.9	U	U	2.9	2.9	1.8	U	U
PCB-Aroclor 1232				3.1	3.1	0.76	U	U	3.2	3.2	0.79	U	U	2.9	2.9	0.72	U	U
PCB-Aroclor 1242				3.1	3.1	1.2	U	U	3.2	3.2	1.3	U	U	2.9	2.9	1.2	U	U
PCB-Aroclor 1248				3.1	3.1	1.1	U	U	3.2	3.2	1.1	U	U	2.9	2.9	1.0	U	U
PCB-Aroclor 1254				3.1	3.1	1.4	U	U	3.2	3.2	1.4	U	U	2.9	2.9	1.3	U	U
PCB-Aroclor 1260				3.1	3.1	1.2	U	U	3.2	3.2	1.2	U	U	2.9	2.9	1.1	U	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	3.1			U	U	3.2			U	U	2.9			U	U

Table 8. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CR-01, DMMU-CR-02, DMMU-CR-03)

Parameter	DMMP Marine Guidelines			DMMU-CR-01					DMMU-CR-02					DMMU-CR-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)																		
2,3,7,8-TCDD	---	5	---	0.36	1.6	0.081	J q	U	0.41	1.6	0.063	J q	U	0.44	1.4	0.071	J q	U
1,2,3,7,8-PECDD				0.28	7.8	0.079	J q	U	0.50	7.9	0.10	J q	U	0.64	7.1	0.10	J	J
1,2,3,4,7,8-HxCDD				0.44	7.8	0.085	J B	U	0.53	7.9	0.091	J B	U	0.44	7.1	0.087	J B	U
1,2,3,6,7,8-HxCDD				0.39	7.8	0.095	J q	U	0.75	7.9	0.11	J	J	0.68	7.1	0.098	J	J
1,2,3,7,8,9-HxCDD				1.0	7.8	0.085	J	J	1.5	7.9	0.09	J B	J	1.5	7.1	0.085	J B q	U
1,2,3,4,6,7,8-HpCDD				4.3	7.8	0.082	J B	J	7.5	7.9	0.066	J B	J	6.5	7.1	0.057	J B	J
OCDD				26	16	0.12	B		51	16	0.10	B		44	14	0.096	B	
2,3,7,8-TCDF				0.30	1.6	0.042	J	J	0.24	1.6	0.04	J q	U	0.33	1.4	0.039	J q	U
1,2,3,7,8-PeCDF				0.13	7.8	0.059	J q	U	0.074	7.9	0.074	U	U	0.31	7.1	0.084	J q	U
2,3,4,7,8-PECDF				0.061	7.8	0.061	U	U	0.074	7.9	0.074	U	U	0.15	7.1	0.089	J q	U
1,2,3,4,7,8-HXCDF				0.23	7.8	0.083	J q B	U	0.26	7.9	0.055	J B	U	0.75	7.1	0.072	J B	J
1,2,3,6,7,8-HxCDF				0.14	7.8	0.088	J q	U	0.15	7.9	0.057	J B q	U	0.50	7.1	0.074	J B q	U
1,2,3,7,8,9-HxCDF				0.13	7.8	0.091	J B	U	0.18	7.9	0.054	J B	U	0.24	7.1	0.068	J B	U
2,3,4,6,7,8-HxCDF				0.079	7.8	0.079	U	U	0.17	7.9	0.053	J B	U	0.24	7.1	0.071	J B	U
1,2,3,4,6,7,8-HpCDF				2.2	7.8	0.083	J B	J	2.9	7.9	0.10	J B	J	3.7	7.1	0.11	J B	J
1,2,3,4,7,8,9-HpCDF				0.17	7.8	0.079	J q B	U	0.19	7.9	0.082	J B q	U	0.68	7.1	0.09	J B	U
OCDF				2.7	16	0.071	J B	J	3.0	16	0.065	J B	J	6.1	14	0.065	J B	J
Total Tetra-Dioxins				0.91	1.6	0.081	J q	U	1.4	1.6	0.063	J q	J	1.2	1.4	0.071	J q	J
Total Penta-Dioxins				1.1	7.8	0.079	J q	U	2.1	7.9	0.10	J q	J	2.3	7.1	0.10	J q	J
Total Hexa-Dioxins				5.9	7.8	0.089	J q B	U	9.6	7.9	0.096	B		8.8	7.1	0.09	B q	J
Total Hepta-Dioxins				10	7.8	0.082	B		19	7.9	0.066	B		15	7.1	0.057	B	
Total Tetra-Furans				0.65	1.6	0.042	J q	U	0.51	1.6	0.040	J q	J	1.2	1.4	0.039	J q	J
Total Penta-Furans				0.37	7.8	0.06	J q	U	0.27	7.9	0.074	J	J	1.2	7.1	0.086	J q	J
Total Hexa-Furans				1.5	7.8	0.085	J q B	U	2.3	7.9	0.055	J B q	J	3.6	7.1	0.071	J B q	J
Total Hepta-Furans				4.1	7.8	0.081	J q B	U	5.6	7.9	0.092	J B q	J	7.3	7.1	0.10	B	
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	0.606					0.890					1.313				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL exceeds DMMP SL

Table 9. Sediment Conventionals & COC Analysis Results Compared to DMMP Guidelines (DMMU-CR-04, DMMU-CR-05, DMMU-CR-06)

Parameter	DMMP Marine Guidelines			DMMU-CR-04					DMMU-CR-05					DMMU-CR-06				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
SEDIMENT CONVENTIONALS																		
Total solids (%)				66.36	0.04	0.04			59.65	0.04	0.04			59.83	0.04	0.04		
Total volatile solids (TVS) (%)				2.13	0.01	0.01			3.26	0.01	0.01			4.23	0.01	0.01		
Total organic carbon (TOC) (%)				0.38	0.20	0.0097			0.73	0.20	0.0097	H	J	0.98	0.20	0.0097	H	J
Total Sulfides (mg/kg)				5.77	1.47	1.47		J	5.34	1.58	1.58		J	226	31.4	31.4		J
Ammonia (mg/kg NH3-N)				37	37	13	U H	UJ	38	38	13	U H	UJ	14	40	14	J H	J
Particle/Grain Size, Gravel (%)				0.00					0.00					0.00				
Particle/Grain Size, Sand (%)				86					71					72				
Particle/Grain Size, Silt (%)				9.5					24					22				
Particle/Grain Size, Clay (%)				4.2					5.6					6.5				
Percent Fines (Silt + Clay)				13.7					29.6					28.5				
METALS (mg/kg dry weight)																		
Antimony	150	---	200	0.084	0.3	0.033	J	J	0.12	0.33	0.038	J	J	0.11	0.35	0.040	J	J
Arsenic	57	507.1	700	5.8	0.25	0.049			7.4	0.28	0.055			7.1	0.29	0.058		
Cadmium	5.1	--	14	0.069	0.39	0.038	J	J	0.099	0.44	0.043	J	J	0.073	0.47	0.045	J	J
Chromium	260	--	---	22	0.49	0.031			28	0.55	0.035			25	0.58	0.037		
Copper	390	--	1,300	13	0.49	0.11			20	0.55	0.12			19	0.58	0.13		
Lead	450	975	1,200	3.1	0.25	0.024			4.4	0.28	0.027			4.1	0.29	0.028		
Mercury	0.41	1.5	2.3	0.014	0.038	0.011	J	J	0.027	0.042	0.013	J	J	0.025	0.037	0.011	J	J
Selenium	---	3	---	0.34	0.34	0.17	U	U	0.37	0.37	0.19	U	U	0.39	0.39	0.20	U	U
Silver	6.1	--	8.4	0.018	0.098	0.0098	J	J	0.029	0.11	0.011	J	J	0.033	0.12	0.012	J	J
Zinc	410	--	3,800	46	2.5	0.79			59	2.8	0.89			52	3.0	0.94		
ORGANICS																		
PAHs (µg/kg dry weight)																		
LPAH																		
Naphthalene	2,100	---	2,400	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U	5.9	19.9	4.2	J	J
Acenaphthylene	560	---	1,300	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U	19.9	19.9	6.2	U	U
Acenaphthene	500	---	2,000	20.0	20.0	5.2	U	U	20.0	20.0	5.2	U	U	19.9	19.9	5.2	U	U
Fluorene	540	---	3,600	20.0	20.0	14.6	U	U	20.0	20.0	14.5	U	U	19.9	19.9	14.5	U	U
Phenanthrene	1,500	---	21,000	20.0	20.0	8.7	U	U	20.0	20.0	8.7	U	U	13.9	19.9	8.7	J	J
Anthracene	960	---	13,000	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U	19.9	19.9	7.2	U	U

Table 9. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CR-04, DMMU-CR-05, DMMU-CR-06)

Parameter	DMMP Marine Guidelines			DMMU-CR-04					DMMU-CR-05					DMMU-CR-06				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
2-Methylnaphthalene	670	---	1,900	20.0	20.0	4.5	U	U	20.0	20.0	4.5	U	U	19.9	19.9	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	20.0			U	U	20.0			U	U	19.8			J	J
HPAH																		
Fluoranthene	1,700	4,600	30,000	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U	9.7	19.9	6.1	J	J
Pyrene	2,600	11,980	16,000	20.0	20.0	5.7	U	U	20.0	20.0	5.7	U	U	10.2	19.9	5.7	J	J
Benz(a)anthracene	1,300	---	5,100	20.0	20.0	6.0	U	U	20.0	20.0	5.9	U	U	19.9	19.9	5.9	U	U
Chrysene	1,400	---	21,000	20.0	20.0	6.1	U	U	20.0	20.0	6.0	U	U	19.9	19.9	6.0	U	U
Benzofluoranthenes (b, j, k)	3,200	---	9,900	40.0	40.0	21.0	U	U	39.9	39.9	20.9	U	U	39.8	39.8	20.9	U	U
Benzo(a)pyrene	1,600	---	3,600	20.0	20.0	4.2	U	UJ	20.0	20.0	4.2	U	UJ	19.9	19.9	4.2	U	UJ
Indeno(1,2,3-c,d)pyrene	600	---	4,400	20.0	20.0	14.6	U	UJ	20.0	20.0	14.6	U	UJ	19.9	19.9	14.6	U	UJ
Dibenz(a,h)anthracene	230	---	1,900	20.0	20.0	17.2	U	UJ	20.0	20.0	17.2	U	UJ	19.9	19.9	17.2	U	UJ
Benzo(g,h,i)perylene	670	---	3,200	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U	19.9	19.9	13.5	U	U
<b>Total HPAH</b>	12,000	---	69,000	40.0			U	U	39.9			U	U	19.9			J	J
CHLORINATED HYDROCARBONS (µg/kg dry weight)																		
1,4-Dichlorobenzene	110	---	120	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U	1.2	5.0	0.6	J	J
1,2-Dichlorobenzene	35	---	110	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
PHTHALATES (µg/kg dry weight)																		
Dimethyl phthalate	71	---	1,400	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	19.9	19.9	4.4	U	U
Diethyl phthalate	200	---	1,200	50.0	50.0	19.7	U	U	49.9	49.9	19.7	U	U	49.8	49.8	19.6	U	U
Di-n-butyl phthalate	1,400	---	5,100	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U	19.9	19.9	5.6	U	U
Butyl benzyl phthalate	63	---	970	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U	19.9	19.9	9.4	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	50.0	50.0	14.1	U	U	15.9	49.9	14.0	J	J	49.8	49.8	14.0	U	U
Di-n-octyl phthalate	6,200	---	6,200	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	19.9	19.9	4.4	U	U
PHENOLS (µg/kg dry weight)																		
Phenol	420	---	1,200	6.0	20.0	4.4	J	J	20.0	20.0	4.4	U	U	19.9	19.9	4.4	U	U
2-Methylphenol	63	---	77	20.0	20.0	6.7	U	UJ	20.0	20.0	6.6	U	UJ	19.9	19.9	6.6	U	UJ
4-Methylphenol	670	---	3,600	20.0	20.0	7.4	U	UJ	20.0	20.0	7.4	U	UJ	19.9	19.9	7.4	U	UJ
2,4-Dimethylphenol	29	---	210	20.0	20.0	2.2	U	U	20.0	20.0	2.2	U	U	19.9	19.9	2.2	U	U
Pentachlorophenol	400	504	690	99.9	99.9	31.2	U	UJ	99.8	99.8	31.2	U	UJ	99.5	99.5	31.1	U	UJ

Table 9. Sediment Conventionals & COC Analysis Results Compared to DMMP Guidelines (DMMU-CR-04, DMMU-CR-05, DMMU-CR-06)

Parameter	DMMP Marine Guidelines			DMMU-CR-04					DMMU-CR-05					DMMU-CR-06				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)																		
Benzyl alcohol	57	---	870	20.0	20.0	16.2	U	U	20.0	20.0	16.2	U	U	19.9	19.9	16.2	U	U
Benzoic acid	650	---	760	200	200	39.0	U	UJ	200	200	39.0	U	UJ	199	199	38.9	U	UJ
Dibenzofuran	540	---	1,700	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U	19.9	19.9	14.1	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)																		
4,4'-DDD	16	---	---	0.67	5.8	0.67	U	U	0.73	6.4	0.73	U	U	0.76	6.6	0.76	U	U
4,4'-DDE	9	---	---	1.1	5.8	1.1	U	U	1.2	6.4	1.2	U	U	1.2	6.6	1.2	U	U
4,4'-DDT	12	---	---	1.1	5.8	1.1	U	U	1.2	6.4	1.2	U	U	1.2	6.6	1.2	U	U
Total DDT	---	50	69	1.1			U	U	1.2			U	U	1.2			U	U
Aldrin	9.5	---	---	1.1	8.7	1.1	U	U	1.2	9.5	1.2	U	U	1.3	9.9	1.3	U	U
cis-Chlordane				2.2	5.8	2.2	U	U	2.4	6.4	2.4	U	U	2.5	6.6	2.5	U	U
cis-Nonachlor				2.5	14	2.5	U	U	2.7	16	2.7	U	U	2.8	17	2.8	U	U
Oxychlordane				2.2	12	2.2	U	U	2.4	13	2.4	U	U	2.6	13	2.6	U	U
trans-Chlordane				0.93	8.7	0.93	U	U	1.0	9.5	1.0	U	U	1.1	9.9	1.1	U	U
trans-Nonachlor				2.5	12	2.5	U	U	2.7	13	2.7	U	U	2.8	13	2.8	U	U
Total Chlordane	2.8	37	---	2.5			U	U	2.7			U	U	2.8			U	U
Dieldrin	1.9	---	1700	1.0	5.8	1.0	U	U	1.1	6.4	1.1	U	U	1.2	6.6	1.2	U	U
Heptachlor	1.5	---	270	0.55	8.7	0.55	U	U	0.6	9.5	0.6	U	U	0.63	9.9	0.63	U	U
PCB-Aroclor 1016				2.9	2.9	1.1	U	U	3.2	3.2	1.2	U	U	3.3	3.3	1.2	U	U
PCB-Aroclor 1221				2.9	2.9	1.7	U	U	3.2	3.2	1.9	U	U	3.3	3.3	2.0	U	U
PCB-Aroclor 1232				2.9	2.9	0.71	U	U	3.2	3.2	0.78	U	U	3.3	3.3	0.81	U	U
PCB-Aroclor 1242				2.9	2.9	1.2	U	U	3.2	3.2	1.3	U	U	3.3	3.3	1.3	U	U
PCB-Aroclor 1248				2.9	2.9	1.0	U	U	3.2	3.2	1.1	U	U	3.3	3.3	1.2	U	U
PCB-Aroclor 1254				2.9	2.9	1.3	U	U	3.2	3.2	1.4	U	U	3.3	3.3	1.5	U	U
PCB-Aroclor 1260				2.9	2.9	1.1	U	U	3.2	3.2	1.2	U	U	3.3	3.3	1.2	U	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	2.9			U	U	3.2			U	U	3.3			U	U

Table 9. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CR-04, DMMU-CR-05, DMMU-CR-06)

Parameter	DMMP Marine Guidelines			DMMU-CR-04					DMMU-CR-05					DMMU-CR-06				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)																		
2,3,7,8-TCDD	---	5	---	0.49	1.4	0.068	J q	U	0.62	1.6	0.080	J q	U	0.59	1.5	0.072	J q	U
1,2,3,7,8-PECDD				0.39	7.1	0.10	J q	U	0.67	8.2	0.13	J	J	0.61	7.7	0.13	J	J
1,2,3,4,7,8-HxCDD				0.43	7.1	0.080	J B	U	0.53	8.2	0.093	J B	U	0.47	7.7	0.097	J B	U
1,2,3,6,7,8-HxCDD				0.50	7.1	0.095	J	J	0.58	8.2	0.11	J q	U	0.84	7.7	0.11	J	J
1,2,3,7,8,9-HxCDD				1.2	7.1	0.080	J B	J	1.4	8.2	0.092	J B	J	1.9	7.7	0.094	J B	J
1,2,3,4,6,7,8-HpCDD				5.0	7.1	0.052	J B	J	6.0	8.2	0.059	J B	J	9.1	7.7	0.065	B	
OCDD				34	14	0.096	B		36	16	0.11	B		54	15	0.11	B	
2,3,7,8-TCDF				0.28	1.4	0.036	J	J	0.43	1.6	0.049	J q	U	0.57	1.5	0.051	J	J
1,2,3,7,8-PeCDF				0.070	7.1	0.070	U	U	0.16	8.2	0.089	J q	U	0.14	7.7	0.076	J q	U
2,3,4,7,8-PECDF				0.072	7.1	0.072	U	U	0.090	8.2	0.090	U	U	0.13	7.7	0.078	J	J
1,2,3,4,7,8-HXCDF				0.2	7.1	0.055	J B	U	0.25	8.2	0.053	J B	U	0.29	7.7	0.053	J B	U
1,2,3,6,7,8-HxCDF				0.16	7.1	0.055	J B q	U	0.19	8.2	0.054	J B q	U	0.19	7.7	0.053	J B q	U
1,2,3,7,8,9-HxCDF				0.086	7.1	0.052	J B q	U	0.19	8.2	0.052	J B q	U	0.076	7.7	0.051	J B q	U
2,3,4,6,7,8-HxCDF				0.12	7.1	0.051	J B	U	0.13	8.2	0.053	J B	U	0.15	7.7	0.053	J B	U
1,2,3,4,6,7,8-HpCDF				2.2	7.1	0.083	J B	J	2.5	8.2	0.093	J B	J	4.1	7.7	0.10	J B	J
1,2,3,4,7,8,9-HpCDF				0.14	7.1	0.069	J B	U	0.24	8.2	0.077	J B	U	0.20	7.7	0.085	J B	U
OCDF				2.4	14	0.062	J B	J	2.7	16	0.071	J B	J	3.8	15	0.071	J B	J
Total Tetra-Dioxins				1.3	1.4	0.068	J q	J	3.8	1.6	0.080	q	J	1.2	1.5	0.072	J q	J
Total Penta-Dioxins				2.4	7.1	0.10	J q	J	3.7	8.2	0.13	J q	J	3.2	7.7	0.13	J q	J
Total Hexa-Dioxins				8.2	7.1	0.085	B		9.6	8.2	0.098	B q	J	12	7.7	0.099	B	
Total Hepta-Dioxins				13	7.1	0.052	B		15	8.2	0.059	B		23	7.7	0.065	B	
Total Tetra-Furans				0.65	1.4	0.036	J q	J	0.85	1.6	0.049	J q	J	1.4	1.5	0.051	J q	J
Total Penta-Furans				0.19	7.1	0.19	U	U	0.16	8.2	0.090	J q	J	0.70	7.7	0.077	J q	J
Total Hexa-Furans				1.7	7.1	0.053	J B q	J	2.4	8.2	0.053	J B q	J	3.2	7.7	0.052	J B q	J
Total Hepta-Furans				4.2	7.1	0.076	J B	J	5.1	8.2	0.085	J B	J	7.8	7.7	0.094	B	
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	0.783					1.349					1.486				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL/RL exceeds DMMP SL

Table 10. Sediment Conventionals & COC Analysis Results Compared to DMMP Guidelines (DMMU-NC-01, DMMU-NC-02, DMMU-NC-03)

Parameter	DMMP Marine Guidelines			DMMU-NC-01					DMMU-NC-02					DMMU-NC-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
SEDIMENT CONVENTIONALS																		
Total solids (%)				68.47	0.04	0.04			67.37	0.04	0.04			65.48	0.04	0.04		
Total volatile solids (TVS) (%)				1.95	0.01	0.01			2.56	0.01	0.01			2.92	0.01	0.01		
Total organic carbon (TOC) (%)				0.23	0.20	0.0097	H	J	0.39	0.20	0.0097	H	J	0.48	0.20	0.0097	H	J
Total Sulfides (mg/kg)				1.61	1.41	1.41		J	26.8	1.45	1.45		J	33.7	3.02	3.02		J
Ammonia (mg/kg NH3-N)				13	37	13	J H	J	36	36	13	U H	UJ	38	38	13	U H	UJ
Particle/Grain Size, Gravel (%)				0.00					0.10					0.30				
Particle/Grain Size, Sand (%)				92					83					88				
Particle/Grain Size, Silt (%)				5.3					12					8.4				
Particle/Grain Size, Clay (%)				3.0					4.5					3.6				
Percent Fines (Silt + Clay)				8.3					16.5					12.0				
METALS (mg/kg dry weight)																		
Antimony	150	---	200	0.13	0.33	0.037	J	U	0.10	0.32	0.037	J	U	0.091	0.29	0.033	J	U
Arsenic	57	507.1	700	6.2	0.28	0.055			6.0	0.27	0.054			6.1	0.24	0.048		
Cadmium	5.1	--	14	0.050	0.44	0.042	J	J	0.072	0.43	0.041	J	J	0.069	0.38	0.037	J	J
Chromium	260	--	---	22	0.55	0.035			24	0.54	0.034			23	0.48	0.030		
Copper	390	--	1,300	12	0.55	0.12			19	0.54	0.12			18	0.48	0.11		
Lead	450	975	1,200	3.0	0.28	0.026			3.1	0.27	0.026			3.1	0.24	0.023		
Mercury	0.41	1.5	2.3	0.011	0.033	0.0099	J	J	0.017	0.035	0.010	J	J	0.015	0.038	0.012	J	J
Selenium	---	3	---	0.34	0.34	0.18	U	U	0.23	0.34	0.17	J	J	0.37	0.37	0.19	U	U
Silver	6.1	--	8.4	0.020	0.11	0.011	J	J	0.021	0.11	0.011	J	J	0.021	0.096	0.0096	J	J
Zinc	410	--	3,800	46	2.8	0.89			49	2.7	0.87			50	2.5	0.77		
ORGANICS																		
PAHs (µg/kg dry weight)																		
LPAH																		
Naphthalene	2,100	---	2,400	19.9	19.9	4.2	U	U	19.9	19.9	4.2	U	U	20.0	20.0	4.2	U	U
Acenaphthylene	560	---	1,300	19.9	19.9	6.2	U	U	19.9	19.9	6.2	U	U	20.0	20.0	6.2	U	U
Acenaphthene	500	---	2,000	19.9	19.9	5.2	U	U	19.9	19.9	5.2	U	U	20.0	20.0	5.2	U	U
Fluorene	540	---	3,600	19.9	19.9	14.5	U	U	19.9	19.9	14.5	U	U	20.0	20.0	14.6	U	U
Phenanthrene	1,500	---	21,000	10.7	19.9	8.7	J	J	19.9	19.9	8.7	U	U	20.0	20.0	8.7	U	U
Anthracene	960	---	13,000	19.9	19.9	7.2	U	U	19.9	19.9	7.2	U	U	20.0	20.0	7.2	U	U



Table 10. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-NC-01, DMMU-NC-02, DMMU-NC-03)

Parameter	DMMP Marine Guidelines			DMMU-NC-01					DMMU-NC-02					DMMU-NC-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
2-Methylnaphthalene	670	---	1,900	19.9	19.9	4.5	U	U	19.9	19.9	4.5	U	U	20.0	20.0	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	10.7			J	J	19.9			U	U	20.0			U	U
HPAH																		
Fluoranthene	1,700	4,600	30,000	10.5	19.9	6.1	J	J	19.9	19.9	6.1	U	U	20.0	20.0	6.1	U	U
Pyrene	2,600	11,980	16,000	10.0	19.9	5.6	J	J	19.9	19.9	5.7	U	U	20.0	20.0	5.7	U	U
Benz(a)anthracene	1,300	---	5,100	19.9	19.9	5.9	U	U	19.9	19.9	5.9	U	U	20.0	20.0	6.0	U	U
Chrysene	1,400	---	21,000	19.9	19.9	6.0	U	U	19.9	19.9	6.0	U	U	20.0	20.0	6.1	U	U
Benzofluoranthenes (b, j, k)	3,200	---	9,900	39.8	39.8	20.9	U	U	39.8	39.8	20.9	U	U	39.9	39.9	21.0	U	U
Benzo(a)pyrene	1,600	---	3,600	19.9	19.9	4.2	U	UJ	19.9	19.9	4.2	U	UJ	20.0	20.0	4.2	U	UJ
Indeno(1,2,3-c,d)pyrene	600	---	4,400	19.9	19.9	14.6	U	UJ	19.9	19.9	14.6	U	UJ	20.0	20.0	14.6	U	UJ
Dibenz(a,h)anthracene	230	---	1,900	19.9	19.9	17.1	U	UJ	19.9	19.9	17.1	U	UJ	20.0	20.0	17.2	U	UJ
Benzo(g,h,i)perylene	670	---	3,200	19.9	19.9	13.5	U	U	19.9	19.9	13.5	U	U	20.0	20.0	13.6	U	U
<b>Total HPAH</b>	12,000	---	69,000	20.5			J	J	39.8			U	U	39.9			U	U
CHLORINATED HYDROCARBONS (µg/kg dry weight)																		
1,4-Dichlorobenzene	110	---	120	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U
1,2-Dichlorobenzene	35	---	110	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
PHTHALATES (µg/kg dry weight)																		
Dimethyl phthalate	71	---	1,400	19.9	19.9	4.4	U	U	19.9	19.9	4.4	U	U	20.0	20.0	4.4	U	U
Diethyl phthalate	200	---	1,200	49.7	49.7	19.6	U	U	49.7	49.7	19.6	U	U	49.9	49.9	19.7	U	U
Di-n-butyl phthalate	1,400	---	5,100	19.9	19.9	5.6	U	U	19.9	19.9	5.6	U	U	20.0	20.0	5.6	U	U
Butyl benzyl phthalate	63	---	970	19.9	19.9	9.4	U	U	19.9	19.9	9.4	U	U	20.0	20.0	9.4	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	49.7	49.7	14.0	U	U	49.7	49.7	14.0	U	U	49.9	49.9	14.1	U	U
Di-n-octyl phthalate	6,200	---	6,200	19.9	19.9	4.4	U	U	19.9	19.9	4.4	U	U	20.0	20.0	4.4	U	U
PHENOLS (µg/kg dry weight)																		
Phenol	420	---	1,200	20.0	20.0	4.4	J,U	UJ	19.9	19.9	4.4	U	U	20.0	20.0	4.4	U	U
2-Methylphenol	63	---	77	20.0	20.0	6.6	J,U	UJ	19.9	19.9	6.6	U	UJ	20.0	20.0	6.7	U	UJ
4-Methylphenol	670	---	3,600	20.0	20.0	7.4	J,U	UJ	19.9	19.9	7.4	U	UJ	20.0	20.0	7.4	U	UJ
2,4-Dimethylphenol	29	---	210	19.9	19.9	2.2	U	U	19.9	19.9	2.2	U	U	20.0	20.0	2.2	U	U
Pentachlorophenol	400	504	690	99.8	99.8	31.2	J,U	UJ	99.5	99.5	31.1	U	UJ	99.9	99.9	31.2	U	UJ

Table 10. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-NC-01, DMMU-NC-02, DMMU-NC-03)

Parameter	DMMP Marine Guidelines			DMMU-NC-01					DMMU-NC-02					DMMU-NC-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)																		
Benzyl alcohol	57	---	870	20.0	20.0	16.2	J,U	UJ	19.9	19.9	16.2	U	U	20.0	20.0	16.2	U	U
Benzoic acid	650	---	760	200	200	38.9	J,U	UJ	199	199	38.8	U	UJ	200	200	39.0	U	UJ
Dibenzofuran	540	---	1,700	19.9	19.9	14.0	U	U	19.9	19.9	14.0	U	U	20.0	20.0	14.1	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)																		
4,4'-DDD	16	---	---	0.69	6.0	0.69	U	U	0.65	5.7	0.65	U	U	0.70	6.1	0.70	U	U
4,4'-DDE	9	---	---	1.1	6.0	1.1	U	U	1.0	5.7	1.0	U	U	1.1	6.1	1.1	U	U
4,4'-DDT	12	---	---	1.1	6.0	1.1	U	U	1.0	5.7	1.0	U	U	1.1	6.1	1.1	U	U
Total DDT	---	50	69	1.1			U	U	1.0			U	U	1.1			U	U
Aldrin	9.5	---	---	1.1	9.0	1.1	U	U	1.1	8.5	1.1	U	U	1.2	9.1	1.2	U	U
cis-Chlordane				2.2	6.0	2.2	U	U	2.1	5.7	2.1	U	U	2.3	6.1	2.3	U	U
cis-Nonachlor				2.5	15	2.5	U	U	2.4	14	2.4	U	U	2.6	15	2.6	U	U
Oxychlordane				2.3	12	2.3	U	U	2.2	11	2.2	U	U	2.3	12	2.3	U	U
trans-Chlordane				0.96	9.0	0.96	U	U	0.91	8.5	0.91	U	U	0.97	9.1	0.97	U	U
trans-Nonachlor				2.5	12	2.5	U	U	2.4	11	2.4	U	U	2.6	12	2.6	U	U
Total Chlordane	2.8	37	---	2.5			U	U	2.4			U	U	2.6			U	U
Dieldrin	1.9	---	1700	1.0	6.0	1.0	U	U	0.99	5.7	0.99	U	U	1.1	6.1	1.1	U	U
Heptachlor	1.5	---	270	0.57	9.0	0.57	U	U	0.54	8.5	0.54	U	U	0.58	9.1	0.58	U	U
PCB-Aroclor 1016				3.0	3.0	1.1	U	U	2.8	2.8	1.0	U	U	3.0	3.0	1.1	U	U
PCB-Aroclor 1221				3.0	3.0	1.8	U	U	2.8	2.8	1.7	U	U	3.0	3.0	1.8	U	U
PCB-Aroclor 1232				3.0	3.0	0.73	U	U	2.8	2.8	0.69	U	U	3.0	3.0	0.74	U	U
PCB-Aroclor 1242				3.0	3.0	1.2	U	U	2.8	2.8	1.1	U	U	3.0	3.0	1.2	U	U
PCB-Aroclor 1248				3.0	3.0	1.0	U	U	2.8	2.8	0.99	U	U	3.0	3.0	1.1	U	U
PCB-Aroclor 1254				3.0	3.0	1.3	U	U	2.8	2.8	1.3	U	U	3.0	3.0	1.4	U	U
PCB-Aroclor 1260				3.0	3.0	1.1	U	U	2.8	2.8	1.0	U	U	3.0	3.0	1.1	U	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	3.0			U	U	2.8			U	U	3.0			U	U

Table 10. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-NC-01, DMMU-NC-02, DMMU-NC-03)

Parameter	DMMP Marine Guidelines			DMMU-NC-01					DMMU-NC-02					DMMU-NC-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)																		
2,3,7,8-TCDD	---	5	---	0.51	1.4	0.073	J q	U	0.60	1.4	0.071	J q	U	0.55	1.5	0.098	J q	U
1,2,3,7,8-PECDD				0.37	7.2	0.11	J	J	0.57	7.0	0.11	J	J	0.52	7.5	0.13	J	J
1,2,3,4,7,8-HxCDD				0.32	7.2	0.091	J B	U	0.43	7.0	0.085	J B	U	0.43	7.5	0.11	J B	U
1,2,3,6,7,8-HxCDD				0.40	7.2	0.11	J	J	0.61	7.0	0.093	J	J	0.60	7.5	0.13	J	J
1,2,3,7,8,9-HxCDD				0.92	7.2	0.090	J B	J	1.9	7.0	0.082	J B	J	1.8	7.5	0.11	J B	J
1,2,3,4,6,7,8-HpCDD				4.8	7.2	0.058	J B	J	7.6	7.0	0.059	B		6.3	7.5	0.071	J B	J
OCDD				30	14	0.11	B		51	14	0.090	B		47	15	0.11	B	
2,3,7,8-TCDF				0.25	1.4	0.037	J	J	0.16	1.4	0.028	J q	U	0.33	1.5	0.048	J q	U
1,2,3,7,8-PeCDF				0.11	7.2	0.076	J q	U	0.063	7.0	0.063	U	U	0.080	7.5	0.080	U	U
2,3,4,7,8-PECDF				0.075	7.2	0.075	U	U	0.064	7.0	0.064	U	U	0.087	7.5	0.087	U	U
1,2,3,4,7,8-HxCDF				0.17	7.2	0.057	J B q	U	0.12	7.0	0.044	J B	U	0.19	7.5	0.063	J B	U
1,2,3,6,7,8-HxCDF				0.15	7.2	0.058	J B	U	0.095	7.0	0.044	J q B	U	0.073	7.5	0.061	J B	U
1,2,3,7,8,9-HxCDF				0.13	7.2	0.056	J B q	U	0.080	7.0	0.042	J B	U	0.11	7.5	0.056	J q B	U
2,3,4,6,7,8-HxCDF				0.056	7.2	0.056	U	U	0.096	7.0	0.042	J B	U	0.087	7.5	0.057	J q B	U
1,2,3,4,6,7,8-HpCDF				1.9	7.2	0.089	J B	J	2.1	7.0	0.084	J B	J	2.5	7.5	0.10	J B	J
1,2,3,4,7,8,9-HpCDF				0.074	7.2	0.074	U	U	0.11	7.0	0.073	J q B	U	0.27	7.5	0.082	J B	U
OCDF				1.6	14	0.074	J B	U	2.6	14	0.059	J B	J	2.3	15	0.092	J B	J
Total Tetra-Dioxins				1.0	1.4	0.073	J q	J	2.0	1.4	0.071	q	J	1.1	1.5	0.098	J q	J
Total Penta-Dioxins				0.37	7.2	0.11	J	J	3.3	7.0	0.11	J q	J	2.2	7.5	0.13	J q	J
Total Hexa-Dioxins				6.0	7.2	0.095	J B	J	10	7.0	0.087	B		9.1	7.5	0.12	B	
Total Hepta-Dioxins				12	7.2	0.058	B		17	7.0	0.059	B		15	7.5	0.071	B	
Total Tetra-Furans				0.25	1.4	0.037	J	J	0.16	1.4	0.028	J q	J	0.33	1.5	0.048	J q	J
Total Penta-Furans				0.38	7.2	0.075	J q	J	0.20	7.0	0.064	J	J	0.26	7.5	0.26	U	U
Total Hexa-Furans				1.8	7.2	0.057	J B q	J	1.6	7.0	0.043	J q B	J	2.1	7.5	0.059	J q B	J
Total Hepta-Furans				3.4	7.2	0.081	J B	J	4.4	7.0	0.078	J q B	J	4.8	7.5	0.092	J B	J
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	0.913					1.294					1.214				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL/RL exceeds DMMP SL

Table 11. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-NC-04, DMMU-NC-05, DMMU-HR-01)

Parameter	DMMP Marine Guidelines			DMMU-NC-04					DMMU-NC-05					DMMU-HR-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
SEDIMENT CONVENTIONALS																		
Total solids (%)				64.56	0.04	0.04			59.21	0.04	0.04			62.99	0.04	0.04		
Total volatile solids (TVS) (%)				2.91	0.01	0.01			3.49	0.01	0.01			3.15	0.01	0.01		
Total organic carbon (TOC) (%)				0.67	0.20	0.0097			0.94	0.20	0.0097			0.71	0.20	0.0097		
Total Sulfides (mg/kg)				138	15	15			91.3	16.8	16.8			5.13	1.51	1.51		
Ammonia (mg/kg NH3-N)				38	38	13	U H	UJ	40	40	14	U	UJ	38	38	13	U	UJ
Particle/Grain Size, Gravel (%)				0.10					0.00					0.00				
Particle/Grain Size, Sand (%)				79					75					81				
Particle/Grain Size, Silt (%)				16					20					15				
Particle/Grain Size, Clay (%)				5.0					5.6					4.1				
Percent Fines (Silt + Clay)				21.0					25.6					19.1				
METALS (mg/kg dry weight)																		
Antimony	150	---	200	0.11	0.32	0.036	J	U	0.13	0.37	0.042	J	U	0.11	0.29	0.033	J	U
Arsenic	57	507.1	700	6.7	0.26	0.053			7.5	0.31	0.062			7.2	0.24	0.048		
Cadmium	5.1	--	14	0.085	0.42	0.041	J	J	0.086	0.50	0.048	J	J	0.081	0.38	0.037	J	J
Chromium	260	--	---	27	0.53	0.033			27	0.62	0.039			25	0.48	0.030		
Copper	390	--	1,300	25	0.53	0.12			26	0.62	0.14			21	0.48	0.11		
Lead	450	975	1,200	3.7	0.26	0.025			4.5	0.31	0.030			3.9	0.24	0.023		
Mercury	0.41	1.5	2.3	0.020	0.037	0.011	J	J	0.025	0.037	0.011	J	J	0.020	0.032	0.0097	J	J
Selenium	---	3	---	0.20	0.33	0.17	J	J	0.24	0.39	0.20	J	J	0.36	0.36	0.19	U	U
Silver	6.1	--	8.4	0.029	0.11	0.011	J	J	0.037	0.12	0.012	J	J	0.026	0.096	0.0096	J	J
Zinc	410	--	3,800	57	2.7	0.85			60	3.2	1.0			58	2.5	0.77		
ORGANICS																		
PAHs (µg/kg dry weight)																		
LPAH																		
Naphthalene	2,100	---	2,400	20.0	20.0	4.2	U	U	19.9	19.9	4.2	U	U	8.8	20.0	4.2	J	J
Acenaphthylene	560	---	1,300	20.0	20.0	6.2	U	U	19.9	19.9	6.2	U	U	20.0	20.0	6.2	U	U
Acenaphthene	500	---	2,000	20.0	20.0	5.2	U	U	19.9	19.9	5.2	U	U	20.0	20.0	5.2	U	U
Fluorene	540	---	3,600	20.0	20.0	14.6	U	U	19.9	19.9	14.5	U	U	20.0	20.0	14.6	U	U
Phenanthrene	1,500	---	21,000	20.0	20.0	8.7	U	U	10.1	19.9	8.7	J	J	35.1	20.0	8.7		
Anthracene	960	---	13,000	20.0	20.0	7.2	U	U	19.9	19.9	7.2	U	U	20.0	20.0	7.2	U	U

Table 11. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-NC-04, DMMU-NC-05, DMMU-HR-01)

Parameter	DMMP Marine Guidelines			DMMU-NC-04					DMMU-NC-05					DMMU-HR-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
2-Methylnaphthalene	670	---	1,900	20.0	20.0	4.5	U	U	19.9	19.9	4.5	U	U	20.0	20.0	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	20.0			U	U	10.1			J	J	43.9			J	J
HPAH																		
Fluoranthene	1,700	4,600	30,000	20.0	20.0	6.1	U	U	10.1	19.9	6.1	J	J	67.1	20.0	6.1		
Pyrene	2,600	11,980	16,000	20.0	20.0	5.7	U	U	10.1	19.9	5.6	J	J	62.5	20.0	5.7		
Benz(a)anthracene	1,300	---	5,100	20.0	20.0	6.0	U	U	19.9	19.9	5.9	U	U	25.6	20.0	6.0		
Chrysene	1,400	---	21,000	20.0	20.0	6.1	U	U	19.9	19.9	6.0	U	U	30.3	20.0	6.1		
Benzofluoranthenes (b, j, k)	3,200	---	9,900	40.0	40.0	21.0	U	U	39.8	39.8	20.9	U	U	40.8	40.0	21.0		
Benzo(a)pyrene	1,600	---	3,600	20.0	20.0	4.2	U	UJ	19.9	19.9	4.2	U	UJ	19.2	20.0	4.2	J	UJ
Indeno(1,2,3-c,d)pyrene	600	---	4,400	20.0	20.0	14.6	U	UJ	19.9	19.9	14.6	U	UJ	20.0	20.0	14.6	U	UJ
Dibenz(a,h)anthracene	230	---	1,900	20.0	20.0	17.2	U	UJ	19.9	19.9	17.1	U	UJ	20.0	20.0	17.2	U	UJ
Benzo(g,h,i)perylene	670	---	3,200	20.0	20.0	13.6	U	U	19.9	19.9	13.5	U	U	15.4	20.0	13.6	J	J
<b>Total HPAH</b>	12,000	---	69,000	40.0			U	U	20.2			J	J	241.7			J	J
CHLORINATED HYDROCARBONS (µg/kg dry weight)																		
1,4-Dichlorobenzene	110	---	120	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U
1,2-Dichlorobenzene	35	---	110	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
PHTHALATES (µg/kg dry weight)																		
Dimethyl phthalate	71	---	1,400	20.0	20.0	4.4	U	U	19.9	19.9	4.4	U	U	20.0	20.0	4.4	U	U
Diethyl phthalate	200	---	1,200	50.0	50.0	19.7	U	U	49.7	49.7	19.6	U	U	50.0	50.0	19.7	U	U
Di-n-butyl phthalate	1,400	---	5,100	20.0	20.0	5.6	U	U	19.9	19.9	5.6	U	U	20.0	20.0	5.6	U	U
Butyl benzyl phthalate	63	---	970	20.0	20.0	9.4	U	U	19.9	19.9	9.4	U	U	20.0	20.0	9.4	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	50.0	50.0	14.1	U	U	49.7	49.7	14.0	U	U	50.0	50.0	14.1	U	U
Di-n-octyl phthalate	6,200	---	6,200	20.0	20.0	4.4	U	U	19.9	19.9	4.4	U	U	20.0	20.0	4.4	U	U
PHENOLS (µg/kg dry weight)																		
Phenol	420	---	1,200	20.0	20.0	4.4	U	U	19.9	19.9	4.4	U	U	20.0	20.0	4.4	U	U
2-Methylphenol	63	---	77	20.0	20.0	6.7	U	UJ	19.9	19.9	6.6	U	UJ	20.0	20.0	6.7	U	UJ
4-Methylphenol	670	---	3,600	20.0	20.0	7.4	U	UJ	19.9	19.9	7.3	U	UJ	20.0	20.0	7.4	U	UJ
2,4-Dimethylphenol	29	---	210	20.0	20.0	2.2	U	U	19.9	19.9	2.2	U	U	20.0	20.0	2.2	U	U
Pentachlorophenol	400	504	690	100	100	31.2	U	UJ	99.5	99.5	31.1	U	UJ	100	100	31.2	U	UJ

Table 11. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-NC-04, DMMU-NC-05, DMMU-HR-01)

Parameter	DMMP Marine Guidelines			DMMU-NC-04					DMMU-NC-05					DMMU-HR-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)																		
Benzyl alcohol	57	---	870	20.0	20.0	16.3	U	U	19.9	19.9	16.2	U	U	20.0	20.0	16.3	U	U
Benzoic acid	650	---	760	200	200	39.0	U	UJ	199	199	38.8	U	UJ	200	200	39.0	U	UJ
Dibenzofuran	540	---	1,700	20.0	20.0	14.1	U	U	19.9	19.9	14.0	U	U	20.0	20.0	14.1	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)																		
4,4'-DDD	16	---	---	0.69	6.0	0.69	U	U	0.78	6.8	0.78	U	U	0.71	6.2	0.71	U	U
4,4'-DDE	9	---	---	1.1	6.0	1.1	U	U	1.3	6.8	1.3	U	U	1.1	6.2	1.1	U	U
4,4'-DDT	12	---	---	1.1	6.0	1.1	U	U	1.3	6.8	1.3	U	U	1.1	6.2	1.1	U	U
Total DDT	---	50	69	1.1			U	U	1.3			U	U	1.1			U	U
Aldrin	9.5	---	---	1.1	9.0	1.1	U	U	1.3	10	1.3	U	U	1.2	9.2	1.2	U	U
cis-Chlordane				2.2	6.0	2.2	U	U	2.5	6.8	2.5	U	U	2.3	6.2	2.3	U	U
cis-Nonachlor				2.5	15	2.5	U	U	2.9	17	2.9	U	U	2.6	15	2.6	U	U
Oxychlordane				2.3	12	2.3	U	U	2.6	14	2.6	U	U	2.4	12	2.4	U	U
trans-Chlordane				0.96	9.0	0.96	U	U	1.1	10	1.1	U	U	0.99	9.2	0.99	U	U
trans-Nonachlor				2.5	12	2.5	U	U	2.9	14	2.9	U	U	2.6	12	2.6	U	U
Total Chlordane	2.8	37	---	2.5			U	U	2.9			U	U	2.6			U	U
Dieldrin	1.9	---	1700	1.0	6.0	1.0	U	U	1.2	6.8	1.2	U	U	1.1	6.2	1.1	U	U
Heptachlor	1.5	---	270	0.57	9.0	0.57	U	U	0.64	10	0.64	U	U	0.58	9.2	0.58	U	U
PCB-Aroclor 1016				3.0	3.0	1.1	U	U	3.4	3.4	1.3	U	U	31	31	11	U	U
PCB-Aroclor 1221				3.0	3.0	1.8	U	U	3.4	3.4	2.0	U	U	31	31	18	U	U
PCB-Aroclor 1232				3.0	3.0	0.7	U	U	3.4	3.4	0.83	U	U	31	31	7.5	U	U
PCB-Aroclor 1242				3.0	3.0	1.2	U	U	3.4	3.4	1.4	U	U	31	31	12	U	U
PCB-Aroclor 1248				3.0	3.0	1.0	U	U	3.4	3.4	1.2	U	U	31	31	11	U	U
PCB-Aroclor 1254				3.0	3.0	1.3	U	U	3.4	3.4	1.5	U	U	31	31	14	U	U
PCB-Aroclor 1260				3.0	3.0	1.1	U	U	3.4	3.4	1.3	U	U	31	31	11	U	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	3.0			U	U	3.4			U	U	31			U	U

Table 11. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-NC-04, DMMU-NC-05, DMMU-HR-01)

Parameter	DMMP Marine Guidelines			DMMU-NC-04					DMMU-NC-05					DMMU-HR-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)																		
2,3,7,8-TCDD	---	5	---	0.71	1.5	0.099	J q	U	0.87	1.7	0.11	J q	U	0.62	1.5	0.084	J q	U
1,2,3,7,8-PECDD				0.77	7.4	0.13	J	J	0.98	8.4	0.15	J	J	0.54	7.3	0.12	J	J
1,2,3,4,7,8-HxCDD				0.48	7.4	0.090	J B	U	0.62	8.4	0.13	J B	U	0.45	7.3	0.11	J B	U
1,2,3,6,7,8-HxCDD				0.64	7.4	0.10	J	J	1.2	8.4	0.15	J	J	0.62	7.3	0.12	J	J
1,2,3,7,8,9-HxCDD				1.9	7.4	0.089	J B	J	3.0	8.4	0.13	J B	J	1.6	7.3	0.11	J B	J
1,2,3,4,6,7,8-HpCDD				6.3	7.4	0.062	J B	J	11	8.4	0.098	B		6.7	7.3	0.069	J B	J
OCDD				43	15	0.11	B		78	17	0.14	B		43	15	0.12	B	
2,3,7,8-TCDF				0.24	1.5	0.038	J	J	0.39	1.7	0.049	J	J	0.19	1.5	0.046	J	J
1,2,3,7,8-PeCDF				0.15	7.4	0.070	J q	U	0.11	8.4	0.11	U	U	0.077	7.3	0.077	U	U
2,3,4,7,8-PECDF				0.070	7.4	0.070	U	U	0.12	8.4	0.12	U	U	0.087	7.3	0.087	U	U
1,2,3,4,7,8-HxCDF				0.16	7.4	0.048	J B	U	0.31	8.4	0.069	J B q	U	0.12	7.3	0.060	J B q	U
1,2,3,6,7,8-HxCDF				0.15	7.4	0.049	J B q	U	0.25	8.4	0.065	J B	U	0.11	7.3	0.059	J B q	U
1,2,3,7,8,9-HxCDF				0.21	7.4	0.047	J B q	U	0.22	8.4	0.061	J B q	U	0.051	7.3	0.051	U	U
2,3,4,6,7,8-HxCDF				0.16	7.4	0.048	J B	U	0.14	8.4	0.058	J B q	U	0.052	7.3	0.052	U	U
1,2,3,4,6,7,8-HpCDF				1.8	7.4	0.086	J B	J	4.4	8.4	0.13	J B	J	2.7	7.3	0.11	J B	J
1,2,3,4,7,8,9-HpCDF				0.18	7.4	0.073	J B q	U	0.21	8.4	0.10	J B q	U	0.083	7.3	0.083	U	U
OCDF				2.4	15	0.064	J B	J	4.4	17	0.082	J B	J	2.7	15	0.065	J B	J
Total Tetra-Dioxins				2.1	1.5	0.099	q	J	2.5	1.7	0.11	q	J	1.4	1.5	0.084	J q	J
Total Penta-Dioxins				3.7	7.4	0.13	J q	J	4.4	8.4	0.15	J q	J	2.6	7.3	0.12	J q	J
Total Hexa-Dioxins				9.8	7.4	0.094	B q	J	16	8.4	0.13	B		9.8	7.3	0.11	B	
Total Hepta-Dioxins				15	7.4	0.062	B		27	8.4	0.098	B		16	7.3	0.069	B	
Total Tetra-Furans				0.43	1.5	0.038	J q	J	0.39	1.7	0.049	J	J	0.49	1.5	0.046	J	J
Total Penta-Furans				0.15	7.4	0.070	J q	J	0.12	8.4	0.12	U	U	0.75	7.3	0.082	J q	J
Total Hexa-Furans				2.0	7.4	0.048	J B q	J	3.1	8.4	0.063	J B q	J	1.8	7.3	0.055	J B q	J
Total Hepta-Furans				3.9	7.4	0.079	J B q	J	8.7	8.4	0.12	B q	J	5.2	7.3	0.095	J B	J
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	1.569					2.150					1.25				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL/RL exceeds DMMP SL

Table 12. Sediment Conventionals & COC Analysis Results Compared to DMMP Guidelines (DMMU-HR-02, DMMU-HR-03, DMMU-HR-04)

Parameter	DMMP Marine Guidelines			DMMU-HR-02					DMMU-HR-03					DMMU-HR-04				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
SEDIMENT CONVENTIONALS																		
Total solids (%)				61.1	0.04	0.04			62.69	0.04	0.04			56.8	0.04	0.04		
Total volatile solids (TVS) (%)				3.82	0.01	0.01			5.41	0.01	0.01			5.08	0.01	0.01		
Total organic carbon (TOC) (%)				0.85	0.20	0.0097			1.2	0.20	0.0097			1.2	0.20	0.0097		
Total Sulfides (mg/kg)				198	31.1	31.1			41.8	7.54	7.54			52	8.72	8.72		
Ammonia (mg/kg NH3-N)				35	35	12	U	UJ	17	40	14	J	J	17	44	16	J	J
Particle/Grain Size, Gravel (%)				0.10					0.00					0.00				
Particle/Grain Size, Sand (%)				74					47					56				
Particle/Grain Size, Silt (%)				20					45					37				
Particle/Grain Size, Clay (%)				5.7					8.0					6.7				
Percent Fines (Silt + Clay)				25.7					53.0					43.7				
METALS (mg/kg dry weight)																		
Antimony	150	---	200	0.13	0.31	0.035	J	U	0.15	0.33	0.037	J	U	0.15	0.34	0.038	J	U
Arsenic	57	507.1	700	6.7	0.26	0.052			7.2	0.27	0.055			7.9	0.28	0.057		
Cadmium	5.1	--	14	0.12	0.42	0.040	J	J	0.13	0.44	0.042	J	J	0.13	0.45	0.044	J	J
Chromium	260	--	---	31	0.52	0.033			32	0.55	0.035			31	0.57	0.036		
Copper	390	--	1,300	35	0.52	0.11			36	0.55	0.12			35	0.57	0.12		
Lead	450	975	1,200	4.4	0.26	0.025			5.1	0.27	0.026			5.3	0.28	0.027		
Mercury	0.41	1.5	2.3	0.025	0.037	0.011	J	J	0.036	0.042	0.013	J	J	0.033	0.045	0.013	J	J
Selenium	---	3	---	0.22	0.34	0.18	J	J	0.29	0.36	0.19	J	J	0.31	0.43	0.22	J	J
Silver	6.1	--	8.4	0.036	0.10	0.010	J	J	0.049	0.11	0.011	J	J	0.31	0.11	0.011		
Zinc	410	--	3,800	69	2.7	0.84			68	2.8	0.88			68	2.9	0.91		
ORGANICS																		
PAHs (µg/kg dry weight)																		
LPAH																		
Naphthalene	2,100	---	2,400	20.0	20.0	4.2	U	U	8.8	20.0	4.2	J	J	8.3	19.9	4.2	J	J
Acenaphthylene	560	---	1,300	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U	19.9	19.9	6.2	U	U
Acenaphthene	500	---	2,000	20.0	20.0	5.2	U	U	20.0	20.0	5.2	U	U	19.9	19.9	5.2	U	U
Fluorene	540	---	3,600	20.0	20.0	14.5	U	U	20.0	20.0	14.5	U	U	19.9	19.9	14.5	U	U
Phenanthrene	1,500	---	21,000	20.0	20.0	8.7	U	U	20.0	20.0	8.7	U	U	13.1	19.9	8.7	J	J
Anthracene	960	---	13,000	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U	19.9	19.9	7.2	U	U



Table 12. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-HR-02, DMMU-HR-03, DMMU-HR-04)

Parameter	DMMP Marine Guidelines			DMMU-HR-02					DMMU-HR-03					DMMU-HR-04				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
2-Methylnaphthalene	670	---	1,900	20.0	20.0	4.5	U	U	20.0	20.0	4.5	U	U	19.9	19.9	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	20.0			U	U	8.8			J	J	21.4			J	J
HPAH																		
Fluoranthene	1,700	4,600	30,000	20.0	20.0	6.1	U	U	10.8	20.0	6.1	J	J	16.8	19.9	6.1	J	J
Pyrene	2,600	11,980	16,000	20.0	20.0	5.7	U	U	10.0	20.0	5.7	J	J	12.5	19.9	5.7	J	J
Benz(a)anthracene	1,300	---	5,100	20.0	20.0	5.9	U	U	20.0	20.0	5.9	U	U	6.2	19.9	5.9	J	J
Chrysene	1,400	---	21,000	20.0	20.0	6.0	U	U	20.0	20.0	6.0	U	U	19.7	19.9	6.0	J	J
Benzofluoranthenes (b, j, k)	3,200	---	9,900	39.9	39.9	20.9	U	U	39.9	39.9	20.9	U	U	39.8	39.8	20.9	U	U
Benzo(a)pyrene	1,600	---	3,600	20.0	20.0	4.2	U	UJ	20.0	20.0	4.2	U	UJ	19.9	19.9	4.2	U	UJ
Indeno(1,2,3-c,d)pyrene	600	---	4,400	20.0	20.0	14.6	U	UJ	20.0	20.0	14.6	U	UJ	19.9	19.9	14.6	U	UJ
Dibenz(a,h)anthracene	230	---	1,900	20.0	20.0	17.2	U	UJ	20.0	20.0	17.2	U	UJ	19.9	19.9	17.1	U	UJ
Benzo(g,h,i)perylene	670	---	3,200	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U	19.9	19.9	13.5	U	U
<b>Total HPAH</b>	12,000	---	69,000	39.9			U	U	20.8			J	J	55.2			J	J
CHLORINATED HYDROCARBONS (µg/kg dry weight)																		
1,4-Dichlorobenzene	110	---	120	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U
1,2-Dichlorobenzene	35	---	110	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
PHTHALATES (µg/kg dry weight)																		
Dimethyl phthalate	71	---	1,400	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	19.9	19.9	4.4	U	U
Diethyl phthalate	200	---	1,200	49.9	49.9	19.7	U	U	49.9	49.9	19.7	U	U	49.8	49.8	19.6	U	U
Di-n-butyl phthalate	1,400	---	5,100	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U	19.9	19.9	5.6	U	U
Butyl benzyl phthalate	63	---	970	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U	19.9	19.9	9.4	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	49.9	49.9	14.0	U	U	49.9	49.9	14.0	U	U	49.8	49.8	14.0	U	U
Di-n-octyl phthalate	6,200	---	6,200	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	19.9	19.9	4.4	U	U
PHENOLS (µg/kg dry weight)																		
Phenol	420	---	1,200	20.0	20.0	4.4	U	U	5.0	20.0	4.4	J	J	7.1	19.9	4.4	J	J
2-Methylphenol	63	---	77	20.0	20.0	6.6	U	UJ	20.0	20.0	6.6	U	UJ	19.9	19.9	6.6	U	UJ
4-Methylphenol	670	---	3,600	20.0	20.0	7.4	U	UJ	20.0	20.0	7.4	U	UJ	19.9	19.9	7.4	U	UJ
2,4-Dimethylphenol	29	---	210	20.0	20.0	2.2	U	U	20.0	20.0	2.2	U	U	19.9	19.9	2.2	U	U
Pentachlorophenol	400	504	690	99.8	99.8	31.2	U	UJ	99.8	99.8	31.2	U	UJ	99.5	99.5	31.1	U	UJ

Table 12. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-HR-02, DMMU-HR-03, DMMU-HR-04)

Parameter	DMMP Marine Guidelines			DMMU-HR-02					DMMU-HR-03					DMMU-HR-04				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)																		
Benzyl alcohol	57	---	870	20.0	20.0	16.2	U	U	20.0	20.0	16.2	U	U	19.9	19.9	16.2	U	U
Benzoic acid	650	---	760	200	200	39.0	U	UJ	200	200	39.0	U	UJ	199	199	38.8	U	UJ
Dibenzofuran	540	---	1,700	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U	19.9	19.9	14.1	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)																		
4,4'-DDD	16	---	---	0.67	5.9	0.67	U	U	0.76	6.6	0.76	U	U	0.83	7.2	0.83	U	U
4,4'-DDE	9	---	---	1.1	5.9	1.1	U	U	1.2	6.6	1.2	U	U	1.3	7.2	1.3	U	U
4,4'-DDT	12	---	---	1.1	5.9	1.1	U	U	1.2	6.6	1.2	U	U	1.3	7.2	1.3	U	U
Total DDT	---	50	69	1.1			U	U	1.2			U	U	1.3			U	U
Aldrin	9.5	---	---	1.1	8.8	1.1	U	U	1.3	9.9	1.3	U	U	1.4	11	1.4	U	U
cis-Chlordane				2.2	5.9	2.2	U	U	2.5	6.6	2.5	U	U	2.7	7.2	2.7	U	U
cis-Nonachlor				2.5	15	2.5	U	U	2.8	17	2.8	U	U	3.1	18	3.1	U	U
Oxychlordane				2.3	12	2.3	U	U	2.5	13	2.5	U	U	2.8	14	2.8	U	U
trans-Chlordane				0.94	8.8	0.94	U	U	1.1	9.9	1.1	U	U	1.2	11	1.2	U	U
trans-Nonachlor				2.5	12	2.5	U	U	2.8	13	2.8	U	U	3.1	14	3.1	U	U
Total Chlordane	2.8	37	---	2.5			U	U	2.8			U	U	3.1			U	U
Dieldrin	1.9	---	1700	1.0	5.9	1.0	U	U	1.2	6.6	1.2	U	U	1.3	7.2	1.3	U	U
Heptachlor	1.5	---	270	0.56	8.8	0.56	U	U	0.63	9.9	0.63	U	U	0.68	11	0.68	U	U
PCB-Aroclor 1016				29	29	11	U	U	33	33	12	U	U	36	36	13	U	U
PCB-Aroclor 1221				29	29	18	U	U	33	33	20	U	U	36	36	22	U	U
PCB-Aroclor 1232				29	29	7.2	U	U	33	33	8.1	U	U	36	36	8.8	U	U
PCB-Aroclor 1242				29	29	12	U	U	33	33	13	U	U	36	36	14	U	U
PCB-Aroclor 1248				29	29	10	U	U	33	33	12	U	U	36	36	13	U	U
PCB-Aroclor 1254				29	29	13	U	U	33	33	15	U	U	36	36	16	U	U
PCB-Aroclor 1260				29	29	11	U	U	33	33	12	U	U	36	36	13	U	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	29			U	U	33			U	U	36			U	U

Table 12. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-HR-02, DMMU-HR-03, DMMU-HR-04)

Parameter	DMMP Marine Guidelines			DMMU-HR-02					DMMU-HR-03					DMMU-HR-04				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)																		
2,3,7,8-TCDD	---	5	---	1.2	1.4	0.095	J	J	0.89	1.6	0.089	J q	U	0.69	1.7	0.11	J q	U
1,2,3,7,8-PECDD				0.83	7.0	0.15	J q	U	0.91	7.9	0.12	J	J	0.70	8.6	0.13	J	J
1,2,3,4,7,8-HxCDD				0.47	7.0	0.091	J B	U	0.50	7.9	0.10	J B	U	0.35	8.6	0.12	J B q	U
1,2,3,6,7,8-HxCDD				0.85	7.0	0.10	J q	U	0.83	7.9	0.11	J q	U	0.65	8.6	0.13	J q	U
1,2,3,7,8,9-HxCDD				2.7	7.0	0.089	J B	J	2.4	7.9	0.10	J B	J	1.9	8.6	0.11	J B	J
1,2,3,4,6,7,8-HpCDD				9.5	7.0	0.069	B		10	7.9	0.075	B		8.8	8.6	0.076	B	
OCDD				62	14	0.11	B		68	16	0.11	B		62	17	0.13	B	
2,3,7,8-TCDF				0.28	1.4	0.049	J	J	0.42	1.6	0.043	J	J	0.22	1.7	0.043	J q	U
1,2,3,7,8-PeCDF				0.062	7.0	0.062	U	U	0.081	7.9	0.081	U	U	0.10	8.6	0.10	U	U
2,3,4,7,8-PECDF				0.062	7.0	0.062	U	U	0.090	7.9	0.090	U	U	0.11	8.6	0.11	U	U
1,2,3,4,7,8-HxCDF				0.16	7.0	0.044	J B q	U	0.19	7.9	0.059	J B	U	0.16	8.6	0.062	J B q	U
1,2,3,6,7,8-HxCDF				0.15	7.0	0.045	J B q	U	0.14	7.9	0.057	J B q	U	0.13	8.6	0.062	J B	U
1,2,3,7,8,9-HxCDF				0.081	7.0	0.044	J B q	U	0.053	7.9	0.053	U	U	0.055	8.6	0.055	U	U
2,3,4,6,7,8-HxCDF				0.11	7.0	0.045	J B q	U	0.081	7.9	0.050	J B q	U	0.055	8.6	0.055	U	U
1,2,3,4,6,7,8-HpCDF				2.5	7.0	0.093	J B	J	3.5	7.9	0.097	J B	J	2.6	8.6	0.10	J B	J
1,2,3,4,7,8,9-HpCDF				0.11	7.0	0.076	J B q	U	0.15	7.9	0.079	J B	U	0.097	8.6	0.083	J B q	U
OCDF				3.0	14	0.057	J B	J	3.5	16	0.066	J B	J	2.9	17	0.085	J B	J
Total Tetra-Dioxins				3.0	1.4	0.095	q	J	2.5	1.6	0.089	q	J	2.1	1.7	0.11	q	J
Total Penta-Dioxins				4.4	7.0	0.15	J q	J	4.1	7.9	0.12	J q	J	2.3	8.6	0.13	J q	J
Total Hexa-Dioxins				15	7.0	0.094	B q	J	14	7.9	0.11	B q	J	11	8.6	0.12	B q	J
Total Hepta-Dioxins				23	7.0	0.069	B		29	7.9	0.075	B		23	8.6	0.076	B	
Total Tetra-Furans				0.54	1.4	0.049	J	J	0.42	1.6	0.043	J	J	0.22	1.7	0.043	J q	J
Total Penta-Furans				0.25	7.0	0.062	J q	J	0.20	7.9	0.20	U	U	0.11	8.6	0.11	U	U
Total Hexa-Furans				2.3	7.0	0.044	J B q	J	2.8	7.9	0.055	J B q	J	2.0	8.6	0.058	J B q	J
Total Hepta-Furans				5.3	7.0	0.085	J B q	J	7.5	7.9	0.088	J B	J	5.5	8.6	0.093	J B q	J
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	2.154					1.899					1.468				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL/RL exceeds DMMP SL

Table 13. Sediment Conventionals & COC Analysis Results Compared to DMMP Guidelines (DMMU-HR-05, DMMU-HR-06, DMMU-CP-01)

Parameter	DMMP Marine Guidelines			DMMU-HR-05					DMMU-HR-06					DMMU-CP-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
SEDIMENT CONVENTIONALS																		
Total solids (%)				50.79	0.04	0.04			52.85	0.04	0.04			47.64	0.04	0.04		
Total volatile solids (TVS) (%)				6.04	0.01	0.01			5.86	0.01	0.01			7.28	0.01	0.01		
Total organic carbon (TOC) (%)				1.4	0.20	0.0097			1.4	0.20	0.0097			1.6	0.20	0.0097		
Total Sulfides (mg/kg)				408	38.6	38.6			592	88.8	88.8			413	20.9	20.9	B	J
Ammonia (mg/kg NH3-N)				24	46	16	J	J	24	42	15	J	J	31	51	18	J	J
Particle/Grain Size, Gravel (%)				0.00					1.4					0.00				
Particle/Grain Size, Sand (%)				42					53					29				
Particle/Grain Size, Silt (%)				48					37					59				
Particle/Grain Size, Clay (%)				10					8.8					13				
Percent Fines (Silt + Clay)				58.0					45.8					72.0				
METALS (mg/kg dry weight)																		
Antimony	150	---	200	0.20	0.45	0.051	J	U	0.17	0.33	0.038	J	U	0.18	0.43	0.049	J	U
Arsenic	57	507.1	700	7.0	0.37	0.074			7.5	0.28	0.056			5.4	0.36	0.072		
Cadmium	5.1	--	14	0.16	0.60	0.057	J	J	0.13	0.45	0.043	J	J	0.12	0.57	0.055	J	J
Chromium	260	--	---	35	0.74	0.047			35	0.56	0.035			27	0.72	0.045		J
Copper	390	--	1,300	50	0.74	0.16			45	0.56	0.12			39	0.72	0.16		
Lead	450	975	1,200	6.3	0.37	0.036			6.6	0.28	0.027			5.1	0.36	0.034		
Mercury	0.41	1.5	2.3	0.035	0.040	0.012	J	J	0.037	0.042	0.013	J	J	0.061	0.038	0.011		J
Selenium	---	3	---	0.41	0.47	0.24	J	J	0.37	0.39	0.20	J	J	0.45	0.49	0.25	J	J
Silver	6.1	--	8.4	0.073	0.15	0.015	J	J	0.053	0.11	0.011	J	J	0.062	0.14	0.014	J	J
Zinc	410	--	3,800	76	3.8	1.2			72	2.8	0.90			54	3.7	1.2		J
ORGANICS																		
PAHs (µg/kg dry weight)																		
LPAH																		
Naphthalene	2,100	---	2,400	6.5	19.9	4.2	J	J	7.9	20.0	4.2	J	J	6.3	20.0	4.2	J	J
Acenaphthylene	560	---	1,300	19.9	19.9	6.2	U	U	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U
Acenaphthene	500	---	2,000	19.9	19.9	5.2	U	U	20.0	20.0	5.2	U	U	20.0	20.0	5.2	U	U
Fluorene	540	---	3,600	19.9	19.9	14.5	U	U	20.0	20.0	14.6	U	U	20.0	20.0	14.6	U	U
Phenanthrene	1,500	---	21,000	19.9	19.9	8.7	U	U	20.0	20.0	8.7	U	U	20.0	20.0	8.7	U	U
Anthracene	960	---	13,000	19.9	19.9	7.2	U	U	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U

Table 13. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-HR-05, DMMU-HR-06, DMMU-CP-01)

Parameter	DMMP Marine Guidelines			DMMU-HR-05					DMMU-HR-06					DMMU-CP-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
2-Methylnaphthalene	670	---	1,900	19.9	19.9	4.5	U	U	20.0	20.0	4.5	U	U	20.0	20.0	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	6.5			J	J	7.9			J	J	6.3			J	J
HPAH																		
Fluoranthene	1,700	4,600	30,000	9.7	19.9	6.1	J	J	7.6	20.0	6.1	J	J	9.6	20.0	6.1	J	J
Pyrene	2,600	11,980	16,000	9.2	19.9	5.7	J	J	6.9	20.0	5.7	J	J	8.0	20.0	5.7	J	J
Benz(a)anthracene	1,300	---	5,100	19.9	19.9	5.9	U	U	20.0	20.0	6.0	U	U	20.0	20.0	6.0	U	U
Chrysene	1,400	---	21,000	19.9	19.9	6.0	U	U	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U
Benzofluoranthenes (b, j, k)	3,200	---	9,900	39.9	39.9	20.9	U	U	40.0	40.0	21.0	U	U	40.0	40.0	21.0	U	U
Benzo(a)pyrene	1,600	---	3,600	19.9	19.9	4.2	U	UJ	20.0	20.0	4.2	U	UJ	20.0	20.0	4.2	U	U
Indeno(1,2,3-c,d)pyrene	600	---	4,400	19.9	19.9	14.6	U	UJ	20.0	20.0	14.6	U	UJ	20.0	20.0	14.6	U	U
Dibenz(a,h)anthracene	230	---	1,900	19.9	19.9	17.2	U	UJ	20.0	20.0	17.2	U	UJ	20.0	20.0	17.2	U	U
Benzo(g,h,i)perylene	670	---	3,200	19.9	19.9	13.6	U	U	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U
<b>Total HPAH</b>	12,000	---	69,000	18.9			J	J	14.5			J	J	17.6			J	J
CHLORINATED HYDROCARBONS (µg/kg dry weight)																		
1,4-Dichlorobenzene	110	---	120	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U
1,2-Dichlorobenzene	35	---	110	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	1.0	5.0	0.7	J	J
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	3.5	5.0	0.7	J	J
PHTHALATES (µg/kg dry weight)																		
Dimethyl phthalate	71	---	1,400	19.9	19.9	4.4	U	U	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U
Diethyl phthalate	200	---	1,200	49.9	49.9	19.7	U	U	49.9	49.9	19.7	U	U	28.4	49.9	19.7	J	J
Di-n-butyl phthalate	1,400	---	5,100	19.9	19.9	5.6	U	U	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U
Butyl benzyl phthalate	63	---	970	19.9	19.9	9.4	U	U	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	49.9	49.9	14.0	U	U	49.9	49.9	14.1	U	U	49.9	49.9	14.1	U	U
Di-n-octyl phthalate	6,200	---	6,200	19.9	19.9	4.4	U	U	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U
PHENOLS (µg/kg dry weight)																		
Phenol	420	---	1,200	19.9	19.9	4.4	U	U	6.3	20.0	4.4	J	J	20.2	20.0	4.4		J
2-Methylphenol	63	---	77	19.9	19.9	6.6	U	UJ	20.0	20.0	6.7	U	UJ	20.0	20.0	6.7	U	UJ
4-Methylphenol	670	---	3,600	19.9	19.9	7.4	U	UJ	26.1	20.0	7.4	J	J	20.0	20.0	7.4	U	UJ
2,4-Dimethylphenol	29	---	210	19.9	19.9	2.2	U	U	20.0	20.0	2.2	U	U	2.8	20.0	2.2	J	J
Pentachlorophenol	400	504	690	99.7	99.7	31.2	U	UJ	99.9	99.9	31.2	U	UJ	99.9	99.9	31.2	U	UJ

Table 13. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-HR-05, DMMU-HR-06, DMMU-CP-01)

Parameter	DMMP Marine Guidelines			DMMU-HR-05					DMMU-HR-06					DMMU-CP-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)																		
Benzyl alcohol	57	---	870	19.9	19.9	16.2	U	U	20.0	20.0	16.2	U	U	20.0	20.0	16.2	U	UJ
Benzoic acid	650	---	760	199	199	38.9	U	UJ	200	200	39.0	U	UJ	200	200	39.0	U	UJ
Dibenzofuran	540	---	1,700	19.9	19.9	14.1	U	U	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	2.4	5.0	0.7	J	J
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)																		
4,4'-DDD	16	---	---	0.88	7.7	0.88	U	U	0.77	6.7	0.77	U	U	0.46	4.0	0.46	U	U
4,4'-DDE	9	---	---	1.4	7.7	1.4	U	U	1.2	6.7	1.2	U	U	0.74	4.0	0.74	U	U
4,4'-DDT	12	---	---	1.4	7.7	1.4	U	U	1.2	6.7	1.2	U	U	0.74	4.0	0.74	U	U
Total DDT	---	50	69	1.4			U	U	1.2			U	U	0.74			U	U
Aldrin	9.5	---	---	1.5	11	1.5	U	U	1.3	10	1.3	U	U	0.76	6.0	0.76	U	U
cis-Chlordane				2.9	7.7	2.9	U	U	2.5	6.7	2.5	U	U	1.5	4.0	1.5	U	U
cis-Nonachlor				3.3	19	3.3	U	U	2.8	17	2.8	U	U	1.7	10	1.7	U	U
Oxychlordane				3.0	15	3.0	U	U	2.6	13	2.6	U	U	1.5	8.0	1.5	U	U
trans-Chlordane				1.2	11	1.2	U	U	1.1	10	1.1	U	U	0.64	6.0	0.64	U	U
trans-Nonachlor				3.3	15	3.3	U	U	2.8	13	2.8	U	U	1.7	8.0	1.7	U	U
Total Chlordane	2.8	37	---	3.3			U	U	2.8			U	U	1.7			U	U
Dieldrin	1.9	---	1700	1.3	7.7	1.3	U	U	1.2	6.7	1.2	U	U	0.70	4.0	0.7	U	U
Heptachlor	1.5	---	270	0.73	11	0.73	U	U	0.64	10	0.64	U	U	0.38	6.0	0.38	U	U
PCB-Aroclor 1016				3.8	3.8	1.4	U	U	34	34	12	U	U	40	40	15	U	U
PCB-Aroclor 1221				3.8	3.8	2.3	U	U	34	34	20	U	U	40	40	24	U	U
PCB-Aroclor 1232				3.8	3.8	0.94	U	U	34	34	8.2	U	U	40	40	9.8	U	U
PCB-Aroclor 1242				3.8	3.8	1.5	U	U	34	34	13	U	U	40	40	16	U	U
PCB-Aroclor 1248				3.8	3.8	1.3	U	U	34	34	12	U	U	40	40	14	U	U
PCB-Aroclor 1254				3.8	3.8	1.7	U	U	34	34	15	U	U	40	40	18	U	U
PCB-Aroclor 1260				3.8	3.8	1.4	U	U	34	34	12	U	U	40	40	15	U 1	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	3.8			U	U	34			U	U	40			U 1	U

Table 13. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-HR-05, DMMU-HR-06, DMMU-CP-01)

Parameter	DMMP Marine Guidelines			DMMU-HR-05					DMMU-HR-06					DMMU-CP-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)																		
2,3,7,8-TCDD	---	5	---	1.3	1.9	0.14	J q	U	1.6	1.7	0.098	J	J	2.3	2.0	0.24		
1,2,3,7,8-PECDD				1.4	9.3	0.18	J	J	1.5	8.4	0.21	J	J	2.5	10	0.26	J	J
1,2,3,4,7,8-HxCDD				0.72	9.3	0.12	J B	U	0.73	8.4	0.10	J B	U	1.0	10	0.17	J B	U
1,2,3,6,7,8-HxCDD				1.2	9.3	0.14	J	J	2.0	8.4	0.12	J	J	2.6	10	0.20	J	J
1,2,3,7,8,9-HxCDD				3.5	9.3	0.12	J B	J	5.1	8.4	0.10	J B	J	7.3	10	0.17	J B	J
1,2,3,4,6,7,8-HpCDD				12	9.3	0.092	B		36	8.4	0.19	B		32	10	0.16	B	
OCDD				89	19	0.15	B		370	17	0.28	B		300	20	0.29	B	
2,3,7,8-TCDF				0.40	1.9	0.062	J	J	0.56	1.7	0.051	J	J	0.57	2.0	0.092	J	J
1,2,3,7,8-PeCDF				0.095	9.3	0.095	U	U	0.082	8.4	0.082	U	U	0.23	10	0.10	J	J
2,3,4,7,8-PECDF				0.097	9.3	0.097	U	U	0.086	8.4	0.086	U	U	0.15	10	0.10	J q	U
1,2,3,4,7,8-HxCDF				0.12	9.3	0.056	J B q	U	0.38	8.4	0.058	J B	J	0.54	10	0.087	J B	J
1,2,3,6,7,8-HxCDF				0.14	9.3	0.055	J B	U	0.25	8.4	0.058	J B	U	0.39	10	0.087	J B	J
1,2,3,7,8,9-HxCDF				0.089	9.3	0.055	J B q	U	0.057	8.4	0.057	U	U	0.21	10	0.085	J q B	U
2,3,4,6,7,8-HxCDF				0.054	9.3	0.054	U	U	0.056	8.4	0.056	U	U	0.29	10	0.086	J B	J
1,2,3,4,6,7,8-HpCDF				3.2	9.3	0.12	J B	J	6.2	8.4	0.12	J B	J	7.8	10	0.14	J B	J
1,2,3,4,7,8,9-HpCDF				0.099	9.3	0.099	U	U	0.25	8.4	0.097	J B q	U	0.51	10	0.12	J B	U
OCDF				4.6	19	0.082	J B	J	12	17	0.061	J B	J	16	20	0.12	J B	J
Total Tetra-Dioxins				4.4	1.9	0.14	q	J	4.7	1.7	0.098			7.6	2.0	0.24	q	J
Total Penta-Dioxins				6.9	9.3	0.18	J q	J	7.5	8.4	0.21	J q	J	13	10	0.26		
Total Hexa-Dioxins				20	9.3	0.13	B		30	8.4	0.11	B q	J	38	10	0.18	q B	J
Total Hepta-Dioxins				29	9.3	0.092	B		130	8.4	0.19	B		70	10	0.16	B	
Total Tetra-Furans				1.5	1.9	0.062	J q	J	1.0	1.7	0.051	J	J	0.57	2.0	0.092	J	J
Total Penta-Furans				0.36	9.3	0.096	J q	J	0.49	8.4	0.084	J	J	1.3	10	0.10	J q	J
Total Hexa-Furans				3.2	9.3	0.055	J B q	J	4.8	8.4	0.057	J B	J	7.3	10	0.086	J q B	J
Total Hepta-Furans				7.3	9.3	0.11	J B	J	15	8.4	0.11	B q	J	20	10	0.13	B	
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	2.813					4.511					6.554				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL/RL exceeds DMMP SL

Table 14. Sediment Conventionals & COC Analysis Results Compared to DMMP Guidelines (DMMU-CP-02, DMMU-CP-03, DMMU-CPS-01)

Parameter	DMMP Marine Guidelines			DMMU-CP-02					DMMU-CP-03					DMMU-CPS-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
SEDIMENT CONVENTIONALS																		
Total solids (%)				41.44	0.04	0.04			42.18	0.04	0.04			63.93	0.04	0.04		
Total volatile solids (TVS) (%)				8.29	0.01	0.01			7.95	0.01	0.01			5.22	0.01	0.01		
Total organic carbon (TOC) (%)				2.2	0.20	0.0097			2.0	0.20	0.0097			1.0	0.20	0.0097		
Total Sulfides (mg/kg)				129	21.1	21.1	B	J	78.5	11.4	11.4	B	J	77.5	7.37	7.37	B	J
Ammonia (mg/kg NH3-N)				43	60	21	J	J	34	56	20	J	J	66	39	14		J
Particle/Grain Size, Gravel (%)				0.00					0.10					0.00				
Particle/Grain Size, Sand (%)				19					20					12				
Particle/Grain Size, Silt (%)				66					69					70				
Particle/Grain Size, Clay (%)				14					12					18				
Percent Fines (Silt + Clay)				80.0					81.0					88.0				
METALS (mg/kg dry weight)																		
Antimony	150	---	200	0.20	0.43	0.049	J	U	0.15	0.52	0.058	J	U	0.12	0.30	0.034	J	U
Arsenic	57	507.1	700	6.6	0.36	0.072			5.4	0.43	0.086			4.3	0.25	0.050		
Cadmium	5.1	--	14	0.14	0.57	0.055	J	J	0.12	0.690	0.066	J	J	0.14	0.40	0.039	J	J
Chromium	260	--	---	31	0.72	0.045		J	23	0.86	0.054	F1	J	21	0.50	0.032		J
Copper	390	--	1,300	40	0.72	0.16			32	0.86	0.19	F1		23	0.50	0.11		
Lead	450	975	1,200	6.2	0.36	0.034			5.7	0.430	0.041			3.8	0.25	0.024		
Mercury	0.41	1.5	2.3	0.068	0.067	0.020		J	0.061	0.053	0.016	F1	J	0.043	0.032	0.0097		J
Selenium	---	3	---	0.47	0.56	0.29	J	J	0.49	0.52	0.27	J	J	0.40	0.36	0.18		
Silver	6.1	--	8.4	0.079	0.14	0.014	J	J	0.062	0.17	0.017	J	J	0.054	0.10	0.010	J	J
Zinc	410	--	3,800	62	3.7	1.2		J	50	4.4	1.4	F1	J	41	2.6	0.81		J
ORGANICS																		
PAHs (µg/kg dry weight)																		
LPAH																		
Naphthalene	2,100	---	2,400	20.0	20.0	4.2	U	U	7.2	20.0	4.2	J	J	7.2	20.0	4.2	J	J
Acenaphthylene	560	---	1,300	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U
Acenaphthene	500	---	2,000	20.0	20.0	5.2	U	U	20.0	20.0	5.2	U	U	20.0	20.0	5.2	U	U
Fluorene	540	---	3,600	20.0	20.0	14.5	U	U	20.0	20.0	14.5	U	U	20.0	20.0	14.6	U	U
Phenanthrene	1,500	---	21,000	20.0	20.0	8.7	U	U	10.9	20.0	8.7	J	J	20.0	20.0	8.7	U	U
Anthracene	960	---	13,000	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U



Table 14. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CP-02, DMMU-CP-03, DMMU-CPS-01)

Parameter	DMMP Marine Guidelines			DMMU-CP-02					DMMU-CP-03					DMMU-CPS-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
2-Methylnaphthalene	670	---	1,900	20.0	20.0	4.5	U	U	4.7	20.0	4.5	J	J	20.0	20.0	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	20.0			U	U	18.1			J	J	7.2			J	J
HPAH																		
Fluoranthene	1,700	4,600	30,000	7.8	20.0	6.1	J	J	13.5	20.0	6.1	J	J	20.0	20.0	6.1	U	U
Pyrene	2,600	11,980	16,000	6.4	20.0	5.7	J	J	11.8	20.0	5.7	J	J	20.0	20.0	5.7	U	U
Benz(a)anthracene	1,300	---	5,100	20.0	20.0	5.9	U	U	20.0	20.0	6.0	U	U	20.0	20.0	6.0	U	U
Chrysene	1,400	---	21,000	20.0	20.0	6.0	U	U	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U
Benzofluoranthenes (b, j, k)	3,200	---	9,900	39.9	39.9	20.9	U	U	39.9	39.9	20.9	U	U	40.0	40.0	21.0	U	U
Benzo(a)pyrene	1,600	---	3,600	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U
Indeno(1,2,3-c,d)pyrene	600	---	4,400	20.0	20.0	14.6	U	U	20.0	20.0	14.6	U	U	20.0	20.0	14.6	U	U
Dibenz(a,h)anthracene	230	---	1,900	20.0	20.0	17.2	U	U	20.0	20.0	17.2	U	U	20.0	20.0	17.2	U	U
Benzo(g,h,i)perylene	670	---	3,200	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U
<b>Total HPAH</b>	12,000	---	69,000	14.2			J	J	25.3			J	J	40.0			U	U
CHLORINATED HYDROCARBONS (µg/kg dry weight)																		
1,4-Dichlorobenzene	110	---	120	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U
1,2-Dichlorobenzene	35	---	110	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
PHTHALATES (µg/kg dry weight)																		
Dimethyl phthalate	71	---	1,400	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U
Diethyl phthalate	200	---	1,200	25.6	49.9	19.7	J	J	52.2	49.9	19.7		J	54.3	50.0	19.7		
Di-n-butyl phthalate	1,400	---	5,100	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U
Butyl benzyl phthalate	63	---	970	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	49.9	49.9	14.0	U	U	49.9	49.9	14.0	U	U	50.0	50.0	14.1	U	U
Di-n-octyl phthalate	6,200	---	6,200	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U
PHENOLS (µg/kg dry weight)																		
Phenol	420	---	1,200	14.2	20.0	4.4	J	J	11.0	20.0	4.4	J	J	12.9	20.0	4.4	J	J
2-Methylphenol	63	---	77	20.0	20.0	6.6	U	U	20.0	20.0	6.7	U	U	20.0	20.0	6.7	U	U
4-Methylphenol	670	---	3,600	20.0	20.0	7.4	U	UJ	20.0	20.0	7.4	U	UJ	20.0	20.0	7.4	U	UJ
2,4-Dimethylphenol	29	---	210	20.0	20.0	2.2	U	U	20.0	20.0	2.2	U	U	20.0	20.0	2.2	U	U
Pentachlorophenol	400	504	690	99.8	99.8	31.2	U	U	99.9	99.9	31.2	U	U	99.9	99.9	31.2	U	U

Table 14. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CP-02, DMMU-CP-03, DMMU-CPS-01)

Parameter	DMMP Marine Guidelines			DMMU-CP-02					DMMU-CP-03					DMMU-CPS-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)																		
Benzyl alcohol	57	---	870	20.0	20.0	16.2	U	U	20.0	20.0	16.2	U	U	20.0	20.0	16.2	U	U
Benzoic acid	650	---	760	200	200	38.9	U	U	200	200	39.0	U	U	200	200	39.0	U	U
Dibenzofuran	540	---	1,700	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)																		
4,4'-DDD	16	---	---	0.55	4.8	0.55	U	U	0.53	4.6	0.53	U F1 F2	U	0.18	1.6	0.18	U	U
4,4'-DDE	9	---	---	0.88	4.8	0.88	U	U	0.85	4.6	0.85	U F1 F2	U	0.29	1.6	0.29	U	U
4,4'-DDT	12	---	---	0.88	4.8	0.88	U	U	0.85	4.6	0.85	U F1 F2	U	0.29	1.6	0.29	U	U
Total DDT	---	50	69	0.88			U	U	0.85			U	U	0.29			U	U
Aldrin	9.5	---	---	0.91	7.2	0.91	U	U	0.87	6.9	0.87	U F1 F2	U	0.3	2.4	0.3	U	U
cis-Chlordane				1.8	4.8	1.8	U	U	1.7	4.6	1.7	U F1 F2	U	0.6	1.6	0.6	U	U
cis-Nonachlor				2.0	12	2.0	U	U	2.0	11	2.0	U	U	0.68	4.0	0.68	U	U
Oxychlordane				1.8	9.5	1.8	U	U	1.8	9.2	1.8	U	U	0.61	3.2	0.61	U	U
trans-Chlordane				0.76	7.2	0.76	U	U	0.74	6.9	0.74	U F1 F2	U	0.25	2.4	0.25	U	U
trans-Nonachlor				2.0	9.5	2.0	U	U	2.0	9.2	2.0	U	U	0.68	3.2	0.68	U	U
Total Chlordane	2.8	37	---	2.0			U	U	2.0			U	U	0.68			U	U
Dieldrin	1.9	---	1700	0.84	4.8	0.84	U	U	0.8	4.6	0.8	U F1 F2	U	0.28	1.6	0.28	U	U
Heptachlor	1.5	---	270	0.45	7.2	0.45	U	U	0.44	6.9	0.44	U F1 F2	U	0.15	2.4	0.15	U	U
PCB-Aroclor 1016				48	48	18	U	U	46	46	17	U 3	U	20.0	20.0	8.0	U	U
PCB-Aroclor 1221				48	48	29	U	U	46	46	28	U 3	U	20.0	20.0	8.0	U	U
PCB-Aroclor 1232				48	48	12	U	U	46	46	11	U 3	U	20.0	20.0	8.0	U	U
PCB-Aroclor 1242				48	48	19	U	U	46	46	18	U 3	U	20.0	20.0	8.0	U	U
PCB-Aroclor 1248				48	48	17	U	U	46	46	16	U 3	U	20.0	20.0	8.0	U	U
PCB-Aroclor 1254				48	48	21	U	U	46	46	21	U 3	U	20.0	20.0	8.0	U	U
PCB-Aroclor 1260				48	48	18	U 1	U	18	46	17	J 3	J	20.0	20.0	9.3	U	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	48			U 1	U	18			J 3	J	20.0			U	U

Table 14. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CP-02, DMMU-CP-03, DMMU-CPS-01)

Parameter	DMMP Marine Guidelines			DMMU-CP-02					DMMU-CP-03					DMMU-CPS-01				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)																		
2,3,7,8-TCDD	---	5	---	1.8	2.4	0.25	J	J	1.7	2.2	0.21	J q	U	1.4	16	1.4	U	U
1,2,3,7,8-PECDD				1.7	12	0.28	J	J	2.0	11	0.23	J	J	1	80	1.0	U	U
1,2,3,4,7,8-HxCDD				0.91	12	0.16	J B	U	1.0	11	0.15	J B	U	4.3	80	0.70	J B	J
1,2,3,6,7,8-HxCDD				1.9	12	0.19	J	J	2.5	11	0.18	J	J	1.6	80	0.82	J	J
1,2,3,7,8,9-HxCDD				4.7	12	0.16	J B	J	6.1	11	0.15	J B	J	4.2	80	0.69	J B	J
1,2,3,4,6,7,8-HpCDD				22	12	0.16	B		31	11	0.18	B		11	80	0.48	J B	J
OCDD				150	24	0.22	B		230	22	0.23	B	J	57	160	0.74	J B	J
2,3,7,8-TCDF				0.73	2.4	0.17	J	J	0.82	2.2	0.13	J q	U	0.71	16	0.71	U	U
1,2,3,7,8-PeCDF				0.10	12	0.10	U	U	0.11	11	0.11	U	U	0.54	80	0.54	U	U
2,3,4,7,8-PECDF				0.26	12	0.10	J	J	0.25	11	0.11	J	J	0.53	80	0.53	U	U
1,2,3,4,7,8-HxCDF				0.41	12	0.12	J q B	U	0.69	11	0.094	J B	J	0.88	80	0.44	J B	J
1,2,3,6,7,8-HxCDF				0.27	12	0.12	J q B	U	0.48	11	0.094	J B	J	0.54	80	0.45	J q B	U
1,2,3,7,8,9-HxCDF				0.12	12	0.12	J q B	U	0.090	11	0.088	J B	J	1.4	80	0.42	J q B	U
2,3,4,6,7,8-HxCDF				0.24	12	0.12	J q B	U	0.28	11	0.088	J q B	U	0.41	80	0.41	U	U
1,2,3,4,6,7,8-HpCDF				7.9	12	0.16	J B	J	13	11	0.16	B		2.3	80	0.66	J q B	U
1,2,3,4,7,8,9-HpCDF				0.30	12	0.13	J q B	U	0.41	11	0.13	J B	U	1.1	80	0.56	J B	J
OCDF				9.4	24	0.15	J B	J	14	22	0.11	J B	J	5.9	160	0.79	J B	J
Total Tetra-Dioxins				7.1	2.4	0.25	q	J	8.8	2.2	0.21	q	J	1.4	16	1.4	U	U
Total Penta-Dioxins				9.6	12	0.28	J	J	11	11	0.23	q	J	1	80	1.0	U	U
Total Hexa-Dioxins				32	12	0.17	q B	J	39	11	0.16	q B	J	22	80	0.74	J q B	J
Total Hepta-Dioxins				57	12	0.16	B		77	11	0.18	B	J	23	80	0.48	J B	J
Total Tetra-Furans				1.6	2.4	0.17	J q	J	2.6	2.2	0.13	q	J	0.71	16	0.71	U	U
Total Penta-Furans				1.0	12	0.10	J q	J	3.1	11	0.11	J q	J	0.54	80	0.54	U	U
Total Hexa-Furans				7.7	12	0.12	J q B	J	11	11	0.091	q B	J	2.8	80	0.43	J q B	J
Total Hepta-Furans				18	12	0.15	q B	J	27	11	0.14	B		6	80	0.61	J q B	J
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	4.758					4.533					2.690				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL/RL exceeds DMMP SL

Table 15. Sediment Conventionals & COC Analysis Results Compared to DMMP Guidelines (DMMU-CPS-02, DMMU-CPTB-01, DMMU-CPTB-02)

Parameter	DMMP Marine Guidelines			DMMU-CPS-02					DMMU-CPTB-01					DMMU-CPTB-02							
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier				
							Lab	VQ				Lab	VQ				Lab	VQ			
SEDIMENT CONVENTIONALS																					
Total solids (%)				55.73	0.04	0.04			55.9	0.04	0.04			64.56	0.04	0.04					
Total volatile solids (TVS) (%)				6.82	0.01	0.01			7.86	0.01	0.01			5.13	0.01	0.01					
Total organic carbon (TOC) (%)				2.8	0.20	0.0097			1.8	0.20	0.0097			0.91	0.20	0.0097					
Total Sulfides (mg/kg)				124	16.1	16.1	B	J	83.9	15.9	15.9	B	J	174	30.2	30.2	B	J			
Ammonia (mg/kg NH3-N)				63	45	16		J	21	43	15	J	J	19	35	12	J	J			
Particle/Grain Size, Gravel (%)				0.80						10						36					
Particle/Grain Size, Sand (%)				9.6						25						15					
Particle/Grain Size, Silt (%)				67						42						35					
Particle/Grain Size, Clay (%)				22						22						14					
Percent Fines (Silt + Clay)				89.0						64.0						49.0					
METALS (mg/kg dry weight)																					
Antimony	150	---	200	0.19	0.37	0.042	J	U	0.18	0.38	0.043	J	U	0.15	0.33	0.037	J	U			
Arsenic	57	507.1	700	7.5	0.31	0.061			3.7	0.32	0.064			4.1	0.27	0.055					
Cadmium	5.1	--	14	0.19	0.49	0.047	J	J	0.13	0.51	0.049	J	J	0.10	0.44	0.042	J	J			
Chromium	260	--	---	37	0.61	0.039		J	29	0.64	0.040		J	24	0.55	0.034		J			
Copper	390	--	1,300	41	0.61	0.13			29	0.64	0.14			30	0.55	0.12					
Lead	450	975	1,200	6.2	0.31	0.029			5.2	0.32	0.031			4.100	0.27	0.026					
Mercury	0.41	1.5	2.3	0.053	0.033	0.0099		J	0.043	0.044	0.013	J	J	0.036	0.025	0.0076		J			
Selenium	---	3	---	0.59	0.39	0.20			0.46	0.39	0.20			0.35	0.33	0.17					
Silver	6.1	--	8.4	0.083	0.12	0.012	J	J	0.045	0.13	0.013	J	J	0.043	0.11	0.011	J	J			
Zinc	410	--	3,800	64	3.1	0.99		J	45	3.2	1.0		J	42	2.8	0.88		J			
ORGANICS																					
PAHs (µg/kg dry weight)																					
LPAH																					
Naphthalene	2,100	---	2,400	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U			
Acenaphthylene	560	---	1,300	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U			
Acenaphthene	500	---	2,000	20.0	20.0	5.2	U	U	20.0	20.0	5.2	U	U	20.0	20.0	5.2	U	U			
Fluorene	540	---	3,600	20.0	20.0	14.6	U	U	20.0	20.0	14.6	U	U	20.0	20.0	14.6	U	U			
Phenanthrene	1,500	---	21,000	20.0	20.0	8.7	U	U	20.0	20.0	8.7	U	U	20.0	20.0	8.7	U	U			
Anthracene	960	---	13,000	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U			

Table 15. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CPS-02, DMMU-CPTB-01, DMMU-CPTB-02)

Parameter	DMMP Marine Guidelines			DMMU-CPS-02					DMMU-CPTB-01					DMMU-CPTB-02				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
2-Methylnaphthalene	670	---	1,900	20.0	20.0	4.5	U	U	20.0	20.0	4.5	U	U	20.0	20.0	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	20.0			U	U	20.0			U	U	20.0			U	U
HPAH																		
Fluoranthene	1,700	4,600	30,000	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U
Pyrene	2,600	11,980	16,000	20.0	20.0	5.7	U	U	20.0	20.0	5.7	U	U	20.0	20.0	5.7	U	U
Benz(a)anthracene	1,300	---	5,100	20.0	20.0	6.0	U	U	20.0	20.0	6.0	U	U	20.0	20.0	6.0	U	U
Chrysene	1,400	---	21,000	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U
Benzofluoranthenes (b, j, k)	3,200	---	9,900	40.0	40.0	21.0	U	U	40.0	40.0	21.0	U	U	40.0	40.0	21.0	U	U
Benzo(a)pyrene	1,600	---	3,600	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U
Indeno(1,2,3-c,d)pyrene	600	---	4,400	20.0	20.0	14.6	U	U	20.0	20.0	14.6	U	U	20.0	20.0	14.6	U	U
Dibenz(a,h)anthracene	230	---	1,900	20.0	20.0	17.2	U	U	20.0	20.0	17.2	U	U	20.0	20.0	17.2	U	U
Benzo(g,h,i)perylene	670	---	3,200	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U
<b>Total HPAH</b>	12,000	---	69,000	40.0			U	U	40.0			U	U	40.0			U	U
CHLORINATED HYDROCARBONS (µg/kg dry weight)																		
1,4-Dichlorobenzene	110	---	120	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U
1,2-Dichlorobenzene	35	---	110	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
PHTHALATES (µg/kg dry weight)																		
Dimethyl phthalate	71	---	1,400	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U
Diethyl phthalate	200	---	1,200	27.8	50.0	19.7	J	J	28.4	50.0	19.7	J	J	39.7	50.0	19.7	J	J
Di-n-butyl phthalate	1,400	---	5,100	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U
Butyl benzyl phthalate	63	---	970	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	50.0	50.0	14.1	U	U	50.0	50.0	14.1	U	U	50.0	50.0	14.1	U	U
Di-n-octyl phthalate	6,200	---	6,200	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U
PHENOLS (µg/kg dry weight)																		
Phenol	420	---	1,200	12.6	20.0	4.4	J	J	11.5	20.0	4.4	J	J	15.1	20.0	4.4	J	J
2-Methylphenol	63	---	77	20.0	20.0	6.7	U	U	20.0	20.0	6.7	U	U	20.0	20.0	6.7	U	U
4-Methylphenol	670	---	3,600	20.0	20.0	7.4	U	UJ	20.0	20.0	7.4	U	UJ	20.0	20.0	7.4	U	UJ
2,4-Dimethylphenol	29	---	210	20.0	20.0	2.2	U	U	20.0	20.0	2.2	U	U	20.0	20.0	2.2	U	U
Pentachlorophenol	400	504	690	100	100	31.2	U	U	99.9	99.9	31.2	U	U	99.9	99.9	31.2	U	U

Table 15. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CPS-02, DMMU-CPTB-01, DMMU-CPTB-02)

Parameter	DMMP Marine Guidelines			DMMU-CPS-02					DMMU-CPTB-01					DMMU-CPTB-02				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)																		
Benzyl alcohol	57	---	870	20.0	20.0	16.3	U	U	20.0	20.0	16.3	U	U	20.0	20.0	16.2	U	U
Benzoic acid	650	---	760	200	200	39.0	U	U	200	200	39.0	U	U	200	200	39.0	U	U
Dibenzofuran	540	---	1,700	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)																		
4,4'-DDD	16	---	---	0.20	1.8	0.20	U	U	0.19	1.7	0.19	U	U	0.16	1.4	0.16	U	U
4,4'-DDE	9	---	---	0.32	1.8	0.32	U	U	0.31	1.7	0.31	U	U	0.26	1.4	0.26	U	U
4,4'-DDT	12	---	---	0.32	1.8	0.32	U	U	0.31	1.7	0.31	U	U	0.26	1.4	0.26	U	U
Total DDT	---	50	69	0.32			U	U	0.31			U	U	0.26			U	U
Aldrin	9.5	---	---	0.33	2.6	0.33	U	U	0.32	2.5	0.32	U	U	0.26	2.1	0.26	U	U
cis-Chlordane				0.66	1.8	0.66	U	U	0.63	1.7	0.63	U	U	0.52	1.4	0.52	U	U
cis-Nonachlor				0.75	4.4	0.75	U	U	0.71	4.2	0.71	U	U	0.59	3.5	0.59	U	U
Oxychlordane				0.68	3.5	0.68	U	U	0.65	3.4	0.65	U	U	0.54	2.8	0.54	U	U
trans-Chlordane				0.28	2.6	0.28	U	U	0.27	2.5	0.27	U	U	0.22	2.1	0.22	U	U
trans-Nonachlor				0.75	3.5	0.75	U	U	0.71	3.4	0.71	U	U	0.59	2.8	0.59	U	U
Total Chlordane	2.8	37	---	0.75			U	U	0.71			U	U	0.59			U	U
Dieldrin	1.9	---	1700	0.31	1.8	0.31	U	U	0.29	1.7	0.29	U	U	0.24	1.4	0.24	U	U
Heptachlor	1.5	---	270	0.17	2.6	0.17	U	U	0.16	2.5	0.16	U	U	0.13	2.1	0.13	U	U
PCB-Aroclor 1016				19.9	19.9	8.0	U	U	63	63	23	U	U	54	54	20	U	U
PCB-Aroclor 1221				19.9	19.9	8.0	U	U	63	63	38	U	U	54	54	32	U	U
PCB-Aroclor 1232				19.9	19.9	8.0	U	U	63	63	16	U	U	54	54	13	U	U
PCB-Aroclor 1242				19.9	19.9	8.0	U	U	63	63	25	U	U	54	54	22	U	U
PCB-Aroclor 1248				19.9	19.9	8.0	U	U	63	63	22	U	U	54	54	19	U	U
PCB-Aroclor 1254				19.9	19.9	8.0	U	U	63	63	29	U	U	54	54	24	U	U
PCB-Aroclor 1260				19.9	19.9	9.2	U	U	63	63	23	U	U	54	54	20	U	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	19.9			U	U	63			U	U	54			U	U

Table 15. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-CPS-02, DMMU-CPTB-01, DMMU-CPTB-02)

Parameter	DMMP Marine Guidelines			DMMU-CPS-02					DMMU-CPTB-01					DMMU-CPTB-02				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)																		
2,3,7,8-TCDD	---	5	---	0.91	1.8	0.075	J q	U	1.0	17	1.0	U	U	1.2	14	0.27	J q	U
1,2,3,7,8-PECDD				0.96	8.8	0.13	J B	J	1.2	85	1.2	U	U	1.2	68	0.40	J	J
1,2,3,4,7,8-HxCDD				0.63	8.8	0.14	J B	U	3.5	85	0.63	J B	J	3.0	68	0.43	J B	J
1,2,3,6,7,8-HxCDD				0.73	8.8	0.13	J	J	1.8	85	0.75	J q	U	0.69	68	0.51	J q	U
1,2,3,7,8,9-HxCDD				3.7	8.8	0.12	J B	J	2.7	85	0.63	J q B	U	2.8	68	0.43	J q B	U
1,2,3,4,6,7,8-HpCDD				4.6	8.8	0.077	J B	J	14	85	0.42	J q B	U	8.5	68	0.19	J B	J
OCDD				21	18	0.10	B		73	170	1.2	J B	J	41	140	0.51	J B	J
2,3,7,8-TCDF				0.025	1.8	0.025	U	U	0.54	17	0.54	U	U	0.20	14	0.20	U	U
1,2,3,7,8-PeCDF				0.10	8.8	0.076	J q	U	0.61	85	0.61	U	U	0.28	68	0.28	U	U
2,3,4,7,8-PECDF				0.11	8.8	0.11	U	U	0.65	85	0.65	U	U	0.27	68	0.27	U	U
1,2,3,4,7,8-HxCDF				0.15	8.8	0.068	J	J	0.47	85	0.47	U	U	3.6	68	0.31	J B	J
1,2,3,6,7,8-HxCDF				0.11	8.8	0.056	J q	U	0.44	85	0.44	U	U	1.1	68	0.33	J B	J
1,2,3,7,8,9-HxCDF				0.16	8.8	0.035	J q B	U	1.3	85	0.46	J B	J	0.95	68	0.32	J B	J
2,3,4,6,7,8-HxCDF				0.14	8.8	0.035	J B	J	0.41	85	0.41	U	U	0.47	68	0.31	J q B	U
1,2,3,4,6,7,8-HpCDF				0.26	8.8	0.095	J q B	U	1.9	85	0.54	J B	J	9.5	68	0.35	J B	J
1,2,3,4,7,8,9-HpCDF				0.22	8.8	0.077	J B	J	0.86	85	0.50	J q B	U	1.4	68	0.33	J B	J
OCDF				0.69	18	0.058	J q B	U	4.6	170	0.95	J B	J	25	140	0.39	J B	J
Total Tetra-Dioxins				2.9	1.8	0.075	q	J	1.0	17	1.0	U	U	2.6	14	0.27	J q	J
Total Penta-Dioxins				3.6	8.8	0.13	J q B	U	1.2	85	1.2	U	U	3.0	68	0.40	J	J
Total Hexa-Dioxins				16	8.8	0.13	B		21	85	0.67	J q B	J	17	68	0.46	J q B	J
Total Hepta-Dioxins				11	8.8	0.077	B		30	85	0.42	J q B	J	18	68	0.19	J B	J
Total Tetra-Furans				0.078	1.8	0.025	J q	U	0.54	17	0.54	U	U	0.26	14	0.20	J q	J
Total Penta-Furans				0.24	8.8	0.090	J q	U	0.65	85	0.65	U	U	0.62	68	0.28	J q	J
Total Hexa-Furans				0.56	8.8	0.049	J q B	U	1.3	85	0.44	J B	J	6.4	68	0.32	J q B	J
Total Hepta-Furans				0.48	8.8	0.086	J q B	U	4.0	85	0.52	J q B	J	13	68	0.34	J B	J
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	2.007					2.621					3.132				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL/RL exceeds DMMP SL

Table 16. Sediment Conventionals & COC Analysis Results Compared to DMMP Guidelines (DMMU-AR-01, DMMU-AR-02, DMMU-AR-03)

Parameter	DMMP Marine Guidelines			DMMU-AR-01					DMMU-AR-02					DMMU-AR-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
SEDIMENT CONVENTIONALS																		
Total solids (%)				47.62	0.04	0.04			69.16	0.04	0.04			74.57	0.04	0.04		
Total volatile solids (TVS) (%)				6.69	0.01	0.01			4.64	0.01	0.01			2.66	0.01	0.01		
Total organic carbon (TOC) (%)				1.5	0.20	0.0097			0.46	0.20	0.0097			0.40	0.20	0.0097		
Total Sulfides (mg/kg)				55.9	10.2	10.2			1.42	1.42	1.42	U	UJ	1.25	1.25	1.25	U	UJ
Ammonia (mg/kg NH3-N)				21	50	17	J	J	35	35	12	U	UJ	33	33	11	U	UJ
Particle/Grain Size, Gravel (%)				1.2					4.0					13				
Particle/Grain Size, Sand (%)				46					87					82				
Particle/Grain Size, Silt (%)				44					6.4					2.7				
Particle/Grain Size, Clay (%)				8.3					2.6					1.8				
Percent Fines (Silt + Clay)				52.3					9.0					4.5				
METALS (mg/kg dry weight)																		
Antimony	150	---	200	0.18	0.47	0.053	J	U	0.092	0.26	0.029	J	U	0.075	0.25	0.029	J	U
Arsenic	57	507.1	700	7.7	0.39	0.078			4.2	0.21	0.043			3.8	0.21	0.042		
Cadmium	5.1	--	14	0.16	0.63	0.060	J	J	0.094	0.34	0.033	J	J	0.076	0.34	0.032	J	J
Chromium	260	--	---	37	0.78	0.049			25	0.43	0.027		J	23	0.42	0.027		J
Copper	390	--	1,300	51	0.78	0.17			32	0.43	0.094			40	0.42	0.093		
Lead	450	975	1,200	7.1	0.39	0.038			3.8	0.21	0.020			2.8	0.21	0.020		
Mercury	0.41	1.5	2.3	0.040	0.050	0.015	J	J	0.018	0.026	0.0077	J	J	0.015	0.034	0.010	J	J
Selenium	---	3	---	0.42	0.48	0.25	J	J	0.23	0.31	0.16	J	J	0.18	0.30	0.16	J	J
Silver	6.1	--	8.4	0.055	0.16	0.016	J	J	0.020	0.085	0.0085	J	J	0.016	0.084	0.0084	J	J
Zinc	410	--	3,800	81	4.0	1.3			53	2.2	0.69		J	54	2.1	0.68		J
ORGANICS																		
PAHs (µg/kg dry weight)																		
LPAH																		
Naphthalene	2,100	---	2,400	13.1	20.0	4.2	J	J	5.8	20.0	4.2	J	J	19.9	19.9	4.2	U	U
Acenaphthylene	560	---	1,300	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U	19.9	19.9	6.2	U	U
Acenaphthene	500	---	2,000	6.1	20.0	5.2	J	J	20.0	20.0	5.2	U	U	19.9	19.9	5.2	U	U
Fluorene	540	---	3,600	20.0	20.0	14.6	U	U	20.0	20.0	14.5	U	U	19.9	19.9	14.5	U	U
Phenanthrene	1,500	---	21,000	23.2	20.0	8.7			20.0	20.0	8.7	U	U	19.9	19.9	8.7	U	U
Anthracene	960	---	13,000	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U	19.9	19.9	7.1	U	U



Table 16. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-AR-01, DMMU-AR-02, DMMU-AR-03)

Parameter	DMMP Marine Guidelines			DMMU-AR-01					DMMU-AR-02					DMMU-AR-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
2-Methylnaphthalene	670	---	1,900	6.0	20.0	4.5	J	J	20.0	20.0	4.5	U	U	19.9	19.9	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	42.4			J	J	5.8			J	J	19.9			U	U
HPAH																		
Fluoranthene	1,700	4,600	30,000	31.3	20.0	6.1			20.0	20.0	6.1	U	U	19.9	19.9	6.0	U	U
Pyrene	2,600	11,980	16,000	24.4	20.0	5.7			20.0	20.0	5.7	U	U	19.9	19.9	5.6	U	U
Benz(a)anthracene	1,300	---	5,100	20.0	20.0	6.0	U	U	20.0	20.0	6.0	U	U	19.9	19.9	5.9	U	U
Chrysene	1,400	---	21,000	7.8	20.0	6.1	J	J	20.0	20.0	6.1	U	U	19.9	19.9	6.0	U	U
Benzofluoranthenes (b, j, k)	3,200	---	9,900	40.0	40.0	21.0	U	U	39.9	39.9	20.9	U	U	39.7	39.7	20.8	U	U
Benzo(a)pyrene	1,600	---	3,600	20.0	20.0	4.2	U	UJ	20.0	20.0	4.2	U	U	19.9	19.9	4.2	U	U
Indeno(1,2,3-c,d)pyrene	600	---	4,400	20.0	20.0	14.6	U	UJ	20.0	20.0	14.6	U	U	19.9	19.9	14.6	U	U
Dibenz(a,h)anthracene	230	---	1,900	20.0	20.0	17.2	U	UJ	20.0	20.0	17.2	U	U	19.9	19.9	17.1	U	U
Benzo(g,h,i)perylene	670	---	3,200	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U	19.9	19.9	13.5	U	U
<b>Total HPAH</b>	12,000	---	69,000	63.5			J	J	39.9			U	U	39.7			U	U
CHLORINATED HYDROCARBONS (µg/kg dry weight)																		
1,4-Dichlorobenzene	110	---	120	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U
1,2-Dichlorobenzene	35	---	110	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
PHTHALATES (µg/kg dry weight)																		
Dimethyl phthalate	71	---	1,400	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	19.9	19.9	4.4	U	U
Diethyl phthalate	200	---	1,200	50.0	50.0	19.7	U	U	37.5	49.9	19.7	J	J	29.4	49.7	19.6	J	J
Di-n-butyl phthalate	1,400	---	5,100	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U	19.9	19.9	5.6	U	U
Butyl benzyl phthalate	63	---	970	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U	19.9	19.9	9.3	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	50.0	50.0	14.1	U	U	21.2	49.9	14.0	J	J	49.7	49.7	14.0	U	U
Di-n-octyl phthalate	6,200	---	6,200	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	19.9	19.9	4.4	U	U
PHENOLS (µg/kg dry weight)																		
Phenol	420	---	1,200	7.8	20.0	4.4	J	J	7.6	20.0	4.4	J	J	5.4	19.9	4.4	J	J
2-Methylphenol	63	---	77	20.0	20.0	6.7	U	UJ	20.0	20.0	6.6	U	U	19.9	19.9	6.6	U	U
4-Methylphenol	670	---	3,600	20.0	20.0	7.4	U	UJ	20.0	20.0	7.4	U	UJ	19.9	19.9	7.3	U	UJ
2,4-Dimethylphenol	29	---	210	20.0	20.0	2.2	U	U	20.0	20.0	2.2	U	U	19.9	19.9	2.2	U	U
Pentachlorophenol	400	504	690	100	100	31.2	U	UJ	99.8	99.8	31.2	U	U	99.3	99.3	31.0	U	U

Table 16. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-AR-01, DMMU-AR-02, DMMU-AR-03)

Parameter	DMMP Marine Guidelines			DMMU-AR-01					DMMU-AR-02					DMMU-AR-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)																		
Benzyl alcohol	57	---	870	20.0	20.0	16.3	U	U	20.0	20.0	16.2	U	U	19.9	19.9	16.2	U	U
Benzoic acid	650	---	760	200	200	39.0	U	UJ	200	200	39.0	U	UJ	199	199	38.8	U	UJ
Dibenzofuran	540	---	1,700	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U	19.9	19.9	14.0	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)																		
4,4'-DDD	16	---	---	0.92	8.0	0.92	U	U	0.32	2.8	0.32	U	U	0.30	2.6	0.30	U	U
4,4'-DDE	9	---	---	1.5	8.0	1.5	U	U	0.51	2.8	0.51	U	U	0.49	2.6	0.49	U	U
4,4'-DDT	12	---	---	1.5	8.0	1.5	U	U	0.51	2.8	0.51	U	U	0.49	2.6	0.49	U	U
Total DDT	---	50	69	1.5			U	U	0.51			U	U	0.49			U	U
Aldrin	9.5	---	---	1.5	12	1.5	U	U	0.53	4.2	0.53	U	U	0.50	4.0	0.50	U	U
cis-Chlordane				3.0	8.0	3.0	U	U	1.0	2.8	1.0	U	U	0.99	2.6	0.99	U	U
cis-Nonachlor				3.4	20	3.4	U	U	1.2	6.9	1.2	U	U	1.1	6.6	1.1	U	U
Oxychlordane				3.1	16	3.1	U	U	1.1	5.6	1.1	U	U	1.0	5.3	1.0	U	U
trans-Chlordane				1.3	12	1.3	U	U	0.44	4.2	0.44	U	U	0.42	4	0.42	U	U
trans-Nonachlor				3.4	16	3.4	U	U	1.2	5.6	1.2	U	U	1.1	5.3	1.1	U	U
Total Chlordane	2.8	37	---	3.4			U	U	1.2			U	U	1.1			U	U
Dieldrin	1.9	---	1700	1.4	8.0	1.4	U	U	0.49	2.8	0.49	U	U	0.46	2.6	0.46	U	U
Heptachlor	1.5	---	270	0.76	12	0.76	U	U	0.26	4.2	0.26	U	U	0.25	4.0	0.25	U	U
PCB-Aroclor 1016				40	40	15	U	U	28	28	10	U	U	26	26	9.8	U	U
PCB-Aroclor 1221				40	40	24	U	U	28	28	17	U	U	26	26	16	U	U
PCB-Aroclor 1232				40	40	9.8	U	U	28	28	6.8	U	U	26	26	6.5	U	U
PCB-Aroclor 1242				40	40	16	U	U	28	28	11	U	U	26	26	11	U	U
PCB-Aroclor 1248				40	40	14	U	U	28	28	9.7	U	U	26	26	9.3	U	U
PCB-Aroclor 1254				40	40	18	U	U	28	28	13	U	U	26	26	12	U	U
PCB-Aroclor 1260				40	40	15	U	U	28	28	10	U	U	26	26	9.8	U	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	40			U	U	28			U	U	26			U	U

Table 16. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-AR-01, DMMU-AR-02, DMMU-AR-03)

Parameter	DMMP Marine Guidelines			DMMU-AR-01					DMMU-AR-02					DMMU-AR-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)																		
2,3,7,8-TCDD	---	5	---	1.5	2.0	0.11	J q	U	0.46	1.4	0.14	J q	U	0.34	1.3	0.029	J q	U
1,2,3,7,8-PECDD				1.6	9.8	0.19	J	J	0.48	7.2	0.14	J	J	0.37	6.4	0.039	J	J
1,2,3,4,7,8-HxCDD				0.73	9.8	0.12	J B q	U	0.39	7.2	0.081	J B	U	0.34	6.4	0.054	J B	U
1,2,3,6,7,8-HxCDD				1.8	9.8	0.13	J	J	0.36	7.2	0.096	J	J	0.25	6.4	0.065	J	J
1,2,3,7,8,9-HxCDD				5.0	9.8	0.12	J B	J	1.3	7.2	0.081	J B	J	0.79	6.4	0.054	J B	J
1,2,3,4,6,7,8-HpCDD				23	9.8	0.13	B		6.5	7.2	0.067	J B	J	2.5	6.4	0.036	J B	J
OCDD				150	20	0.17	B		49	14	0.10	B		14	13	0.056	B	
2,3,7,8-TCDF				0.58	2.0	0.045	J	J	0.058	1.4	0.058	U	U	0.063	1.3	0.021	J q	U
1,2,3,7,8-PeCDF				0.089	9.8	0.089	U	U	0.070	7.2	0.070	U	U	0.026	6.4	0.026	U	U
2,3,4,7,8-PECDF				0.17	9.8	0.095	J q	U	0.071	7.2	0.071	U	U	0.026	6.4	0.026	U	U
1,2,3,4,7,8-HxCDF				0.47	9.8	0.063	J B	J	0.18	7.2	0.050	J q B	U	0.076	6.4	0.029	J B	U
1,2,3,6,7,8-HxCDF				0.25	9.8	0.063	J B q	U	0.057	7.2	0.047	J q B	U	0.039	6.4	0.031	J q B	U
1,2,3,7,8,9-HxCDF				0.068	9.8	0.059	J B q	U	0.049	7.2	0.049	U	U	0.063	6.4	0.029	J B	J
2,3,4,6,7,8-HxCDF				0.16	9.8	0.061	J B q	U	0.045	7.2	0.045	U	U	0.047	6.4	0.029	J B	J
1,2,3,4,6,7,8-HpCDF				7.8	9.8	0.12	J B	J	1.3	7.2	0.071	J B	J	0.72	6.4	0.038	J B	U
1,2,3,4,7,8,9-HpCDF				0.18	9.8	0.099	J B q	U	0.064	7.2	0.064	U	U	0.071	6.4	0.034	J q B	U
OCDF				8.6	20	0.074	J B	J	2.0	14	0.081	J B	J	1.8	13	0.033	J B	U
Total Tetra-Dioxins				4.4	2.0	0.11	q	J	2.8	1.4	0.14	q	J	1.3	1.3	0.029	q	J
Total Penta-Dioxins				6.8	9.8	0.19	J q	J	2.1	7.2	0.14	J q	J	1.4	6.4	0.039	J q	J
Total Hexa-Dioxins				28	9.8	0.13	B q	J	8.6	7.2	0.086	B		5.0	6.4	0.058	J B	J
Total Hepta-Dioxins				58	9.8	0.13	B		25	7.2	0.067	B		5.7	6.4	0.036	J B	J
Total Tetra-Furans				0.58	2.0	0.045	J	J	0.058	1.4	0.058	U	U	0.22	1.3	0.021	J q	J
Total Penta-Furans				0.42	9.8	0.092	J q	J	0.071	7.2	0.071	U	U	0.026	6.4	0.026	U	U
Total Hexa-Furans				5.3	9.8	0.061	J B q	J	0.91	7.2	0.048	J q B	J	0.52	6.4	0.030	J q B	J
Total Hepta-Furans				16	9.8	0.11	B q	J	2.8	7.2	0.068	J B	J	1.3	6.4	0.036	J q B	J
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	3.579					1.020					0.719				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL/RL exceeds DMMP SL

Table 17. Sediment Conventionals & COC Analysis Results Compared to DMMP Guidelines (DMMU-SA-01, DMMU-SA-02, DMMU-SA-03)

Parameter	DMMP Marine Guidelines			DMMU-SA-01					DMMU-SA-02					DMMU-SA-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
SEDIMENT CONVENTIONALS																		
Total solids (%)				72.01	0.04	0.04			74.97	0.04	0.04			67.36	0.04	0.04		
Total volatile solids (TVS) (%)				3.31	0.01	0.01			2.63	0.01	0.01			3.44	0.01	0.01		
Total organic carbon (TOC) (%)				0.48	0.20	0.0097			0.14	0.20	0.0097	J	J	0.48	0.20	0.0097		
Total Sulfides (mg/kg)				7.42	1.33	1.33	B	UJ	1.22	1.22	1.22	U	UJ	2.16	1.35	1.35	B	UJ
Ammonia (mg/kg NH3-N)				35	35	12	U	UJ	33	33	12	U	UJ	36	36	13	U	UJ
Particle/Grain Size, Gravel (%)				3.8					11					0.20				
Particle/Grain Size, Sand (%)				88					86					92				
Particle/Grain Size, Silt (%)				5.8					1.9					5.4				
Particle/Grain Size, Clay (%)				2.5					1.4					3.0				
Percent Fines (Silt + Clay)				8.3					3.3					8.4				
METALS (mg/kg dry weight)																		
Antimony	150	---	200	0.072	0.28	0.031	J	U	0.068	0.27	0.031	J	U	0.094	0.28	0.032	J	U
Arsenic	57	507.1	700	3.1	0.23	0.046			2.8	0.23	0.045			3.5	0.24	0.047		
Cadmium	5.1	--	14	0.085	0.37	0.035	J	J	0.074	0.36	0.035	J	J	0.099	0.38	0.036	J	J
Chromium	260	--	---	22	0.46	0.029		J	21	0.45	0.028		J	28	0.47	0.030		J
Copper	390	--	1,300	26	0.46	0.10			28	0.45	0.099			35	0.47	0.10		
Lead	450	975	1,200	2.5	0.23	0.022			2.2	0.23	0.022			3.2	0.24	0.023		
Mercury	0.41	1.5	2.3	0.022	0.032	0.0097	J	J	0.012	0.031	0.0092	J	J	0.019	0.032	0.0096	J	J
Selenium	---	3	---	0.22	0.30	0.16	J	J	0.30	0.30	0.16	U	U	0.34	0.34	0.18	U	U
Silver	6.1	--	8.4	0.017	0.092	0.0092	J	J	0.011	0.090	0.0090	J	J	0.019	0.094	0.0094	J	J
Zinc	410	--	3,800	43	2.3	0.74		J	45	2.3	0.73		J	56	2.4	0.76		J
ORGANICS																		
PAHs (µg/kg dry weight)																		
LPAH																		
Naphthalene	2,100	---	2,400	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U
Acenaphthylene	560	---	1,300	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U
Acenaphthene	500	---	2,000	20.0	20.0	5.2	U	U	20.0	20.0	5.2	U	U	20.0	20.0	5.2	U	U
Fluorene	540	---	3,600	20.0	20.0	14.5	U	U	20.0	20.0	14.5	U	U	20.0	20.0	14.6	U	U
Phenanthrene	1,500	---	21,000	20.0	20.0	8.7	U	U	20.0	20.0	8.7	U	U	20.0	20.0	8.7	U	U
Anthracene	960	---	13,000	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U

Table 17. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-SA-01, DMMU-SA-02, DMMU-SA-03)

Parameter	DMMP Marine Guidelines			DMMU-SA-01					DMMU-SA-02					DMMU-SA-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
2-Methylnaphthalene	670	---	1,900	20.0	20.0	4.5	U	U	20.0	20.0	4.5	U	U	20.0	20.0	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	20.0			U	U	20.0			U	U	20.0			U	U
<b>HPAH</b>																		
Fluoranthene	1,700	4,600	30,000	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U
Pyrene	2,600	11,980	16,000	20.0	20.0	5.7	U	U	20.0	20.0	5.7	U	U	20.0	20.0	5.7	U	U
Benz(a)anthracene	1,300	---	5,100	20.0	20.0	6.0	U	U	20.0	20.0	5.9	U	U	20.0	20.0	6.0	U	U
Chrysene	1,400	---	21,000	20.0	20.0	6.1	U	U	20.0	20.0	6.0	U	U	20.0	20.0	6.1	U	U
Benzofluoranthenes (b, j, k)	3,200	---	9,900	39.9	39.9	20.9	U	U	39.9	39.9	20.9	U	U	40.0	40.0	21.0	U	U
Benzo(a)pyrene	1,600	---	3,600	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U
Indeno(1,2,3-c,d)pyrene	600	---	4,400	20.0	20.0	14.6	U	U	20.0	20.0	14.6	U	U	20.0	20.0	14.6	U	U
Dibenz(a,h)anthracene	230	---	1,900	20.0	20.0	17.2	U	U	20.0	20.0	17.2	U	U	20.0	20.0	17.2	U	U
Benzo(g,h,i)perylene	670	---	3,200	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U
<b>Total HPAH</b>	12,000	---	69,000	39.9			U	U	39.90			U	U	40.0			U	U
<b>CHLORINATED HYDROCARBONS (µg/kg dry weight)</b>																		
1,4-Dichlorobenzene	110	---	120	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U
1,2-Dichlorobenzene	35	---	110	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
<b>PHTHALATES (µg/kg dry weight)</b>																		
Dimethyl phthalate	71	---	1,400	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U
Diethyl phthalate	200	---	1,200	22.6	49.9	19.7	J	J	49.9	49.9	19.7	U	U	25.0	50.0	19.7	J	J
Di-n-butyl phthalate	1,400	---	5,100	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U
Butyl benzyl phthalate	63	---	970	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	49.9	49.9	14.0	U	U	49.9	49.9	14.0	U	U	50.0	50.0	14.1	U	U
Di-n-octyl phthalate	6,200	---	6,200	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U
<b>PHENOLS (µg/kg dry weight)</b>																		
Phenol	420	---	1,200	7.3	20.0	4.4	J	J	5.9	20.0	4.4	J	J	6.4	20.0	4.4	J	J
2-Methylphenol	63	---	77	20.0	20.0	6.6	U	U	20.0	20.0	6.6	U	U	20.0	20.0	6.7	U	U
4-Methylphenol	670	---	3,600	20.0	20.0	7.4	U	UJ	20.0	20.0	7.4	U	UJ	20.0	20.0	7.4	U	UJ
2,4-Dimethylphenol	29	---	210	20.0	20.0	2.2	U	U	20.0	20.0	2.2	U	U	20.0	20.0	2.2	U	U
Pentachlorophenol	400	504	690	99.8	99.8	31.2	U	U	99.8	99.8	31.2	U	U	99.9	99.9	31.2	U	U

Table 17. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-SA-01, DMMU-SA-02, DMMU-SA-03)

Parameter	DMMP Marine Guidelines			DMMU-SA-01					DMMU-SA-02					DMMU-SA-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)																		
Benzyl alcohol	57	---	870	20.0	20.0	16.2	U	U	20.0	20.0	16.2	U	U	20.0	20.0	16.2	U	U
Benzoic acid	650	---	760	200	200	39.0	U	UJ	200	200	38.9	U	UJ	200	200	39.0	U	UJ
Dibenzofuran	540	---	1,700	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)																		
4,4'-DDD	16	---	---	0.32	2.8	0.32	U	U	0.031	0.27	0.031	U F1	U	0.16	1.4	0.16	U	U
4,4'-DDE	9	---	---	0.51	2.8	0.51	U	U	0.050	0.27	0.050	U	U	0.26	1.4	0.26	U	U
4,4'-DDT	12	---	---	0.51	2.8	0.51	U	U	0.050	0.27	0.050	U	U	0.26	1.4	0.26	U	U
Total DDT	---	50	69	0.51			U	U	0.050			U	U	0.26			U	U
Aldrin	9.5	---	---	0.52	4.1	0.52	U	U	0.051	0.40	0.051	U	U	0.27	2.1	0.27	U	U
cis-Chlordane				1.0	2.8	1.0	U	U	0.10	0.27	0.10	U	U	0.53	1.4	0.53	U	U
cis-Nonachlor				1.2	6.9	1.2	U	U	0.11	0.67	0.11	U	U	0.61	3.6	0.61	U	U
Oxychlordane				1.1	5.5	1.1	U	U	0.10	0.54	0.10	U	U	0.55	2.9	0.55	U	U
trans-Chlordane				0.44	4.1	0.44	U	U	0.043	0.40	0.043	U	U	0.23	2.1	0.23	U	U
trans-Nonachlor				1.2	5.5	1.2	U	U	0.11	0.54	0.11	U	U	0.61	2.9	0.61	U	U
Total Chlordane	2.8	37	---	1.2			U	U	0.11			U	U	0.61			U	U
Dieldrin	1.9	---	1700	0.48	2.8	0.48	U	U	0.047	0.27	0.047	U	U	0.25	1.4	0.25	U	U
Heptachlor	1.5	---	270	0.26	4.1	0.26	U	U	0.026	0.40	0.026	U F1	U	0.14	2.1	0.14	U	U
PCB-Aroclor 1016				28	28	10	U	U	27	27	9.9	U	U	54	54	20	U	U
PCB-Aroclor 1221				28	28	17	U	U	27	27	16	U	U	54	54	32	U	U
PCB-Aroclor 1232				28	28	6.8	U	U	27	27	6.5	U	U	54	54	13	U	U
PCB-Aroclor 1242				28	28	11	U	U	27	27	11	U	U	54	54	21	U	U
PCB-Aroclor 1248				28	28	9.7	U	U	27	27	9.3	U	U	54	54	19	U	U
PCB-Aroclor 1254				28	28	12	U	U	27	27	12	U	U	54	54	24	U	U
PCB-Aroclor 1260				28	28	10	U	U	27	27	9.9	U	U	54	54	20	U	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	28			U	U	27			U	U	54			U	U

Table 17. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-SA-01, DMMU-SA-02, DMMU-SA-03)

Parameter	DMMP Marine Guidelines			DMMU-SA-01					DMMU-SA-02					DMMU-SA-03				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)																		
2,3,7,8-TCDD	---	5	---	0.37	1.4	0.13	J q	U	0.24	1.3	0.089	J q	U	0.53	1.3	0.12	J q	U
1,2,3,7,8-PECDD				0.3	7.0	0.14	J q	U	0.22	6.5	0.098	J q	U	0.35	6.7	0.15	J	J
1,2,3,4,7,8-HxCDD				0.34	7.0	0.085	J q B	U	0.29	6.5	0.055	J B	U	0.34	6.7	0.069	J q B	U
1,2,3,6,7,8-HxCDD				0.39	7.0	0.10	J q	U	0.21	6.5	0.066	J	J	0.31	6.7	0.081	J q	U
1,2,3,7,8,9-HxCDD				1.0	7.0	0.085	J B	J	0.56	6.5	0.055	J q B	U	1.0	6.7	0.068	J B	J
1,2,3,4,6,7,8-HpCDD				4.0	7.0	0.054	J B	J	1.9	6.5	0.036	J B	J	4.6	6.7	0.048	J B	J
OCDD				26	14	0.084	B		11	13	0.076	J B	J	31	13	0.094	B	
2,3,7,8-TCDF				0.054	1.4	0.054	U	U	0.045	1.3	0.045	U	U	0.055	1.3	0.055	U	U
1,2,3,7,8-PeCDF				0.063	7.0	0.063	U	U	0.045	6.5	0.045	U	U	0.059	6.7	0.059	U	U
2,3,4,7,8-PECDF				0.063	7.0	0.063	U	U	0.046	6.5	0.046	U	U	0.061	6.7	0.061	U	U
1,2,3,4,7,8-HXCDF				0.045	7.0	0.045	U	U	0.037	6.5	0.037	U	U	0.050	6.7	0.050	U	U
1,2,3,6,7,8-HxCDF				0.042	7.0	0.042	U	U	0.033	6.5	0.033	U	U	0.045	6.7	0.045	U	U
1,2,3,7,8,9-HxCDF				0.048	7.0	0.048	U	U	0.058	6.5	0.038	J q B	U	0.060	6.7	0.050	J q B	U
2,3,4,6,7,8-HxCDF				0.042	7.0	0.042	U	U	0.033	6.5	0.033	U	U	0.043	6.7	0.043	U	U
1,2,3,4,6,7,8-HpCDF				0.97	7.0	0.070	J B	J	0.45	6.5	0.045	J B	U	1.2	6.7	0.071	J B	J
1,2,3,4,7,8,9-HpCDF				0.062	7.0	0.062	U	U	0.058	6.5	0.040	J q B	U	0.062	6.7	0.062	U	U
OCDF				1.2	14	0.064	J B	U	0.56	13	0.060	J B	U	1.7	13	0.079	J B	U
Total Tetra-Dioxins				2.5	1.4	0.13	q	J	0.68	1.3	0.089	J q	J	1.4	1.3	0.12	q	J
Total Penta-Dioxins				2.5	7.0	0.14	J q	J	1.3	6.5	0.098	J q	J	2.3	6.7	0.15	J q	J
Total Hexa-Dioxins				7.2	7.0	0.090	q B	J	3.7	6.5	0.059	J q B	J	7.2	6.7	0.073	q B	J
Total Hepta-Dioxins				9.2	7.0	0.054	B		4.2	6.5	0.036	J B	J	9.4	6.7	0.048	B	
Total Tetra-Furans				0.054	1.4	0.054	U	U	0.045	1.3	0.045	U	U	0.055	1.3	0.055	U	U
Total Penta-Furans				0.063	7.0	0.063	U	U	0.046	6.5	0.046	U	U	0.061	6.7	0.061	U	U
Total Hexa-Furans				0.50	7.0	0.044	J q B	J	0.18	6.5	0.035	J q B	J	0.63	6.7	0.047	J q B	J
Total Hepta-Furans				2.0	7.0	0.066	J B	J	0.89	6.5	0.042	J q B	J	2.3	6.7	0.066	J B	J
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	0.551					0.336					0.838				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL/RL exceeds DMMP SL

Table 18. Sediment Conventionals & COC Analysis Results Compared to DMMP Guidelines (DMMU-SA-04, DMMU-SA-05)

Parameter	DMMP Marine Guidelines			DMMU-SA-04					DMMU-SA-05				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ
SEDIMENT CONVENTIONALS													
Total solids (%)				68.68	0.04	0.04			73.85	0.04	0.04		
Total volatile solids (TVS) (%)				3.27	0.01	0.01			2.49	0.01	0.01		
Total organic carbon (TOC) (%)				0.48	0.20	0.0097			1.0	0.20	0.0097		
Total Sulfides (mg/kg)				1.45	1.45	1.45	U	UJ	1.31	1.31	1.31	U	UJ
Ammonia (mg/kg NH3-N)				35	35	12	U	UJ	33	33	11	U	UJ
Particle/Grain Size, Gravel (%)				1.1					4.6				
Particle/Grain Size, Sand (%)				91					94				
Particle/Grain Size, Silt (%)				5.3					0.90				
Particle/Grain Size, Clay (%)				2.8					0.80				
Percent Fines (Silt + Clay)				8.1					1.7				
METALS (mg/kg dry weight)													
Antimony	150	---	200	0.099	0.29	0.033	J	U	0.083	0.25	0.028	J	U
Arsenic	57	507.1	700	3.9	0.24	0.048			3.3	0.20	0.041		
Cadmium	5.1	--	14	0.13	0.39	0.037	J	J	0.095	0.33	0.032	J	J
Chromium	260	--	---	31	0.48	0.031		J	31	0.41	0.026		J
Copper	390	--	1,300	39	0.48	0.11			40	0.41	0.090		
Lead	450	975	1,200	3.6	0.24	0.023			2.6	0.20	0.020		
Mercury	0.41	1.5	2.3	0.020	0.027	0.0082	J	J	0.011	0.027	0.0081	J	J
Selenium	---	3	---	0.34	0.34	0.18	U	U	0.29	0.29	0.15	U	U
Silver	6.1	--	8.4	0.022	0.097	0.0097	J	J	0.010	0.082	0.0082	J	J
Zinc	410	--	3,800	63	2.5	0.78		J	61	2.1	0.66		J
ORGANICS													
PAHs (µg/kg dry weight)													
LPAH													
Naphthalene	2,100	---	2,400	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U
Acenaphthylene	560	---	1,300	20.0	20.0	6.2	U	U	20.0	20.0	6.2	U	U
Acenaphthene	500	---	2,000	20.0	20.0	5.2	U	U	20.0	20.0	5.2	U	U
Fluorene	540	---	3,600	20.0	20.0	14.6	U	U	20.0	20.0	14.6	U	U
Phenanthrene	1,500	---	21,000	20.0	20.0	8.7	U	U	20.0	20.0	8.7	U	U
Anthracene	960	---	13,000	20.0	20.0	7.2	U	U	20.0	20.0	7.2	U	U



**Table 18. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-SA-04, DMMU-SA-05)**

Parameter	DMMP Marine Guidelines			DMMU-SA-04					DMMU-SA-05				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ
2-Methylnaphthalene	670	---	1,900	20.0	20.0	4.5	U	U	20.0	20.0	4.5	U	U
<b>Total LPAH</b>	5,200	---	29,000	20.0			U	U	20.0			U	U
<b>HPAH</b>													
Fluoranthene	1,700	4,600	30,000	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U
Pyrene	2,600	11,980	16,000	20.0	20.0	5.7	U	U	20.0	20.0	5.7	U	U
Benz(a)anthracene	1,300	---	5,100	20.0	20.0	6.0	U	U	20.0	20.0	6.0	U	U
Chrysene	1,400	---	21,000	20.0	20.0	6.1	U	U	20.0	20.0	6.1	U	U
Benzofluoranthenes (b, j ,k)	3,200	---	9,900	40.0	40.0	21.0	U	U	40.0	40.0	21.0	U	U
Benzo(a)pyrene	1,600	---	3,600	20.0	20.0	4.2	U	U	20.0	20.0	4.2	U	U
Indeno(1,2,3-c,d)pyrene	600	---	4,400	20.0	20.0	14.6	U	U	20.0	20.0	14.7	U	U
Dibenz(a,h)anthracene	230	---	1,900	20.0	20.0	17.2	U	U	20.0	20.0	17.2	U	U
Benzo(g,h,i)perylene	670	---	3,200	20.0	20.0	13.6	U	U	20.0	20.0	13.6	U	U
<b>Total HPAH</b>	12,000	---	69,000	40.0			U	U	40.0			U	U
<b>CHLORINATED HYDROCARBONS (µg/kg dry weight)</b>													
1,4-Dichlorobenzene	110	---	120	5.0	5.0	0.6	U	U	5.0	5.0	0.6	U	U
1,2-Dichlorobenzene	35	---	110	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
1,2,4-Trichlorobenzene	31	---	64	5.0	5.0	2.7	U	U	5.0	5.0	2.7	U	U
Hexachlorobenzene (HCB)	22	168	230	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
<b>PHTHALATES (µg/kg dry weight)</b>													
Dimethyl phthalate	71	---	1,400	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U
Diethyl phthalate	200	---	1,200	50.0	50.0	19.7	U	U	50.0	50.0	19.7	U	U
Di-n-butyl phthalate	1,400	---	5,100	20.0	20.0	5.6	U	U	20.0	20.0	5.6	U	U
Butyl benzyl phthalate	63	---	970	20.0	20.0	9.4	U	U	20.0	20.0	9.4	U	U
Bis(2-ethylhexyl) phthalate	1,300	---	8,300	50.0	50.0	14.1	U	U	50.0	50.0	14.1	U	U
Di-n-octyl phthalate	6,200	---	6,200	20.0	20.0	4.4	U	U	20.0	20.0	4.4	U	U
<b>PHENOLS (µg/kg dry weight)</b>													
Phenol	420	---	1,200	6.8	20.0	4.4	J	J	20.0	20.0	4.4	U	UJ
2-Methylphenol	63	---	77	20.0	20.0	6.7	U	U	20.0	20.0	6.7	U	UJ
4-Methylphenol	670	---	3,600	20.0	20.0	7.4	U	UJ	20.0	20.0	7.4	U	UJ
2,4-Dimethylphenol	29	---	210	20.0	20.0	2.2	U	U	20.0	20.0	2.2	U	UJ
Pentachlorophenol	400	504	690	100	100	31.2	U	U	100	100	31.3	U	UJ

Table 18. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-SA-04, DMMU-SA-05)

Parameter	DMMP Marine Guidelines			DMMU-SA-04					DMMU-SA-05				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ
MISCELLANEOUS EXTRACTABLES (µg/kg dry weight)													
Benzyl alcohol	57	---	870	20.0	20.0	16.3	U	U	20.0	20.0	16.3	U	UJ
Benzoic acid	650	---	760	200	200	39.0	U	UJ	200	200	39.0	U	UJ
Dibenzofuran	540	---	1,700	20.0	20.0	14.1	U	U	20.0	20.0	14.1	U	U
Hexachlorobutadiene	11	---	270	5.0	5.0	0.7	U	U	5.0	5.0	0.7	U	U
N-Nitrosodiphenylamine	28	---	130	5.0	5.0	1.3	U	U	5.0	5.0	1.3	U	U
PESTICIDES <sup>(1)</sup> & PCBs (µg/kg dry weight)													
4,4'-DDD	16	---	---	0.16	1.4	0.16	U	U	0.15	1.3	0.15	U	U
4,4'-DDE	9	---	---	0.26	1.4	0.26	U	U	0.24	1.3	0.24	U	U
4,4'-DDT	12	---	---	0.26	1.4	0.26	U	U	0.24	1.3	0.24	U	U
Total DDT	---	50	69	0.26			U	U	0.24			U	U
Aldrin	9.5	---	---	0.27	2.1	0.27	U	U	0.24	1.9	0.24	U	U
cis-Chlordane				0.53	1.4	0.53	U	U	0.48	1.3	0.48	U	U
cis-Nonachlor				0.60	3.6	0.60	U	U	0.54	3.2	0.54	U	U
Oxychlordane				0.55	2.8	0.55	U	U	0.49	2.5	0.49	U	U
trans-Chlordane				0.23	2.1	0.23	U	U	0.2	1.9	0.2	U	U
trans-Nonachlor				0.60	2.8	0.60	U	U	0.54	2.5	0.54	U	U
Total Chlordane	2.8	37	---	0.60			U	U	0.54			U	U
Dieldrin	1.9	---	1700	0.25	1.4	0.25	U	U	0.22	1.3	0.22	U	U
Heptachlor	1.5	---	270	0.14	2.1	0.14	U	U	0.12	1.9	0.12	U	U
PCB-Aroclor 1016				54	54	20	U	U	26	26	9.6	U	U
PCB-Aroclor 1221				54	54	32	U	U	26	26	16	U	U
PCB-Aroclor 1232				54	54	13	U	U	26	26	6.3	U	U
PCB-Aroclor 1242				54	54	21	U	U	26	26	10	U	U
PCB-Aroclor 1248				54	54	19	U	U	26	26	9.0	U	U
PCB-Aroclor 1254				54	54	24	U	U	26	26	12	U	U
PCB-Aroclor 1260				54	54	20	U	U	26	26	9.6	U	U
Total PCBs (Aroclors)	130	38 <sup>(2)</sup>	3,100	54			U	U	26			U	U

Table 18. Sediment Conventional & COC Analysis Results Compared to DMMP Guidelines (DMMU-SA-04, DMMU-SA-05)

Parameter	DMMP Marine Guidelines			DMMU-SA-04					DMMU-SA-05				
	SL	BT	ML	Result	RL	MDL	Qualifier		Result	RL	MDL	Qualifier	
							Lab	VQ				Lab	VQ
DIOXINS/FURANS <sup>(1)</sup> (ng/kg dry weight)													
2,3,7,8-TCDD	---	5	---	0.31	1.3	0.12	J q	U	0.11	1.3	0.11	U	U
1,2,3,7,8-PECDD				0.42	6.7	0.13	J q	U	0.23	6.3	0.12	J	J
1,2,3,4,7,8-HxCDD				0.36	6.7	0.077	J B	U	0.29	6.3	0.058	J B	U
1,2,3,6,7,8-HxCDD				0.49	6.7	0.090	J	J	0.11	6.3	0.071	J q	U
1,2,3,7,8,9-HxCDD				1.2	6.7	0.076	J B	J	0.50	6.3	0.059	J B	J
1,2,3,4,6,7,8-HpCDD				4.8	6.7	0.056	J B	J	1.3	6.3	0.038	J q B	U
OCDD				32	13	0.10	B		6.0	13	0.092	J B	U
2,3,7,8-TCDF				0.061	1.3	0.061	U	U	0.052	1.3	0.052	U	U
1,2,3,7,8-PeCDF				0.055	6.7	0.055	U	U	0.051	6.3	0.051	U	U
2,3,4,7,8-PECDF				0.055	6.7	0.055	U	U	0.050	6.3	0.050	U	U
1,2,3,4,7,8-HxCDF				0.078	6.7	0.049	J q B	U	0.038	6.3	0.038	U	U
1,2,3,6,7,8-HxCDF				0.082	6.7	0.045	J B	U	0.036	6.3	0.036	U	U
1,2,3,7,8,9-HxCDF				0.048	6.7	0.048	U	U	0.039	6.3	0.039	U	U
2,3,4,6,7,8-HxCDF				0.043	6.7	0.043	U	U	0.034	6.3	0.034	U	U
1,2,3,4,6,7,8-HpCDF				1.5	6.7	0.068	J B	J	0.19	6.3	0.049	J B	U
1,2,3,4,7,8,9-HpCDF				0.058	6.7	0.058	U	U	0.043	6.3	0.043	U	U
OCDF				1.7	13	0.082	J B	U	0.25	13	0.075	J B	U
Total Tetra-Dioxins				2.6	1.3	0.12	q	J	0.38	1.3	0.11	J q	J
Total Penta-Dioxins				3.0	6.7	0.13	J q	J	1.1	6.3	0.12	J q	J
Total Hexa-Dioxins				7.5	6.7	0.081	B		3.1	6.3	0.063	J q B	J
Total Hepta-Dioxins				11	6.7	0.056	B		2.7	6.3	0.038	J q B	J
Total Tetra-Furans				0.061	1.3	0.061	U	U	0.052	1.3	0.052	U	U
Total Penta-Furans				0.055	6.7	0.055	U	U	0.051	6.3	0.051	U	U
Total Hexa-Furans				0.99	6.7	0.046	J q B	J	0.039	6.3	0.039	U	U
Total Hepta-Furans				3.0	6.7	0.063	J B	J	0.40	6.3	0.046	J B	J
Dioxin/Furan TEQ (ng/Kg) (TEC*ND EDL *0.5)	---	15	---	0.650					0.382				

(1) Non-detect results reported at MDL

(2) This value is normalized to TOC and expressed in mg/kg carbon

Shaded cells = Non-detected MDL/RL exceeds DMMP SL

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## FIGURES

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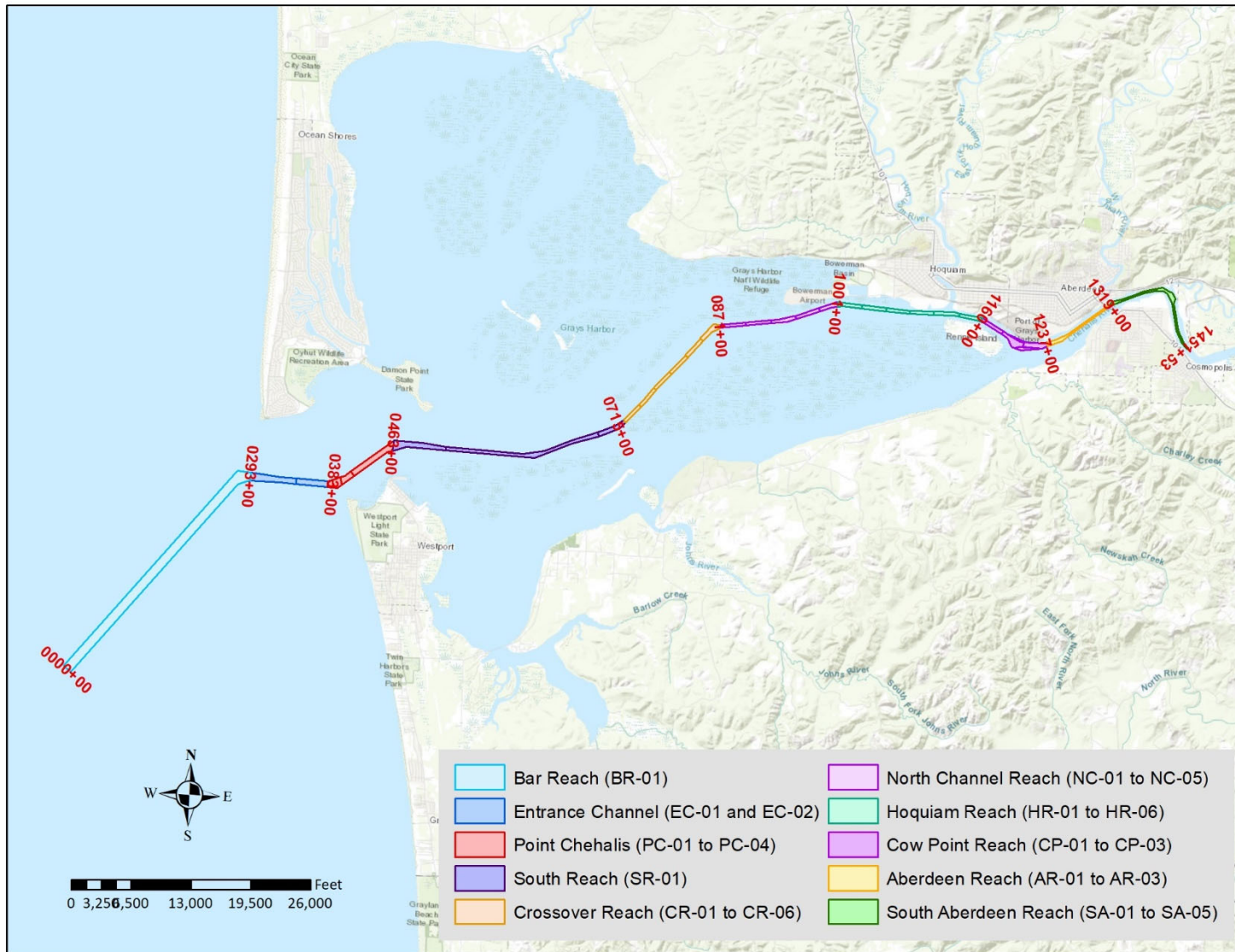


Figure 1. Proposed Dredge Area