

# **Appendix A**

## **Field Data Log Sheets**

**(Included in its entirety on CD)**

## A- Field Data Log Sheets

Field data log sheets are included in this appendix by study area. Each study area includes surface sediment grab sample log sheets and sediment core log sheets. Tissue sample log sheets are included when applicable.

BA	Barge Area
BL	Boat Launch
CO	Nearshore Outfall
DO	Deep Outfall
EC	Ennis Creek
ED	East of Mill Dock
EE	East of Ennis Creek
EH	Ediz Hook Point
EI	Eastern Intertidal/Subtidal Shore
FP	Fish Pen Area
FT	Landing Pier (Ferry Terminal)
IE	Inner Ediz Hook Area
IH	Inner Harbor Area
KP	K-Ply
LA	Lagoon Area
LP	Log Pond
MA	Boat Haven Marina
MD	Mill Dock
OH	Outer Harbor
RF	Reference Samples
RL	Red Lion Inn
WW	WWTP Outfall

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6-7-08 ✓

**Area of Concern:** Barge Area

**Location Data** Harbor-Wide / Rayonier

**GPS Date/Time** \_\_\_\_\_

**Lat** \_\_\_\_\_ **Long** \_\_\_\_\_

**GPS PDOP** \_\_\_\_\_

RPD: 1 cm

**Boat/Sampling Team:** Carolyn Dow,

Drab olive to 4 cm followed by greyish black sediment all the way down

Sample ID: <u>BA01A</u>	Time: <u>1057</u> ✓	Bottom depth (ft): <u>127</u>	Penetration depth (cm): <u>22.5</u>				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b> sponidae, amphipoda, maldanidae, capitallidae				
Cobble Gravel Sand C M F <u>Silt/clay</u> Organic matter Woody debris Shell debris	<u>Drab olive</u> <u>Brown</u> <u>Brown surface</u> <sup>light</sup> <u>Gray</u> <u>Black</u> Other:	<u>None</u> <u>Slight</u> <u>Moderate</u> <u>Strong</u> <u>Overwhelming</u> <u>H2S</u> <u>Petroleum</u>					
<b>Analyses</b>	<b>Sample Containers</b>						
	<i>16 oz jar</i>	<i>1.5 oz jar</i>	<i>Plastic bag</i>	<i>Lab</i>	<i>Immediate Analysis</i>	<i>Archive</i>	<i>MS/MSD</i>
Dioxin/Furan	1			Axys			
<del>Grain size/TOC</del>	1		<u>16 oz Poly ✓</u>	ARI			
<del>SVOCs</del> X	1		<u>16 oz ✓</u>	ARI			
Resin / Guai				ARI			
Organotin				ARI			
<del>Ammonia</del> X			<u>4 oz ✓</u>	ARI			
<del>Sulfide</del> X		1	<u>2 oz ✓</u>	ARI			
Pesticide	1			TA			
PCB				TA			
<del>TPH</del> X			<u>16 oz w/TPH ✓</u>	TA			
<del>Metal</del> X			<u>16 oz ✓</u>	TA			
<del>Hg</del> X			<u>16 oz w/TPH ✓</u>	TA			
<del>Bioassay</del> X			<u>Bag 1 ✓</u>	NF			

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Carolyn Dow  
Sampler Signatures

Carolyn Dow 6/7/08 RDW DB QA 6/7/08 RDW  
Sample Custodian Signature

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-7-08 ✓

Area of Concern: Barge Area

Location Data Harbor-Wide / Rayonier

GPS Date/Time \_\_\_\_\_

Lat \_\_\_\_\_ Long \_\_\_\_\_

GPS PDOP \_\_\_\_\_

R.P.D.: 1 cm followed by 1 cm

Boat/Sampling Team: Carolyn Dow

drab olive followed by grey/black

Sample ID: <u>B002A</u>	Time: <u>1150</u> ✓	Bottom depth (ft): <u>112 (112.04)</u>	Penetration depth (cm): <u>05 cm</u>			
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>			
Cobble	<u>Drab olive</u>	<u>None</u>	<p>poly polychate tubes capitellidae phyllodocidae, wood debris, teredo present but not current, glyceric acid goniadae</p>			
Gravel	<u>Brown light</u>	Slight				
Sand C M F	<u>Brown surface</u>	Moderate				
Silt/clay <sup>some</sup>	Gray	Strong				
Organic matter	Black	Overwhelming				
Woody debris	Other:	H2S				
Shell debris		Petroleum				
<b>Analyses</b>	<b>Sample Containers</b>					
	<i>16 oz jar</i>	<i>1.5 oz jar</i>	<i>Plastic bag</i>			
	<i>Lab</i>	<i>Immediate Analysis</i>	<i>Archive</i>			
	<i>MS/MSD</i>					
Dioxin/Furan	1		Axys			
Grain size/TOC	1	<u>16oz Poly</u> ✓	ARI			
SVOCs	1	<u>16oz</u> ✓	ARI			
Resin / Guai			ARI			
Organotin			ARI			
Ammonia			ARI			
Sulfide		1	ARI			
Pesticide	1		TA			
PCB			TA			
TPH		<u>16oz w/Hg</u> ✓	TA			
Metal		<u>16oz</u> ✓	TA			
Hg		<u>16oz w/TPH</u> ✓	TA			
Bioassay			1	NF		

Silt w/ some clay

⊗  
⊗

⊗  
⊗  
⊗

Sampler Signatures

RDW 6/7/08 DB QA RDW 6/7/08

Sample Custodian Signature

Project: Port Angeles Harbor Sediment

Grab Sediment Sample Log

Characterization Study

Date: 6/19/08 ✓✓

Sample ID: BL01A ✓✓

Time: 0944 ✓✓

Area of Concern: Boat Launch

Location Data: Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 32.8 ✓ Penetration depth (cm): 24cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Glycerol .5cm RPD
Gravel	<u>Brown</u> ✓	Slight ✓	
Sand V C C M F V F	<u>Brown surface</u>	<u>Moderate</u> ✓	
<u>Silt</u> ✓	Gray	<u>Strong</u> ✓	
Clay	<u>Black</u> below	Overwhelming	
Organic matter	Other: <u>.5cm</u>	<u>Sulfur</u> ✓	
<u>Woody debris</u> 30%		Petroleum	
Shell debris		Other:	
Other:			

below 8cm

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓				Axys		⊗ ✓	= 2 jars
Grain size/TOC		1 ✓			ARI	⊗ ✓	⊗ ✓	
SVOCs	1 (2 if arch)		4 oz Glass ✓		ARI	⊗ ✓	⊗ ✓	
Resin / Guai					ARI			
Organotin			2 x 16 oz glass ✓		ARI	⊗	⊗ ✓	} MS/MSD ✓
Ammonia			2 x 16 oz glass ✓		ARI	⊗	⊗ ✓	
Sulfide			2 x 2 oz Glass ✓		ARI	⊗	⊗ ✓	} MS/MSD ✓
Pesticide	1 (2 if arch)		2 16 oz glass w/ metal ✓		TA		⊗ ✓	
PCB			5		TA		⊗ ✓	
TPH			1 6 oz glass w/ Hg ✓		TA	⊗ ✓	⊗ ✓	MS/MSD ✓
Metal			1 6 oz glass w/ Rest PCBs ✓		TA		⊗ ✓	
Hg			1 6 oz glass w/ TP Hg ✓		TA	⊗ ✓	⊗ ✓	MS/MSD ✓
Bioassay				1 ✓	NF	⊗ ✓	⊗ ✓	

2  
2

2x ↖

Sampler Signatures

[Signature] 6/21/08 RDW

DB QA 6/21/08 RDW

Sample Custodian Signature



# Sediment Core Log

Station ID: BLO2

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: BOAT LAUNDRY  
 GPS Time: 1555  
 Location (UTM Zone 10, NAD 83 meters): X 466787  
Y 5330337

Date: 6/7/08  
 Time: 1552  
 Boat: NWUWC  
 Core Collection Method: VIBRA CORE  
 Sample Team: M. LONGTINE, J. SCHMITZ  
S. PENTNEY

Coring Start Time: 1552  
 Water Depth: 42.0 Ft.  
 Core Bottom Depth: 504.0 Ft.  
 Coring Finish Time: 1554  
 Overall Recovery (%): 100

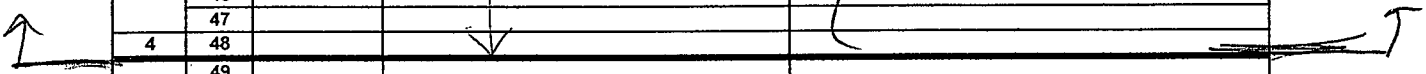
FOUR FOOT CORE COLLECTED, 100% RECOVERY.  
 WOOD DEBRIS ENCOUNTERED THROUGHOUT ENTIRE  
 INTERVAL. THEREFORE NEED TO COLLECT ANOTHER  
 LONGER CORE. NO ANALYTICAL SAMPLES COLLECTED.

Sample ID: <u>BLO2B ML</u>		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) <input checked="" type="checkbox"/> / Silt <input checked="" type="checkbox"/> / Clay ___ / Organic mtrl ___ / Woody debris <input checked="" type="checkbox"/> / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: <u>BLO2C ML</u>		Depth Interval: <u>36</u> in. to <u>48</u> in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) <input checked="" type="checkbox"/> / Silt <input checked="" type="checkbox"/> / Clay <input checked="" type="checkbox"/> / Organic mtrl ___ / Woody debris <input checked="" type="checkbox"/> / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1		Mixed sand/silt/woody debris w/ localized clay. Sand from VF → M w/ woody debris <del>from</del> up to 40%. Wood debris w/ bark, chips, thin fibers. Large pieces are mostly reddish. Ranges from fresh (top) to very decomposed (bottom). Most / Soft wood chat. In S. grayish/brown.		
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5	60				

Wooden debris decreases abruptly in abundance @ 42" → 10%





# Sediment Core Log

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide D Rayonier  
 Area of Concern: BOAT LAUNCH  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y \_\_\_\_\_

Station ID: BLO2-2<sup>nd</sup> ATTEMPT (FIRST ATTEMPT ON 6/8 OVERALL)  
 Date: 6/8/08  
 Time: 1504  
 Boat: NWUWC  
 Core Collection Method: VIBRA CORE  
 Sample Team: M. LONGTINE, J. SCHMITZ, S. PENTNEY

Coring Start Time: 1504  
 Water Depth: 37.4 Ft.  
 Core Bottom Depth: 8.0 Ft.  
 Coring Finish Time: 1506  
 Overall Recovery (%): 67%

THIS IS 2<sup>nd</sup> ATTEMPT TO COLLECT CORE AT THIS LOCATION. SEE 6/7/08 BLO2 LOG FOR PREVIOUS ATTEMPT. NO SAMPLES.

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating _____

NOTES:

Sediment Core Log Graphic

Station ID: BLO2 - 2nd ATTEMPT (FIRST ATTEMPT ON 6/8, 2nd OVERALL)  
 Page 1 of - 1

START CORE 1505 ON 6/8/68  
 FINISH CORE 1506

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1	Z O SAMPLES	TOP OF CORE TO 60"		
	2		MIXED SAND, SILT, AND		
	3		WOOD DEBRIS. WOOD DEBRIS		
	4		CONSISTS OF BARK AND		
	5		WOOD. VERY MOIST AND		
	6		SOFT. MODERATE		
	7		SULFUR ODOR.		
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1	12				
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5	60				

65" 60 TO 66" SAND, FINE TO MED, GRAY BROWN, NO WOOD DEBRIS; INSUFFICIENT QUANTITY OF THIS MATERIAL TO COLLECT ANALYTICAL SAMPLE.

# Sediment Core Log

Station ID: BLO2 - 3<sup>rd</sup> ATTEMPT

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: BOAT LANDING  
 GPS Time: 1641  
 Location (UTM Zone 10, NAD 83 meters): X 466782  
 Y 5330338

Date: 6/8/08  
 Time: 1600  
 Boat: NWVWC  
 Core Collection Method: VIBRA-CORE  
 Sample Team: M LONGTINE JSCHMITZ  
S PEWNET

Coring Start Time: 1600  
 Water Depth: 40'2" Ft.  
 Core Bottom Depth: 8'6" Ft.  
 Coring Finish Time: 1611  
 Overall Recovery (%): EST 85%

THIS IS 2<sup>nd</sup> ATTEMPT AT CORE BLO2 TODAY AND 3<sup>rd</sup> OVERALL. USED 8.0 FT CORE BARREL AND PROVE IT 8.5" OVERPROVE IT IN ORDER TO RECOVER SUFFICIENT LENGTH OF SANDY INTERVAL BELOW LOWEST WOOD DEBRIS TO OBTAIN SUFFICIENT VOLUME OF ANALYTICAL SAMPLE.

Sample ID: <u>BLO2 B</u>		Depth Interval: <u>36</u> in. to <u>48</u> in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____			
Samples Collected:		Immediate Analysis	Archive for Later Analysis
16 oz poly jar	<u>10</u> TOC/Grain size	<u>WV</u> 1602 PV	_____
16 oz glass jar	<u>10</u> Dioxins/Furans	<u>WV</u> 1602 A	_____
16 oz glass jar	<u>10</u> SVOCs / resin / TBT / Ammonia	<u>WV</u> 1602 G	_____
16 oz glass jar	<u>10</u> Pest / PCBs / TPH / Metals / Hg	<u>WV</u> 1602 G	_____
4 oz glass jar	<u>10</u> Sulfide / Other: _____	<u>WV</u> 402 W / 2 A G	_____
core	Radioisotope Dating	_____	_____
Sample ID: <u>BLO2 C</u>		Depth Interval: <u>160</u> in. to <u>78</u> in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____			
Samples Collected:		Immediate Analysis	Archive for Later Analysis
16 oz poly jar	<u>10</u> TOC/Grain size	<u>WV</u> 1602 PV	_____
16 oz glass jar	<u>10</u> Dioxins/Furans	<u>WV</u> 1602 A	_____
16 oz glass jar	<u>10</u> SVOCs / resin / TBT / Ammonia	<u>WV</u> 1602 G	_____
16 oz glass jar	<u>10</u> Pest / PCBs / TPH / Metals / Hg	<u>WV</u> 1602 G	_____
4 oz glass jar	<u>10</u> Sulfide / Other: _____	<u>WV</u> 402 G W / 2 A G	_____
core	Radioisotope Dating	_____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____			
Samples Collected:		Immediate Analysis	Archive for Later Analysis
16 oz poly jar	_____ TOC/Grain size	_____	_____
16 oz glass jar	_____ Dioxins/Furans	_____	_____
16 oz glass jar	_____ SVOCs / resin / TBT / Ammonia	_____	_____
16 oz glass jar	_____ Pest / PCBs / TPH / Metals / Hg	_____	_____
4 oz glass jar	_____ Sulfide / Other: _____	_____	_____
core	Radioisotope Dating	_____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____			
Samples Collected:		Immediate Analysis	Archive for Later Analysis
16 oz poly jar	_____ TOC/Grain size	_____	_____
16 oz glass jar	_____ Dioxins/Furans	_____	_____
16 oz glass jar	_____ SVOCs / resin / TBT / Ammonia	_____	_____
16 oz glass jar	_____ Pest / PCBs / TPH / Metals / Hg	_____	_____
4 oz glass jar	_____ Sulfide / Other: _____	_____	_____
core	Radioisotope Dating	_____	_____

NOTES:

2 samples.

Robert G/10/08 RDW DA QA 6/10/08 RDW

CORING  
START  
TIME  
6/8/08  
1600

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
1	12			
	13			
	14			
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	22			
	23			
2	24			
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	26			
	27			
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	30			
	31			
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	35			
3	36			
	37		MIXED FINES, SAND AND	HIGHLY DECOMPOSED
	38		WOOD DEBRIS. SAND	BARK AND CHIPS.
	39		MINOR, EST 50% OVERALL	REDDISH BROWN
	40		GRAYISH BROWN COLOR.	
	41		VERY MOIST, SOFT. STRONG	
	42		SULFUR ODOR. (WOOD)	
	43		DEBRIS EST. 40%. HIGHLY	
	44		DECOMPOSED.	
	45			
	46			
	47			
4	48			
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	59			
5	60			

BLO2

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers	
6	61	A ↓ NO WOOD A	SAND, MEDIUM WELL SORTED (POORLY GRADED) WITH MINOR FINE AND COARSE. MINOR FINES. SAND SALT AND PEPPER OVERALL GRAY COLOR. NO WOOD DEBRIS. LOW MOISTURE (WELL DRAINED). NO ODER.		
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	63				
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	119				
	10	120			

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6/13/08

Sample ID: BLO3A

Time: 14:19

Area of Concern: Boat launch

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Cardyn Down, Jen, Pete

Bottom depth (ft): _____		Penetration depth (cm): <u>22cm</u>	
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>
Cobble	<u>Drab olive</u>	None	<u>1cm RPD</u> <u>Shell frags</u> <u>No apparent biota</u>
Gravel	<u>Brown below</u>	Slight	
Sand VCC M F VF	<u>Brown surface</u>	<u>Moderate</u>	
<u>Silt</u>	Gray	<u>Strong</u>	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
<u>Woody debris</u> <u>slight</u>		Petroleum	
Shell debris		Other:	
Other:			

	Analyses							
	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16oz	Amber	✓	Axys		(X)	
Grain size/TOC		1	16oz Poly	✓	ARI	(X)		
SVOCs	1 (2 if arch)	2	16oz glass	✓	ARI		(X)	
Resin / Guai		5	16oz glass	✓	ARI		(X)	
Organotin		5	16oz glass	✓	ARI	(X)		
Ammonia		5	16oz glass	✓	ARI	(X)		
Sulfide		2oz	glass w/ ZnAc	✓	ARI	(X)		
Pesticide	1 (2 if arch)				TA			
PCB		1	16oz glass w/ metals	✓	TA		(X)	
TPH		1	16oz glass w/ Hg	✓	TA	(X)		
Metal		1	16oz glass w/ PCB	✓	TA		(X)	
Hg		1	16oz glass w/ TPH	✓	TA	(X)		
Bioassay		1	Bag	✓	NF	(X)		

- (A)
- (X)
- (A)
- (A)
- (X)
- (X)
- (X)
- (A)
- (X)
- (A)
- (X)
- (X)
- (X)

Sampler Signatures

RDW 6/16/08      DB QA 6/16/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/13/08 ✓✓

Sample ID: BL01A BL04A ✓

Time: 13:13 ✓✓

Area of Concern: Boat Launch

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Donner, Pete

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 12 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<u>Cobble</u>	Drab olive	<u>None</u> ✓	Spio chae topkis Hyatella <del>1/2</del> Spartan ✓
<u>Gravel</u>	Brown	<u>Slight</u>	
<u>Sand</u> VCC M F VF	Brown surface	Moderate ✓	
<u>Silt</u> very little	<u>Gray</u>	Strong	
<u>Clay</u> very little	<u>Black</u> ✓	Overwhelming	
Organic matter ✓	Other:	Sulfur	
Woody debris		Petroleum	
<u>Shell debris</u>		<u>Other:</u> ?	
Other:		<u>Strange!</u>	

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<u>(A)</u> Dioxin/Furan	1			16 oz Amber ✓	Axys		<u>(X)</u>	
<u>(X)</u> Grain size/TOC		1		16 oz Poly ✓	ARI	<u>(X)</u>		
<u>(A)</u> SVOCs	1 (2 if arch)			16 oz Glass ✓	ARI		<u>(X)</u>	
Resin / Guai					ARI			
<u>(X)</u> Organotin			4 oz Glass		ARI	<u>(X)</u>		
<u>(X)</u> Ammonia			4 oz Glass		ARI	<u>(X)</u>		
<u>(X)</u> Sulfide			2 oz Glass w/ ZnAc		ARI	<u>(X)</u>		
Pesticide	1 (2 if arch)				TA			
<u>(A)</u> PCB			16 oz Glass w/ Metals		TA		<u>(X)</u>	
<u>(X)</u> TPH			16 oz Glass w/ Hg		TA	<u>(X)</u>		
<u>(A)</u> Metal			16 oz Glass w/ PCB		TA		<u>(X)</u>	
<u>(X)</u> Hg			16 oz Glass w/ TPH		TA	<u>(X)</u>		
<u>(X)</u> Bioassay			1 Bag ✓	1	NF	<u>(X)</u>		

Sampler Signatures

[Signature] 6/16/08 RDW

DB QA - 6/16/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-9-08 ✓✓

Sample ID: BLO5A ✓✓

Time: 1500 ✓✓

Area of Concern: Boat launch

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_ RPD: 2 cm

Bottom depth (ft): 57.1 ✓ Penetration depth (cm): 20 ✓

<b>Sediment type:</b> Cobble Gravel <u>Sand</u> V C C M <u>F</u> V F <u>Silt</u> <u>Clay</u> Organic matter Woody debris Shell debris Other:	<b>Sediment color:</b> <u>Drab olive</u> Brown Brown surface <u>Gray</u> ✓ <u>Black</u> Other:	<b>Sediment Odor:</b> None Slight Moderate Strong Overwhelming Sulfur Petroleum Other:	<b>Comments:</b> 1 small piece bark, 1 small piece wood (>5%), mitrella gouldi(?), maldonidae, sponadae tubes, phylodocidae, capitellidae, ternbellidae,
---	--	--	--

	Sample Containers				Lab	Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag				
<u>A</u> Dioxin/Furan	1				Axys			
<u>X</u> Grain size/TOC		1			ARI			
<u>A</u> SVOCs	1 (2 if arch)	3			ARI			
<u>A</u> Resin / Guai			16 oz glass ✓		ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA			
<u>A</u> PCB					TA			
TPH					TA			
<u>A</u> Metal					TA			
<u>X</u> Hg					TA			
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/10/08 RDW

DB QA 6/10/08 RDW

Sample Custodian Signature



Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-11-08 ✓

Sample ID: BLOGA ✓

Time: 1511 ✓

Area of Concern: Boat Launch

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Grab boat - P. Shapiro, C. Funk RPD: 1.5 cm

Bottom depth (ft): 19.5 ✓ Penetration depth (cm): 26 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand V C C M F VF <input checked="" type="checkbox"/> Silt ✓ <input type="checkbox"/> Clay <input type="checkbox"/> Organic matter <input type="checkbox"/> Woody debris <input type="checkbox"/> Shell debris <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> Drab olive <input type="checkbox"/> Brown <input checked="" type="checkbox"/> Brown surface <input type="checkbox"/> Gray ✓ <input type="checkbox"/> Black <input type="checkbox"/> Other:	<input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Strong <input type="checkbox"/> Overwhelming <input type="checkbox"/> Sulfur <input type="checkbox"/> Petroleum <input type="checkbox"/> Other:	sandy silt only trace clay (trans from D.O to dark grey into black @ 10cm) cragon spp. spionidae tubes? 4 juvenile seapens

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<input checked="" type="checkbox"/> Dioxin/Furan	1	16oz	Amber	✓	Axys			
<input checked="" type="checkbox"/> Grain size/TOC		1	16oz Poly	✓	ARI			
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	16oz	Glass	✓	ARI			
<input checked="" type="checkbox"/> Resin / Guai					ARI			
<input checked="" type="checkbox"/> Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia		4oz	Glass	✓	ARI			
<input checked="" type="checkbox"/> Sulfide		2oz	Glass	✓	ARI			
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)				TA			
<input checked="" type="checkbox"/> PCB		16oz	Glass w/ Metal	✓	TA			
<input checked="" type="checkbox"/> TPH					TA			
<input checked="" type="checkbox"/> Metal		16oz	Glass w/ PEBS	✓	TA			
<input checked="" type="checkbox"/> Hg		4oz	Glass	✓	TA			
<input checked="" type="checkbox"/> Bioassay		1	Bag	✓	NF			

macoma  
 maldanidae  
 amphipoda  
 macoma shell  
 fragments,

C. Funk  
 Sampler Signatures

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6-9-08 ✓✓

Sample ID: BLO7A ✓✓

Time: 1534 ✓✓

Area of Concern: Boat launch

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_ RPD: 20cm

Bottom depth (ft): 61.5 ✓ Penetration depth (cm): 20cm ✓

<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>
Cobble	<u>Drab olive</u>	None	Silt/Clay under RPD, no wood debris no odor ✓
Gravel	<u>Brown</u>	Slight	
Sand V C C M F V F	<u>Brown surface</u>	Moderate	
<u>Silt</u> ✓	Gray	Strong	
<u>Clay</u> ✓	Black ✓	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

	Analyses		Sample Containers				Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab				
ⓐ Dioxin/Furan	1				Axys				
ⓧ Grain size/TOC		1			ARI				
ⓐ SVOCs	1 (2 if arch)				ARI				
Resin / Guai					ARI				
Organotin					ARI				
Ammonia					ARI				
Sulfide			1		ARI				
Pesticide	1 (2 if arch)				TA				
ⓐ PCB					TA				
TPH					TA				
ⓐ Metal					TA				
ⓧ Hg					TA				
Bioassay				1	NF				

Sampler Signatures

[Signature] 6/10/08 RDW

[Signature] DBQA 6/10/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-9-08 ✓✓

Sample ID: BLO8A ✓✓

Time: 1608 ✓✓

Area of Concern: Boat Launch

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

RPD: 2cm

Bottom depth (ft): 80 ✓ Penetration depth (cm): 24 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	Silt grading into silt/clay, no wood material ✓ malcanidae, spionidae tubes, goniadidae, nemertea
Gravel	Brown	Slight	
Sand V C C M F V F	<u>Brown surface</u>	Moderate ✓	
<u>Silt</u> ✓	Gray ✓	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
ⓐ Dioxin/Furan	1	16 oz	4 oz Amber ✓	Plastic bag ✓	Axys			
ⓧ Grain size/TOC		1 16 oz poly ✓			ARI			
ⓐ SVOCs	1 (2 if arch)	3 16 oz glass ✓			ARI			
ⓐ Resin / Guai					ARI			
Organotin					ARI			
ⓧ Ammonia		4 oz Glass ✓			ARI			
ⓧ Sulfide		2 oz Glass ✓			ARI			
Pesticide	1 (2 if arch)				TA			
ⓐ PCB		16 oz glass w/ Metals ✓			TA			
TPH					TA			
ⓐ Metal		16 oz glass w/ PCB ✓			TA			
ⓧ Hg		4 oz glass ✓			TA			
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/9/08 RDW

DIB QA RDW 6/9/08

Sample Custodian Signature

First Attempt

# Sediment Core Log

Station ID: BL 08

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: BOAT LAUNCH  
 GPS Time: 08:20  
 Location (UTM Zone 10, NAD 83 meters): X 5330928  
 Y 467422

Date: 6-11-08  
 Time: 0821  
 Boat: NW DUC Wolf Eel  
 Core Collection Method: Vibracore  
 Sample Team: E. White J. Schmitz  
S. Dentrey

Coring Start Time: 0821  
 Water Depth: 80.5 Ft.  
 Core Bottom Depth: 6' Ft.  
 Coring Finish Time: 0828  
 Overall Recovery (%): 25%

Fine sand drained from tube -  
 not retained by core catcher.  
 18" of fine sand and gravel in core.

Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other:	___	___
	core		Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other:	___	___
	core		Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other:	___	___
	core		Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other:	___	___
	core		Radioisotope Dating	___	___

NOTES:

Second Attempt

# Sediment Core Log

Station ID: B208

Project: Port Angeles Harbor Sediment Characterization Study

Date: 6-11-08

Location Data: Harbor-wide / Rayonier

Time: 0851

Area of Concern: Boat Launch

Boat: NW LWC with Eel

GPS Time: same as 1st attempt

Core Collection Method: Vibracore

Location (UTM Zone 10, NAD 83 meters): X

Sample Team: E. White, J. Schmitz

Y

S. Pentney

Coring Start Time: 0851  
 Water Depth: 80 Ft.  
 Core Bottom Depth: 6 Ft.  
 Coring Finish Time: 0853  
 Overall Recovery (%): 100%

Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: ___	___	___
	core		Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: ___	___	___
	core		Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: ___	___	___
	core		Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: ___	___	___
	core		Radioisotope Dating	___	___

NOTES: Penetrated to 6', when recovered, we had a 8' of sediment - settled fairly quickly. Upon inspection - Upon retrieval looked as if re-suspension of fine sands, upon transport along sides of tube - water flow indicated re-suspension in the 2' of red. est - spongy matrix

3rd attempt

# Sediment Core Log

Station ID: BLO8

Project: Port Angeles Harbor Sediment Characterization Study

Date: 10/11/08 ✓

Location Data: Harbor-wide D Rayonier

Time: 10:09

Area of Concern: Boat Launch

Boat: NWOWC Wolf Eel

GPS Time: See attempt 1 = same location

Core Collection Method: Vibracore

Location (UTM Zone 10, NAD 83 meters): X

Sample Team: E. White, J. Schmitz, Sandra Pentney

Y

Coring Start Time: 10:09

Water Depth: 80 Ft. ✓

Core Bottom Depth: 6 Ft.

Coring Finish Time: 10:12

Overall Recovery (%): 100%

Sample ID: <u>BLO8B</u> ✓	Depth Interval: <u>12</u> in. to <u>24</u> in. ✓
Sediment Type (%): Cobble <input type="checkbox"/> / Gravel <input type="checkbox"/> / Sand (VC C M F VF) <input type="checkbox"/> / Silt <input checked="" type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input type="checkbox"/> / Woody debris <input type="checkbox"/> / Shell debris <input type="checkbox"/> / Other: <input type="checkbox"/>	
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	TIME = 1039 ✓
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar <input checked="" type="checkbox"/> TOC/Grain size <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 16oz Poly
16 oz glass jar <input checked="" type="checkbox"/> Dioxins/Furans <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 16oz Amber
16 oz glass jar <input checked="" type="checkbox"/> SVOCs / resin / TBT / Ammonia <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 16oz Glass
16 oz glass jar <input checked="" type="checkbox"/> Pest / PCBs / TPH / Metals / Hg <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 16oz Glass
4 oz glass jar _____ Sulfide / Other: _____	_____
core _____ Radioisotope Dating _____	_____

Sample ID: <u>BLO8C</u> ✓	Depth Interval: <u>36</u> in. to <u>48</u> in. ✓
Sediment Type (%): Cobble <input type="checkbox"/> / Gravel <input type="checkbox"/> / Sand (VC C M F VF) <input type="checkbox"/> / Silt <input checked="" type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input type="checkbox"/> / Woody debris <input type="checkbox"/> / Shell debris <input type="checkbox"/> / Other: <input type="checkbox"/>	
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	TIME = 1039 ✓
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar <input checked="" type="checkbox"/> TOC/Grain size <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 16oz Poly
16 oz glass jar <input checked="" type="checkbox"/> Dioxins/Furans <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 16oz Amber
16 oz glass jar <input checked="" type="checkbox"/> SVOCs / resin / TBT / Ammonia <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 16oz Glass
16 oz glass jar <input checked="" type="checkbox"/> Pest / PCBs / TPH / Metals / Hg <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> 16oz Glass
4 oz glass jar _____ Sulfide / Other: _____	_____
core _____ Radioisotope Dating _____	_____

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble <input type="checkbox"/> / Gravel <input type="checkbox"/> / Sand (VC C M F VF) <input type="checkbox"/> / Silt <input type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input type="checkbox"/> / Woody debris <input type="checkbox"/> / Shell debris <input type="checkbox"/> / Other: <input type="checkbox"/>	
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	_____
16 oz glass jar _____ Dioxins/Furans _____	_____
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____
4 oz glass jar _____ Sulfide / Other: _____	_____
core _____ Radioisotope Dating _____	_____

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble <input type="checkbox"/> / Gravel <input type="checkbox"/> / Sand (VC C M F VF) <input type="checkbox"/> / Silt <input type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input type="checkbox"/> / Woody debris <input type="checkbox"/> / Shell debris <input type="checkbox"/> / Other: <input type="checkbox"/>	
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	_____
16 oz glass jar _____ Dioxins/Furans _____	_____
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____
4 oz glass jar _____ Sulfide / Other: _____	_____
core _____ Radioisotope Dating _____	_____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization		
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy	
	61					
	62					
	63					
	64					
	65					
	66					
	67					
	68					
	69					
	70					
	71					
6	72					
	73		<del>Wood ch</del>	Wood debris - dark brown		
	74		olive gray silt and clay	moderately degraded		
	75		large shell fragments	no teredos		
	76		to white shells fine			
	77		sand content less than			
	78		10%			
	79					
	80					
	81					
	82					
	83					
7	84					
	85					
	86					
	87					
	88					
	89					
	90					
	91					
	92					
	93					
	94					
	95					
8	96					
	97					
	98					
	99					
	100					
	101					
	102					
	103					
	104					
	105					
	106					
	107					
9	108					
	109					
	110					
	111					
	112					
	113					
	114					
	115					
	116					
	117					
	118					
	119					
10	120					

< 10%

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	1		Olive brown silt with fine sand, some bark (less than 5%) wood is dark brown + highly degraded. Some wood is black. No sign of shell fragments	
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
1	12			
	13	RL-08-B	Olive brown silt with clay + small shell fragments	
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
2	23			
	24			
	25		Olive brown silt with clayey silt with fine sand. Shell fragments. No wood present	
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
3	35			
	36			
	37	RL-08-C	Some fragmented shell Olive brown clayey silt No wood present	
	38			
	39			
	40			
	41			
	42			
	43			
	44			
	45			
	46			
4	47			
	48			
	49		Fine sand throughout less than 10%	
	50			
	51			
	52			
	53			
	54			
	55			
	56			
	57			
	58			
	59			
5	60			

RL-08 B

Teredos infestation



Sediment Core Log

Station ID: 0001

Project: Port Arthur Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: OUTFALL  
 GPS Time:  
 Location (UTM Zone 10, NAD 83 meters): X  
 Y

Date: 7/24/08  
 Time:  
 Boat: RSS APOLYN DOW  
 Core Collection Method: VIBRA CORE  
 Sample Team: LONGTINE

ATTEMPT ①

Coring Start Time: 1855	② 1905	③ 1915
Water Depth: 4.9 Ft.	6.0	8.1
Core Bottom Depth: 1.0 Ft.	1.0	0.6
Coring Finish Time: 1856	1906	1916
Overall Recovery (%):		
RECOVERED 1" WASHED GRAVEL TO 3/4" SUBANNUATE. NO SAND OR FINES.	RECOVERED HANDFUL OF GRAVEL AND COBBLES TO 3"	RECOVERED HANDFUL OF GRAVEL TO 3/4"

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size	___		___
	16 oz glass jar ___ Dioxins/Furans	___		___
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia	___		___
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg	___		___
	4 oz glass jar ___ Sulfide / Other: ___	___		___
	core Radioisotope Dating	___		___
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size	___		___
	16 oz glass jar ___ Dioxins/Furans	___		___
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia	___		___
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg	___		___
	4 oz glass jar ___ Sulfide / Other: ___	___		___
	core Radioisotope Dating	___		___
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size	___		___
	16 oz glass jar ___ Dioxins/Furans	___		___
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia	___		___
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg	___		___
	4 oz glass jar ___ Sulfide / Other: ___	___		___
	core Radioisotope Dating	___		___
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size	___		___
	16 oz glass jar ___ Dioxins/Furans	___		___
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia	___		___
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg	___		___
	4 oz glass jar ___ Sulfide / Other: ___	___		___
	core Radioisotope Dating	___		___

NO SAMPLES MADE DUE TO PENETRATION AND RECOVERY

NOTES:

	X	Y
ATTEMPT ①	469494.9	5329439.9
②	469495.2	5329440.1
③	469492.8	5329440.1

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/22/08 ✓

Sample ID: COOLA ✓

Time: 1315 ✓

Area of Concern: Outfall

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Pat, Ten

Bottom depth (ft): N/A (intertidal) Penetration depth (cm): 10cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<del>Cobble</del>	Drab olive	None	No apparent biota Few shell frags ✓
<del>Gravel</del>	<u>Brown</u>	Slight	
<del>Sand VCC M F VF</del>	Brown surface	Moderate ✓	
Silt ✓	Gray ✓	Strong ✓	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		<u>Other:</u> Sweet?	

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓				Axys	(X) ✓		
Grain size/TOC		1 ✓			ARI	(X) ✓		
SVOCs	1 (2 if arch)	2			ARI	(X) ✓		
Resin / Guai					ARI	(X) ✓		
Organotin		16 oz glass ✓			ARI	(X) ✓		
Ammonia					ARI	(X) ✓		
Sulfide		2 oz	1 Glass ✓		ARI	(X) ✓		
Pesticide	1 (2 if arch)	2			TA	(X) ✓		
PCB					TA	(X) ✓		
TPH			2 16 oz glass ✓			TA	(X) ✓	
Metal						TA	(X) ✓	
Hg					TA	(X) ✓		
Bioassay				1 ✓	NF	(X) ✓		

Sampler Signatures  
[Signature] 6/22/08 RDW  
Sample Custodian Signature

DB QA 6/22/08 RDW

# Sediment Core Log

Station ID: 1002

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/17/08

Location Data: Harbor-wide / Rayonier

Time: 1305

Area of Concern: OUTFALL

Boat: RSS OROLYN DCW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRACORE

Location (UTM Zone 10, NAD 83 meters): X 469512.4  
Y 5327545.1

Sample Team: LONGTINE

Coring Start Time: 1305  
Water Depth: 15.2 Ft.  
Core Bottom Depth: \_\_\_\_\_ Ft.  
Coring Finish Time: 1306  
Overall Recovery (%): \_\_\_\_\_

*CORE BARREL LAYED OVER DURING ATTEMPT TO ADVANCE IT. UPON RETRIEVAL OF CORING DEVICE, NO SEDIMENT IN CORE BARREL OR CUTTING-SHOE. WILL MOVE OUTBOARD FOR 2nd ATTEMPT.*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____

*NO SAMPLE NO RECOVERY*

NOTES:

# Sediment Core Log

Station ID: 2002

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/17/08

Location Data: Harbor-wide / Rayonier

Time: 1325

Area of Concern: OUTFALL

Boat: RSS CAPELYN DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRA-CORE

Location (UTM Zone 10, NAD 83 meters): X 469513.4  
Y 6329548.9

Sample Team: LONGTINE

Coring Start Time: 1325  
Water Depth: 16.7 Ft.  
Core Bottom Depth: 1.8 Ft.  
Coring Finish Time: 1326  
Overall Recovery (%): \_\_\_\_\_

*13" OF MATERIAL RECOVERED. INSUFFICIENT RECOVERY. MATERIAL CONSISTED OF GRAVEL WITH SAND AND FINES AND STEEL FRAGMENTS IN SLEEVE. IN SHOE, WOOD WASTE (CHIPS, STRANDS) WITH MINOR SAND + FINES. SEE 3rd ATTACH.*

Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: _____	___	___
	core		Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: _____	___	___
	core		Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: _____	___	___
	core		Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: _____	___	___
	core		Radioisotope Dating	___	___

*NO SAMPLES RECOVERED INSUFFICIENT RECOVERY*

NOTES:

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/22/08 ✓✓

Sample ID: C002A ✓✓

Time: 1413 ✓✓

Area of Concern: Outfall

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Peter Jan

Bottom depth (ft): 14.6 Stv Penetration depth (cm): 17cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble ✓	Drab olive	<u>None</u> ✓	Kelp Lots of shell frags ✓
Gravel	Brown ✓	Slight ✓	
<u>Sand</u> VCC M FVF	Brown surface	Moderate	
<u>Silt</u> 60%	<u>Gray</u> light surface	Strong	
Clay	<u>Black</u> gray/black surface	Overwhelming	
Organic matter	Other: below surface	Sulfur	
Woody debris		Petroleum	
<u>Shell debris</u> Many!		Other:	

Analyses	Sample Containers				Lab	Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag				
Dioxin/Furan	1 Amber ✓	✓			Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)	✓			ARI	✓		
Resin / Guai		2 16oz glass ✓			ARI	✓		
Organotin		✓			ARI			
Ammonia		✓			ARI	✓		
Sulfide		2 or 1 glass ✓	1 glass ✓		ARI	✓	w/2.0 Ar	
Pesticide	1 (2 if arch)	✓			TA	✓		
PCB		✓			TA	✓		
TPH		2 16oz glass			TA	✓		
Metal		✓			TA	✓		
Hg		✓			TA	✓		
Bioassay				1 ✓	NF	✓		

Sampler Signatures

[Signature] 6/22/08 RDW

DBQA 6/22/08 RDW

Sample Custodian Signature

# Sediment Core Log

5111111111

Station ID: CO02

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469523.0  
 Y 5309554.6

Date: 7/17/08  
 Time: 1405  
 Boat: RSS OFFSHORE DCU  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 1405  
 Water Depth: 19.8 Ft.  
 Core Bottom Depth: 2.3 Ft.  
 Coring Finish Time: 1407  
 Overall Recovery (%): 64%

18" RECOVERED, MATERIAL OBSERVED IN SHOULDER AND THROUGH CORE LINER IS GRAVEL WITH SAND AND FINES.

Sample ID: <u>CO02B</u>		Depth Interval: <u>6 in. to 12 in.</u>	
Sediment Type (%): Cobble <input checked="" type="checkbox"/> / Gravel <input checked="" type="checkbox"/> / Sand (V C M F VF) <input checked="" type="checkbox"/> / Silt <input checked="" type="checkbox"/> / Clay _____ / Organic mtrl _____ / Woody debris <input checked="" type="checkbox"/> / Shell debris _____ / Other: _____			
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar <u>1</u>	TOC/Grain size	<u>X</u>
	16 oz glass jar <u>1</u>	Dioxins/Furans	<u>X</u>
	16 oz glass jar <u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>
	16 oz glass jar <u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble _____ / Gravel _____ / Sand (V C M F VF) _____ / Silt _____ / Clay _____ / Organic mtrl _____ / Woody debris _____ / Shell debris _____ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble _____ / Gravel _____ / Sand (V C M F VF) _____ / Silt _____ / Clay _____ / Organic mtrl _____ / Woody debris _____ / Shell debris _____ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble _____ / Gravel _____ / Sand (V C M F VF) _____ / Silt _____ / Clay _____ / Organic mtrl _____ / Woody debris _____ / Shell debris _____ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0" 6"	1	No sample (0"-6")	(0"-6") dark brown silty silt, small and large gravel, small and large cobble, kelp, shell fragments, trace wood material, natural detritus	Trace wood chips (3") (red)
	2			
	3			
	4			
	5			
	6			
6" 12"	7	(002B) (6"-12")	(6"-12") Dark brown silty sand, small and large gravel, small and large cobble, natural detritus, no odor	Trace wood chips (red)
	8			
	9			
	10			
	11			
1	12			
2	13		End of core @ 12"	
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
2	24			
3	25			
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
3	36			
4	37			
	38			
	39			
	40			
	41			
	42			
	43			
	44			
	45			
	46			
	47			
4	48			
5	49			
	50			
	51			
	52			
	53			
	54			
	55			
	56			
	57			
	58			
	59			
5	60			

# Sediment Core Log

11/12/08 #1

Station ID: C003

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469682.2  
 Y 5329525.9

Date: 7/20/08  
 Time: 1015  
 Boat: RSS CROFTON DOLW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 1015  
 Water Depth: 3.7 Ft.  
 Core Bottom Depth: 3.9 Ft.  
 Coring Finish Time: 1016  
 Overall Recovery (%): 78

UPON RETRIEVAL OF CORE TUBE / CUTTING SHOE, OBSERVED MIXED SAND AND GRAVEL IN POLYCARBONATE TUBE. WOOD DEBRIS IN CUTTING SHOE (CHIPS). WILL KEEP CORE STORED IN UPRIGHT TUBE FOR POSSIBLE LATER PROCESSING. PENDING RESULTS OF ADDITIONAL ATTEMPTS TO PENETRATE THROUGH WOOD DEBRIS INTERVAL

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	
Archive for Later Analysis				
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: _____	___
	core	___	Radioisotope Dating	___
<b>NO SAMPLES. SEE #3 ATTEMPT</b>				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	
Archive for Later Analysis				
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: _____	___
	core	___	Radioisotope Dating	___
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	
Archive for Later Analysis				
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: _____	___
	core	___	Radioisotope Dating	___

NOTES:



# Sediment Core Log

Station ID: CO03

Attempt #2

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469682.5  
 Y 5329527.0

Date: 7/20/08  
 Time: 1043  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 1043  
 Water Depth: 3.7 Ft.  
 Core Bottom Depth: 6.0 Ft.  
 Coring Finish Time: 1044  
 Overall Recovery (%): 62%

GOOD PENETRATION, BUT 265% RECOVERY SILTY SAND IN CUTTING SHOES. WILL ATTEMPT 3RD TIME. CORE REJECTED.

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	

NO SAMPLES #3 SEE ATTACHED

NOTES:

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/21/08

Sample ID: C003A

Time: 16:42

Area of Concern: Outfall

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Pete, Jen

Bottom depth (ft): 10.29 Penetration depth (cm): 16cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<del>Cobble</del> ✓	Drab olive	None	Lots of juvenile fish amphipods Macoma calcaenia
<del>Gravel</del>	<del>Brown</del>	Slight	
<del>Sand</del> V C C M F VF	Brown surface	Moderate ✓?	
Silt	<del>Gray</del> ✓	Strong <u>None?</u>	
Clay	Black ✓	Overwhelming	
Organic matter	<del>Other:</del>	Sulfur	
Woody debris	<u>rocks</u>	Petroleum	
Shell debris		Other:	
Other:		<del>rocks</del>	

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 <u>Amber</u> ✓				Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)				ARI	✓		
Resin / Guai					ARI	✓		
Organotin					ARI			
Ammonia					ARI	✓		
Sulfide		2oz	1 glass ✓		ARI	✓	w/ Zn Ac	
Pesticide	1 (2 if arch)				TA	✓		
PCB					TA	✓		
TPH					TA	✓		
Metal					TA	✓		
Hg					TA	✓		
Bioassay				1	NF			

Sampler Signatures \_\_\_\_\_

Sample Custodian Signature \_\_\_\_\_

# Sediment Core Log

Station ID: C003

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469681.9  
 Y 5329526.7

Date: 7/20/08  
 Time: 1110  
 Boat: RSS CAPOLYN DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 1110  
 Water Depth: 3.5 Ft.  
 Core Bottom Depth: 5.7 Ft.  
 Coring Finish Time: 1111  
 Overall Recovery (%): 78

*GOOD PENETRATION AND RECOVERY. SILTY SAND IN CUTTING SHAPE.*

Sample ID: <u>C003B</u>		Depth Interval: <u>24</u> in. to <u>31</u> in.	
Sediment Type (%): Cobble ___ / Gravel <input checked="" type="checkbox"/> / Sand (VC C M F VF) <input checked="" type="checkbox"/> / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris <input checked="" type="checkbox"/> / Shell debris ___ / Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar <input checked="" type="checkbox"/>	TOC/Grain size	<input checked="" type="checkbox"/>
	16 oz glass jar <input checked="" type="checkbox"/>	Dioxins/Furans	<input checked="" type="checkbox"/>
	16 oz glass jar <input checked="" type="checkbox"/>	SVOCs / resin / TBT / Ammonia	<input checked="" type="checkbox"/>
	16 oz glass jar <input checked="" type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
0" - 6"	1	No sample	(0"-6") - Dark brown		natural detritus
	2		coarse sand, small		
	3		am large gravel, small		
	4		med coarse, polychaete tube (alive)		
	5		juvenile crab (alive) slight		
	6		sulfur odor, kelp, organic detritus		natural detritus
	7	No sample	(6"-12") Dark grey/medium		Trace wood material
	8		sand, some coarse sand		
	9		some small and large gravel		wood chips (~1/2")
	10		trace wood material, slight H <sub>2</sub> S odor		
	11				
	12				
12" - 24"	13	No sample	(12"-24") Dark grey/medium		degraded wood chips
	14		sand, some small and large		brown in color,
	15		gravel, some wood material,		observed in small
	16		strong H <sub>2</sub> S odor		pockets: first pocket
	17				15 @ 21" second pocket
	18				15 @ 24" very strong
	19				H <sub>2</sub> S odor with degraded
	20				wood chips
	21				
	22				
	23				
	24				
24" - 36"	25	C003B	(24"-36") Dark grey/medium		thin layers of
	26		sand, slight amount		degraded wood
	27		of small + large gravel,		chips, very strong
	28		very strong H <sub>2</sub> S odor,		odor associated with
	29		pockets of wood		wood chips, more
	30		material (thin layers)		wood chips, then
	31				in previous (12"-24")
	32				interval - wood chips
	33				brown in color and
	34				degraded to em in size
	35				
	36				
36" - 48"	37	No sample	(36"-48") - Dark grey/medium		Trace wood chips
	38		sand, some small gravel,		wood chips observed
	39		slight H <sub>2</sub> S odor		mostly on the sides
	40		trace wood material		of core sleeve and
	41				one large wood chip (2-3")
	42				observed in middle of
	43				interval - No layers or
	44				pockets observed,
	45				slight H <sub>2</sub> S odor observed
	46				with wood material
	47				
	48				
48" - 60"	49				
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
	60				

IPS (pockets are more like thin layers)

H<sub>2</sub>S odor associated with wood chips, more wood chips, then in previous (12"-24") interval - wood chips brown in color and degraded to em in size

Trace wood chips - wood chips observed mostly on the sides of core sleeve and one large wood chip (2-3") observed in middle of interval - No layers or pockets observed, slight H<sub>2</sub>S odor observed with wood material

# Sediment Core Log

11110001 # 1

Station ID: C004

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/18/08 (7/12/08)

Location Data: Harbor-wide / Rayonier

Time: 1615 (1815)

Area of Concern: OUTFALL

Boat: RSS CAROLYN DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRACORE

Location (UTM Zone 10, NAD 83 meters): X 469770.7  
Y 5329518.5

Sample Team: LONGTMS

Coring Start Time: 1815  
Water Depth: 12.0 Ft.  
Core Bottom Depth: 1.7 Ft.  
Coring Finish Time: 1816  
Overall Recovery (%): \_\_\_\_\_

14" RECOVERED. INSUFFICIENT VOLUME FOR SAMPLE. DIFFICULT TO ADVANCE DUE TO GRAVELLY/COLLY CONDITION. MOVE AND ATTEMPT AGAIN.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NO SAMPLES CORE RECOVERED

NOTES:

# Sediment Core Log

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469773.1  
 Y 5329178

Station ID: C004  
 Date: 7/18/08  
 Time: 1835  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRA-CORE  
 Sample Team: LONGTINE

Coring Start Time: 1835  
 Water Depth: 12.2 Ft. 18/08  
 Core Bottom Depth: 40 Ft. 2.0  
 Coring Finish Time: 1836  
 Overall Recovery (%): \_\_\_\_\_  
*10" RECOVERY (ONLY ~3" ABOVE SANDWATCHER) -  
 REJECT. TRY AGAIN.*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____

*NO SAMPLES  
 CORE REJECTED*

NOTES:

Project: Port Angeles Harbor Sediment

Grab Sediment Sample Log

Characterization Study

Date: 6/20/08 ✓✓

Sample ID: C004A ✓✓

Time: 1403 ✓✓

Area of Concern: Outfall

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 6.856 ✓ Penetration depth (cm): 17cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<u>Cobble</u> ✓	Drab olive	None	algae growth (brown) on top of cobble
<u>Gravel</u>	Brown	<u>Slight</u> ✓	
<u>Sand</u> <u>QCC</u> <u>M</u> <u>F</u> <u>VF</u>	Brown surface	Moderate	chemical? Not TPH (Sweet smelling)
Silt	<u>Gray</u> ✓	Strong	
Clay	Black ✓	Overwhelming	
Organic matter	<u>Other:</u> <u>rocks</u>	<u>Sulfur</u>	
Woody debris		Petroleum	
Shell debris		<u>Other:</u>	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓				Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)				ARI	✓		
Resin / Guai					ARI	✓		
<del>Organotin</del>				16 oz glass ✓	ARI			
Ammonia					ARI	✓		
Sulfide			1 4 oz glass ✓		ARI	✓		w/ Zn Ac
Pesticide	1 (2 if arch)				TA	✓		
PCB					TA	✓		
TPH					16 oz glass ✓	TA	✓	
Metal						TA	✓	
Hg					TA	✓		
Bioassay				Plastic Bag ✓	NF	✓		

Sampler Signatures

[Signature] 6/21/08 RDW

[Signature] DB QA 6/21/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: 0004

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469775.5  
 Y 532957.8

Date: 7/18/08  
 Time: 1900  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 1900  
 Water Depth: 11.7 Ft.  
 Core Bottom Depth: 7.2 Ft.  
 Coring Finish Time: 1902  
 Overall Recovery (%): 62%

RECOVERED 42" OF MATERIAL. 62% RECOVERY.  
 WILL KEEP CORE FOR PROCESSING DESPITE  
 SLIGHTLY LESS THAN 65% RECOVERY.

Sample ID: <u>0004B</u>		Depth Interval: <u>12</u> in. to <u>24</u> in.	
Sediment Type (%): Cobble <input checked="" type="checkbox"/> / Gravel <input checked="" type="checkbox"/> / Sand (V C M F VF) <input checked="" type="checkbox"/> / Silt <input type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input checked="" type="checkbox"/> / Woody debris <input checked="" type="checkbox"/> / Shell debris <input type="checkbox"/> / Other: _____			
Sediment Color: Drab olive / <sup>(pink)</sup> Brown / Brown surface / Gray / Black / Other: <u>Staining</u>			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis		_____	
Samples Collected:	16 oz poly jar	TOC/Grain size	<input checked="" type="checkbox"/>
	16 oz glass jar	Dioxins/Furans	<input checked="" type="checkbox"/>
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	<input checked="" type="checkbox"/>
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>
	4 oz glass jar	Sulfide / Other: _____	_____
	core	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble <input type="checkbox"/> / Gravel <input type="checkbox"/> / Sand (V C M F VF) <input type="checkbox"/> / Silt <input type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input type="checkbox"/> / Woody debris <input type="checkbox"/> / Shell debris <input type="checkbox"/> / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis		_____	
Samples Collected:	16 oz poly jar	TOC/Grain size	_____
	16 oz glass jar	Dioxins/Furans	_____
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	Sulfide / Other: _____	_____
	core	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble <input type="checkbox"/> / Gravel <input type="checkbox"/> / Sand (V C M F VF) <input type="checkbox"/> / Silt <input type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input type="checkbox"/> / Woody debris <input type="checkbox"/> / Shell debris <input type="checkbox"/> / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis		_____	
Samples Collected:	16 oz poly jar	TOC/Grain size	_____
	16 oz glass jar	Dioxins/Furans	_____
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	Sulfide / Other: _____	_____
	core	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble <input type="checkbox"/> / Gravel <input type="checkbox"/> / Sand (V C M F VF) <input type="checkbox"/> / Silt <input type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input type="checkbox"/> / Woody debris <input type="checkbox"/> / Shell debris <input type="checkbox"/> / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis		_____	
Samples Collected:	16 oz poly jar	TOC/Grain size	_____
	16 oz glass jar	Dioxins/Furans	_____
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	Sulfide / Other: _____	_____
	core	Radioisotope Dating	_____

NOTES:



Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
0" - 6"	1	(0"-6")	(0"-6") Dark brown coarse	Trace Natural detritus	↓
	2	No sample	SAND, small and large gravel, small and large cobble, shell fragments, trace natural detritus, No odor		
	3				
	4				
	5				
	6				
6" - 12"	7	(6"-12")	(6"-12") Dark brown coarse	Trace natural detritus, trace wood chips (~1")	↓
	8	No sample	SAND, small and large gravel, small and large cobble, shell fragments, trace natural detritus, trace wood chips (~1")		
	9				
	10				
	11				
	12				
12" - 24"	13	(12"-24")	(12"-24") Dark brown coarse	Trace natural detritus, trace wood chips (~cm)	↓
	14	No sample	SAND, small and large gravel, small and large cobble, shell fragments, trace natural detritus, trace wood chips (~1")		
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
	24				
24" - 36"	25	(24"-36")	(24"-36") Dark brown coarse SAND, small and large gravel, small and large cobble, trace natural detritus, trace wood chips, no odor	Trace natural detritus + trace wood chips (~cm)	↓
	26	No sample			
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
36" - 48"	37				
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
	48				
48" - 60"	49				
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
	60				

# Sediment Core Log

Station ID: C005

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/15/08

Location Data: Harbor-wide / Rayonier

Time: 1710

Area of Concern: OUTFALL

Boat: RSS CAROLYN DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRACORE

Location (UTM Zone 10, NAD 83 meters): X

Sample Team: LONGTINE

Y

Coring Start Time: 1710  
Water Depth: 20.4 Ft.  
Core Bottom Depth: \_\_\_\_\_ Ft.  
Coring Finish Time: \_\_\_\_\_  
Overall Recovery (%): \_\_\_\_\_

UPON RETRIEVAL OF VIBRACORE UNIT, OBSERVED NO SEDIMENT IN SHOE. APPARENTLY CORE BARREL LAYED OVER UPON ATTEMPT TO ADVANCE IT. FOR THIS LOCATION ATTEMPTED TO LIVE BOAT RATHER THAN SET ANCHORS. STRONG CURRENT AND WIND MADE IT DIFFICULT TO STAY ON STATION. WILL ATTEMPT AGAIN WITH ANCHORS.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NO SAMPLES NO RECOVERY

NOTES:

# Sediment Core Log

11110000 NO. 2

Station ID: CO05

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: OUTFALL  
 GPS Time: 1735  
 Location (UTM Zone 10, NAD 83 meters): X 469825.2  
 Y 5329546.6

Date: 7/15/05  
 Time: 1735  
 Boat: RSS OLYMPIAN DOW  
 Core Collection Method: U/B RACON  
 Sample Team: LONGTINE

Coring Start Time: 1735  
 Water Depth: 19.6 Ft.  
 Core Bottom Depth: 8.0 Ft.  
 Coring Finish Time: 1736  
 Overall Recovery (%):     

RECOVERED EST. 2.5 FT OF MATERIAL. INSUFFICIENT RECOVERY. RECOVERED MATERIAL CONSISTED OF SILTY SAND WITH WOOD DEBRIS, INCLUDING CHIPS AND STRANDS, TO EST. 20%. WILL ATTEMPT 3rd CORE.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NO SAMPLES INSUFFICIENT RECOVERY

NOTES:

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/20/08 ✓

**Sample ID:** C005A ✓

**Time:** 1319 ✓

**Area of Concern:** Outfalls

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

Bottom depth (ft): <u>15.6 ft</u>		Penetration depth (cm): <u>+35 22 cm</u>						
<b>Sediment type:</b> <input checked="" type="radio"/> Cobble <input type="radio"/> Gravel <input checked="" type="radio"/> Sand VCCMFVF <input checked="" type="radio"/> Silt <input type="radio"/> Clay <input type="radio"/> Organic matter <input type="radio"/> Woody debris <input checked="" type="radio"/> Shell debris SW <input type="radio"/> Other:	<b>Sediment color:</b> Drab olive Brown Brown surface <input checked="" type="radio"/> Gray Black Other:	<b>Sediment Odor:</b> <input checked="" type="radio"/> None <input type="radio"/> Slight <input type="radio"/> Moderate <input type="radio"/> Strong <input type="radio"/> Overwhelming <input type="radio"/> Sulfur <input type="radio"/> Petroleum <input type="radio"/> Other:	<b>Comments:</b> Lots of kelp PUGETTIA Callianacid Terebelids Lumbreridae					
<b>Analyses</b>	<b>Sample Containers</b>							
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1 Amber ✓	✓			Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)				ARI	✓		
Resin / Guai					ARI	✓		
Organotin		16 oz Glass ✓				ARI		
Ammonia					ARI	✓		
Sulfide			1 4 oz Glass ✓		ARI	✓	w/ Zinc	
Pesticide	1 (2 if arch)				TA	✓		
PCB					TA	✓		
TPH		16 oz glass ✓				TA	✓	
Metal						TA	✓	
Hg					TA	✓		
Bioassay				1	NF	✓		

**Sampler Signatures**

[Signature] 6/21/08 RDW

DB QA 6/21/08 RDW

**Sample Custodian Signature**

# Sediment Core Log

Station ID: 6005

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/15/08

Location Data: Harbor-wide / Rayonier

Time: 1810

Area of Concern: OUTFALL

Boat: KSS CAPOLIN DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRACORE

Location (UTM Zone 10, NAD 83 meters): X 469827.2  
Y 5329548.3

Sample Team: LONGTINE

Coring Start Time: 1810  
Water Depth: 21.3 Ft.  
Core Bottom Depth: 5.0 Ft.  
Coring Finish Time: 1811  
Overall Recovery (%): 73%

44" RECOVERY

Sample ID: <u>6005B</u>		Depth Interval: <u>24 in. to 36 in.</u>	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt <u>X</u> / Clay <u>X</u> / Organic mtrl <u>X</u> / Woody debris <u>X</u> / Shell debris ___ / Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / <u>Gray</u> / Black / Other: _____			
Sediment Odor: None / Slight / Moderate ( <u>Strong</u> ) / Overwhelming / Sulfur ( <u>Petroleum</u> ) / Other: _____			
Biota: <u>None</u>		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar	TOC/Grain size	<u>X</u>
	16 oz glass jar	Dioxins/Furans	<u>X</u>
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	<u>X</u>
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	<u>X</u>
	4 oz glass jar	Sulfide / Other: _____	_____
	core	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar	TOC/Grain size	_____
	16 oz glass jar	Dioxins/Furans	_____
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	Sulfide / Other: _____	_____
	core	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar	TOC/Grain size	_____
	16 oz glass jar	Dioxins/Furans	_____
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	Sulfide / Other: _____	_____
	core	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar	TOC/Grain size	_____
	16 oz glass jar	Dioxins/Furans	_____
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	Sulfide / Other: _____	_____
	core	Radioisotope Dating	_____

75  
440  
420  
200

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
1 ↓ 6"	1	No SAMPLE	Coarse sand and silt, organic detritus, kelp, some debris, approx 50% wood waste including wood chips and twigs, moderate sulfate odor trace shell fragments	Approximate 50% wood including wood chips and twigs
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
12 ↓ 12"	12	No SAMPLE	Approximately 75% wood material with silt and a moderate sulfate odor (Dark brown)	Approx 75% wood material including wood chips of various sizes and twigs/wood fibers
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
2 ↓ 24"	23	CO05B	Silt and clay with high organic content with a transition of grain size color and mineral material @ 27" mostly silt and visible wood material from 24" to 27" From 29" (Dark brown) @ 27" there is a change to black with a finer grain size (clay) including a change of mineral content, possible pulp material from 27" to 36"	Wood chips and twigs from 24" to 27" Possible pulp material from 27" to 36"
	24			
	25			
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
3 ↓ 36"	34		* Strong petroleum and burnt rubber odor from 27" to 36"	
	35			
	36			
	37			
	38			
	39			
	40			
	41			
	42			
	43			
	44			
4	45			
	46			
	47			
	48			
	49			
	50			
	51			
	52			
	53			
	54			
	55			
5	56			
	57			
	58			
	59			
	60			

# Sediment Core Log

Station ID: 0001

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: DEEP WATER OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y 500 BELOW

Date: 7/21/08  
 Time: 1103  
 Boat: RSS CAPOLINA DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LEONORNE

ATTEMPT ①  
 Coring Start Time: 1103      ② 1125      ③ 1155      SEE LOGBOOK FOR MORE INFO  
 Water Depth: 32 Ft.      32      32  
 Core Bottom Depth: 0 Ft.      0      3.1  
 Coring Finish Time: 1104      1126      1156  
 Overall Recovery (%): 0      0      1.9 ft = 6.1%  
 RETRACT CORE.

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			

SAMPLES AGAIN  
 NEW STAY WITH  
 PACKAGE

NOTES:

X  
 ATTEMPT ① 470626.6      Y 5329734.7  
 ② 470626.9      5329734.4  
 ③ 470628.5      5329733.6

# Sediment Core Log

11/2008 No. 1 WITH FOOT PACKAGE

Station ID: 0001

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide (Rayonier)  
 Area of Concern: DEEP WATER OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 470627.1  
 Y 5329733.3

Date: 7/22/08  
 Time: 0955  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBROCORE w/ FOOT PACKAGE  
 Sample Team: LONGTINE

Coring Start Time: 0955 17" RECOVERY. MATERIAL CONSISTS OF SAND, GRAVEL, COBBLES TO 2 1/2" AND SHELL DEBRIS AND INTACT SHELLS TO 3" (CLAM).  
 Water Depth: 33.5 Ft. INADEQUATE RECOVERY. ATTEMPT AGAIN.  
 Core Bottom Depth: 3.7 Ft.  
 Coring Finish Time: 0956  
 Overall Recovery (%): \_\_\_\_\_

Sample ID:	Depth Interval:		in.	to	in.				
Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:				Immediate Analysis			Archive for Later Analysis		
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	Dioxins/Furans	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____	_____	_____	_____	_____
	4 oz glass jar	_____	Sulfide / Other:	_____	_____	_____	_____	_____	_____
	core	_____	Radioisotope Dating	_____	_____	_____	_____	_____	_____
Sample ID:	Depth Interval:		in.	to	in.				
Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:				Immediate Analysis			Archive for Later Analysis		
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	Dioxins/Furans	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____	_____	_____	_____	_____
	4 oz glass jar	_____	Sulfide / Other:	_____	_____	_____	_____	_____	_____
	core	_____	Radioisotope Dating	_____	_____	_____	_____	_____	_____
Sample ID:	Depth Interval:		in.	to	in.				
Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:				Immediate Analysis			Archive for Later Analysis		
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	Dioxins/Furans	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____	_____	_____	_____	_____
	4 oz glass jar	_____	Sulfide / Other:	_____	_____	_____	_____	_____	_____
	core	_____	Radioisotope Dating	_____	_____	_____	_____	_____	_____
Sample ID:	Depth Interval:		in.	to	in.				
Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:				Immediate Analysis			Archive for Later Analysis		
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	Dioxins/Furans	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____	_____	_____	_____	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____	_____	_____	_____	_____
	4 oz glass jar	_____	Sulfide / Other:	_____	_____	_____	_____	_____	_____
	core	_____	Radioisotope Dating	_____	_____	_____	_____	_____	_____

NO SAMPLES RECOVERED

NOTES:



# Sediment Core Log

WITH FLAT PACKAGE

Station ID: DC001

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: DEEP OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 470625.7  
 Y 5329743

Date: 7/22/08  
 Time: 1030  
 Boat: RSS CAROLYN DOU  
 Core Collection Method: VIBRACORE w/ FLAT PACK  
 Sample Team: LONGTINE

Coring Start Time: 1030  
 Water Depth: 33.5 Ft.  
 Core Bottom Depth: 2.5 Ft.  
 Coring Finish Time: 1031  
 Overall Recovery (%): 41%

12" RECOVERY. REFUSAL DUE TO DENSE LIGHT BROWN SILT SEEN IN CUTTING STAGE. ALSO RECOVERED SAND AND GRAVEL TO 1" SUBROUNDED. WILL ATTEMPT 3<sup>RD</sup> TIME.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NO SAMPLE RECOVERED.

NOTES:

# Sediment Core Log

STATION IT IS UNDONED

WITH FLAT PACKAGE

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: DEEP CUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 460621.9  
 Y 5329773.7

Station ID: D001  
 Date: 7/22/08  
 Time: 1115  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRA CORE  
 Sample Team: LONGTINE

Coring Start Time: 1115  
 Water Depth: 32.5 Ft.  
 Core Bottom Depth: 3.2 Ft.  
 Coring Finish Time: 1116  
 Overall Recovery (%): \_\_\_\_\_

14" SAND, GRAVEL, COBBLES TO 2" SUBROUNDED RECOVERED.  
 RETRACT.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble___/Gravel___/Sand (VC C M F VF)___/Silt___/Clay___/Organic mtrl___/Woody debris___/Shell debris___/Other:___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble___/Gravel___/Sand (VC C M F VF)___/Silt___/Clay___/Organic mtrl___/Woody debris___/Shell debris___/Other:___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble___/Gravel___/Sand (VC C M F VF)___/Silt___/Clay___/Organic mtrl___/Woody debris___/Shell debris___/Other:___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble___/Gravel___/Sand (VC C M F VF)___/Silt___/Clay___/Organic mtrl___/Woody debris___/Shell debris___/Other:___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____

NO SAMPLES  
CORE RECOVERED

NOTES:

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/19/08 ✓

**Sample ID:** D001A ✓

**Time:** 1528 ✓

**Area of Concern:** Deepoutfall

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

Bottom depth (ft): _____		Penetration depth (cm): 22cm						
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>			<b>Comments:</b>			
Cobble	Grab olive	None			1cm silt, then sand Spirochaetopsis Lumbricid Maldanidae Amphipoda			
Gravel	Brown	Slight						
90% Sand VCC(M) F VF	Brown surface	Moderate						
Silt	Gray	Strong						
Clay	Black	Overwhelming						
Organic matter	Other:	Sulfur						
Woody debris		Petroleum						
Shell debris		Other:						
Other:								
<b>Analyses</b>		<b>Sample Containers</b>						
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1 Amber ✓	✓			Axys	(X) ✓		
Grain size/TOC		1 ✓			ARI	(X) ✓		
SVOCs	1 (2 if arch)				ARI	(X) ✓		
Resin / Guai		16oz glass w/ SVOCs			ARI	(X) ✓		
Organotin					ARI			
Ammonia		16oz glass w/ SVOCs Resin			ARI	(X) ✓		
Sulfide			1 2oz glass		ARI	(X) ✓	w/ ZnAc	
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal		16oz Glass ✓			TA	(X) ✓		
Hg					TA	(X) ✓		
Bioassay				1	NF			

**Sampler Signatures**

[Signature] 6/21/08 RDW

DB QA 6/21/08 RDW

**Sample Custodian Signature**

# Sediment Core Log

Station ID: DOOD

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/24/08

Location Data: Harbor-wide (Rayonier)

Time: 1150

Area of Concern: DEEP OUTFALL

Boat: ICS ARROYO DOG

GPS Time: \_\_\_\_\_

Core Collection Method: VIBROCORE w/ FROTH PKG

Location (UTM Zone 10, NAD 83 meters): X 471133.0  
Y 533066.5

Sample Team: LONGTINE

Coring Start Time: 1150  
Water Depth: 49.3 Ft.  
Core Bottom Depth: 4.67 Ft. 0.9  
Coring Finish Time: 1151  
Overall Recovery (%): \_\_\_\_\_

*11" MATERIAL RECOVERED. SILT AND CLAY WITH MINOR SAND. GRAVEL IN SITE TO 142", SUBGRD. DARK GRAYISH BRN. SOME SIFELS. INSUFFICIENT CORE MATERIAL FOR SAMPLE. TRY AGAIN.*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

*NO SAMPLES AT 142"*

NOTES:

# Sediment Core Log

Station ID: D002

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: DEEP OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 471133.1  
 Y 5330005.8

Date: 7/24/08  
 Time: 1220  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRA CORER w/ FLOOR PKG  
 Sample Team: LONGTINE

Coring Start Time: 1220  
 Water Depth: 48.2 Ft.  
 Core Bottom Depth: 2.6 Ft.  
 Coring Finish Time: 1221  
 Overall Recovery (%): \_\_\_\_\_

*SAMPLE FLUSHED OUT OF CORE SITE UPON RETRIEVAL FROM WATER BECAUSE A ROCK WAS CAUGHT IN CORE CATCHER FINGERS. RESIDUAL SEDIMENT IN CORE SLEEVE WAS SIFT AND SAND AND GRAVEL TO 3/4". NO SAMPLE.*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NOTES:

# Sediment Core Log

ABANDON LOCATION

Station ID: D002

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/24/08

Location Data: Harbor-wide K Rayonier

Time: 12:50

Area of Concern: DEEP WATER

Boat: BSS APOLYN DEW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBROCORE w/ FOOT PILE

Location (UTM Zone 10, NAD 83 meters): X 471133.9  
Y 5330007.4

Sample Team: LONGTINE

Coring Start Time: 1250  
Water Depth: 48.0 Ft.  
Core Bottom Depth: \_\_\_\_\_ Ft.  
Coring Finish Time: 1251  
Overall Recovery (%): \_\_\_\_\_

10" MATERIAL RECOVERED (MEASURED FROM BOTTOM OF CUTTING SLICE AS WITH ALL PREVIOUS LOGS). INADEQUATE MATERIAL FOR SAMPLE. CONSISTED OF SAND, GRAVEL TO 1/2" SUBROUND, AND FINES, DARK GRAYISH BROWN.

PENETRATION DIFFICULT TO GAUGE. EST. 3 FT, BUT STRONG CUR

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____				
Samples Collected:				
16 oz poly jar	_____	TOC/Grain size	_____	_____
16 oz glass jar	_____	Dioxins/Furans	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
core	_____	Radioisotope Dating	_____	_____
<b>NO SAMPLES RECOVERED.</b>				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____				
Samples Collected:				
16 oz poly jar	_____	TOC/Grain size	_____	_____
16 oz glass jar	_____	Dioxins/Furans	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
core	_____	Radioisotope Dating	_____	_____
<b>NO SAMPLES RECOVERED.</b>				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____				
Samples Collected:				
16 oz poly jar	_____	TOC/Grain size	_____	_____
16 oz glass jar	_____	Dioxins/Furans	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
core	_____	Radioisotope Dating	_____	_____

NOT MEASURED TO THE MEASUREMENT.

NOTES:

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/19/08 ✓

**Sample ID:** D002A ✓

**Time:** 1454 ✓

**Area of Concern:** Deep Offfall

**Location Data** Harbor-Wide (Rayonier) GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

Bottom depth (ft): <u>50.4</u>		Penetration depth (cm): <u>13cm</u>						
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>					
<input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand VCC M (F) V <input checked="" type="checkbox"/> Silt <input type="checkbox"/> Clay <input checked="" type="checkbox"/> Organic matter <input type="checkbox"/> Woody debris <input checked="" type="checkbox"/> Shell debris <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> Drab olive <input type="checkbox"/> Brown <input checked="" type="checkbox"/> Brown surface <input type="checkbox"/> Gray <input type="checkbox"/> Black <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Strong <input type="checkbox"/> Overwhelming <input type="checkbox"/> Sulfur <input type="checkbox"/> Petroleum <input type="checkbox"/> Other:	Scallops Spirochaetopsis tubes Lots of shells (large) Lots of large rocks Ballast rock Shrimp Fish parts					
<b>Analyses</b>	<b>Sample Containers</b>							
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1				Axys	✓	✓	
Grain size/TOC		1 ✓			ARI	✓	✓	
SVOCs	1 (2 if arch)				ARI	✓	✓	
Resin / Guai					ARI	✓	✓	
Organotin					ARI	✓	✓	
Ammonia					ARI	✓	✓	
Sulfide			1	2oz glass	ARI	✓	✓	w/7a ✓
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA	+		
Metal					TA	✓	✓	
Hg					TA	✓	✓	
Bioassay				1	NF			

**Sampler Signatures**

[Signature] 6/21/08 EDW

DB QA 6/21/08

**Sample Custodian Signature**

# Sediment Core Log

Station ID: D003

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide 1/2 Rayonier  
 Area of Concern: DEEP OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y \_\_\_\_\_

Date: 7/22/08  
 Time: 1155  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRACORE  
 Sample Team: LONGTINE

Coring Start Time: 1155  
 Water Depth: 54.5 Ft.  
 Core Bottom Depth: 4.5 Ft.  
 Coring Finish Time: 1156  
 Overall Recovery (%): 20" Recovered

*20" MATERIAL RECOVERED (BOTTOM OF STRIKE TO TOP OF SEDIMENT IN CORE LINER. INADEQUATE % RECOVERY AND VOLUME OF MATERIAL FOR SAMPLE. REJECT. REFUSAL IN GRAVEL. RECOVERED MATERIAL IS SAND, GRAVEL TO 2", SUBSAND.*

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	

*NO SAMPLE RECOVERED*

NOTES:



# Sediment Core Log

Station ID: D003

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: DEEP OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y \_\_\_\_\_

Date: 7/22/08  
 Time: 1225  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRACORE  
 Sample Team: LONGTINE

Coring Start Time: 1225  
 Water Depth: 54.3 Ft.  
 Core Bottom Depth: 5.9 (APPARENTLY) Ft.  
 Coring Finish Time: 1226  
 Overall Recovery (%): \_\_\_\_\_

*14" MATERIAL RECOVERED, APPARENT 5.9 FT PENETRATION  
 INADEQUATE RECOVERY, REJECT. MATERIAL IN  
 CORE TUBE IS SAND AND GRAVEL AND CLAM SHELL  
 DEBRIS. GRAVEL TO 1/3".*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____

*NO SAMPLES  
 REJECT*

NOTES:

# ABANDON STATION

## Sediment Core Log

Station ID: D003

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: DEEP OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y \_\_\_\_\_

Date: 7/22/08  
 Time: 1305  
 Boat: RSS Arlyn Dow  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 1305  
 Water Depth: 55.2 Ft.  
 Core Bottom Depth: 1.3 Ft.  
 Coring Finish Time: 1306  
 Overall Recovery (%): \_\_\_\_\_

*1.3 FT PENETRATION. UPON RETRIEVAL, RECOVERED MATERIAL FLUSHED OUT OF SHOE AS RAISED ONTO DECK, LIKELY DUE TO MINIMAL AMOUNT OF MATERIAL ABOVE CORE BITTER. NO SAMPLE. ABANDON STATION.*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C C M F V F) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C C M F V F) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C C M F V F) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C C M F V F) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NO SAMPLES ABANDONED

NOTES:

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/19/08 ✓✓

Sample ID: D003A ✓✓

Time: 1206 ✓

Area of Concern: Deepa Fall

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Caralya Dine - Pete, Jan

Bottom depth (ft): 56.8 ✓ Penetration depth (cm): 17cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble ✓	<u>Drab olive</u>	None	<u>12cm RPD</u> <del>Panoid Pandalus</del> <u>Epiochaetopterus</u> <u>Phylochaetopterus</u> <u>Pugetia? crab</u>
Gravel	<u>Brown</u>	Slight	
Sand <u>VCCMFVF</u>	<u>Brown surface</u>	Moderate <sup>1</sup>	
Silt	<u>Grayish below RPD</u>	Strong	
Clay <u>very little</u>	Black	Overwhelming	
Organic matter	Other: ✓	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Pista  
Maldaniche

90°

Analyses	Sample Containers							
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1 Amber ✓	✓			Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)	2 16oz glass w/ NHz ✓			ARI	✓		
Resin / Guai					ARI	✓		
Organotin					ARI			
Ammonia		16oz glass w/ SVOC ✓			ARI	✓		
Sulfide		✓ 2 32Glas			ARI	✓	w/2A etc	
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal		2 16oz Glass			TA	✓		
Hg					TA	✓		
Bioassay				1 ✓	NF	✓		

Sampler Signatures  
[Signature] 6/21/08  
 Sample Custodian Signature

DB QA 6/21/08

# Sediment Core Log

Station ID: D004

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: DEEP OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 471716.9  
 Y 5330521.7

Date: 7/21/08  
 Time: 1430  
 Boat: RSS OLYMPIAN DRW  
 Core Collection Method: VIBROCORE / FLUID  
 Sample Team: LONGTINE

Coring Start Time: 1430  
 Water Depth: 59.5 Ft.  
 Core Bottom Depth: 5.8 Ft.  
 Coring Finish Time: 1431  
 Overall Recovery (%): 62

*43" RECOVERED. INADEQUATE % RECOVERY. WILL STORE CORE FOR POSSIBLE LATER USE PENDING RESULTS OF ADDITIONAL ATTEMPT(S).  
 - DECIDED TO USE 2<sup>ND</sup> ATTEMPT FOR PROCESSING. ATTEMPT 1 CORE DISCARDED. NOTED SIXTY FINE-MED SAND IN TUBE EXCEPT BOTTOM SEVERAL INCHES, WHICH CONT*

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____				
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____
	16 oz glass jar	_____	Dioxins/Furans	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	_____	Sulfide / Other: _____	_____
	core	_____	Radioisotope Dating	_____
<b>NO SAMPLES WERE RECOVERED</b>				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____				
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____
	16 oz glass jar	_____	Dioxins/Furans	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	_____	Sulfide / Other: _____	_____
	core	_____	Radioisotope Dating	_____
<b>NO SAMPLES WERE RECOVERED</b>				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____				
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____
	16 oz glass jar	_____	Dioxins/Furans	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	_____	Sulfide / Other: _____	_____
	core	_____	Radioisotope Dating	_____

FIND GRAVEL TO 2 1/2"

NOTES:

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/19/08 ✓✓

Sample ID: D004A ✓✓

Time: 1246 ✓✓

Area of Concern: Deep Outfall

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 58.8 ft ✓ Penetration depth (cm): 19 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u> ✓	<i>Prionospio sp</i> <i>Maldanidae</i> Spionidae tubes Phytochae <sup>r</sup> Phylochaetopsis tubes 2cm RPD Commensal crabs Bryozoans, coral red algae
Gravel	<u>Brown</u>	Slight ✓	
<u>Sand</u> V C C M (F) V F	<u>Brown surface</u>	Moderate	
<u>Silt</u>	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	<del>16oz</del> Amber Glass		Glass	Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)	2	16oz Glass w/ N <sub>2</sub>		ARI	✓		
Resin / Guai		3			ARI	✓		
Organotin					ARI			
Ammonia		16oz glass w/ SVOC, Redn			ARI	✓		
Sulfide		2oz glass w/ ZnAc			ARI	✓		
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal		2	16oz glass ✓		TA	✓		
Hg		3			TA	✓		
Bioassay				1 ✓	NF	✓		

Sampler Signatures

[Signature] 6/21/08

DBQA 6/21/08 RDN

Sample Custodian Signature

# Sediment Core Log

Station ID: D004

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: DEEP OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 47777.5  
 Y 5330521.1

Date: 7/22/08  
 Time: 1500  
 Boat: RSS APOLYN DCW  
 Core Collection Method: VIBROPLATE / FLOAT  
 Sample Team: LONGTINE

Coring Start Time: 1500  
 Water Depth: 60.1 Ft.  
 Core Bottom Depth: 4.8 Ft.  
 Coring Finish Time: 1501  
 Overall Recovery (%): 67%

3.25 FEET RECOVERED. ADEQUATE PERCENT, BUT  
 WILL TRY 3<sup>RD</sup> TIME TO RECOVER FULL LENGTH.  
 SEE ATTEMPT No. 3. STORE CORE FOR POSSIBLE USE.  
 - AFTER 3<sup>RD</sup> ATTEMPT, DECIDED TO USE THIS  
 CORE FOR PROCESSING.

Sample ID: <u>D004B</u>		Depth Interval: <u>6</u> in. to <u>12</u> in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt <input checked="" type="checkbox"/> / Clay <input checked="" type="checkbox"/> / Organic mtrl ___ / Woody debris ___ / Shell debris <input checked="" type="checkbox"/> / Other: ___			
Sediment Color: Drab olive / <u>Brown</u> / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: <u>Snails (dead)</u>		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar <u>1</u>	TOC/Grain size	<input checked="" type="checkbox"/>
	16 oz glass jar <u>1</u>	Dioxins/Furans	<input checked="" type="checkbox"/>
	16 oz glass jar <u>1</u>	SVOCs / resin / <del>TBT</del> / Ammonia	<input checked="" type="checkbox"/>
	16 oz glass jar <u>1</u>	<del>Pest</del> / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: <u>D004C</u>		Depth Interval: <u>12</u> in. to <u>24</u> in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt <input checked="" type="checkbox"/> / Clay <input checked="" type="checkbox"/> / Organic mtrl ___ / Woody debris ___ / Shell debris <input checked="" type="checkbox"/> / Other: ___			
Sediment Color: Drab olive / <u>Brown</u> / Brown surface / Gray / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar <u>1</u>	TOC/Grain size	<input checked="" type="checkbox"/>
	16 oz glass jar <u>1</u>	Dioxins/Furans	<input checked="" type="checkbox"/>
	16 oz glass jar <u>1</u>	SVOCs / resin / <del>TBT</del> / Ammonia	<input checked="" type="checkbox"/>
	16 oz glass jar <u>1</u>	<del>Pest</del> / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: <u>D004D</u>		Depth Interval: <u>24</u> in. to <u>32</u> in.	
Sediment Type (%): Cobble <input checked="" type="checkbox"/> / Gravel <input checked="" type="checkbox"/> / Sand (VC C M F VF) ___ / Silt <input checked="" type="checkbox"/> / Clay <input checked="" type="checkbox"/> / Organic mtrl ___ / Woody debris ___ / Shell debris <input checked="" type="checkbox"/> / Other: ___			
Sediment Color: Drab olive / <u>Brown</u> / Brown surface / Gray / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar <u>1</u>	TOC/Grain size	<input checked="" type="checkbox"/>
	16 oz glass jar <u>1</u>	Dioxins/Furans	<input checked="" type="checkbox"/>
	16 oz glass jar <u>1</u>	SVOCs / resin / <del>TBT</del> / Ammonia	<input checked="" type="checkbox"/>
	16 oz glass jar <u>1</u>	<del>Pest</del> / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____

NOTES:

★ AS this core yielded less than the target number of intervals, it was decided to obtain dioxin/furan samples at intervals D004B + D004D.

# Sediment Core Log

ATTEMPT NO. 5

Station ID: D004

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide (Rayonier)  
 Area of Concern: DEEP OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 471715.4  
 Y 5330522.3

Date: 7/22  
 Time: 1535  
 Boat: RSS CAROLYN DW  
 Core Collection Method: VIBROCORE / PLAT  
 Sample Team: LONGTIRE

Coring Start Time: 1535 - 3.46' RECOVERED. LESS THAN 65% WILL RETECT  
 Water Depth: 61.0 Ft. THIS CORE AND USE ATTEMPT No. 2 CORE FOR  
 Core Bottom Depth: 5.6 Ft. PROCESSING.  
 Coring Finish Time: 1536  
 Overall Recovery (%): 62% - UPON DISCARDING CORE MATERIAL, NOTED SILTY SAND  
OVER GRAVEL + SAND. GRAVEL TO 1"

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NO SAMPLES TO BE RETECTED

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
0"	1	No sample	(0"-6") Dark brown silt with clay, trace shell fragments, no gravel, no odor, no wood material	No	wood material
	2				
	3				
	4				
	5				
	6				
6"	7	D004B	(6"-12") Dark brown silt, some with clay, trace shell fragments, no gravel, no odor, no wood material		
	8				
	9				
	10				
	11				
	12				
12"	13	D004C	(12"-24") - same as above		
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
	24				
24"	25	D004D	(24"-32") Dark brown silt with clay, trace shell fragments, trace gravel, 1 piece large gravel (small cobble ~ 2.5"), no odor, no wood material		
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
32"	37		Note: used interval (24"-32") to obtain the D interval because it appeared there is enough sediment to fill sample		
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
	48				
48"	49				
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
	60				



Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6/19/08 ✓✓

Sample ID: D005A ✓✓

Time: 1321 ✓✓

Area of Concern: Deep Outfall

Location Data Harbor-Wide Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 55.7 ✓ Penetration depth (cm): 16cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble ✓	Drab olive ✓	None ✓	juvenile fish Shrimp Nephtys Maldeniidae Spirochaetopsis Amphipoda Solen sp. Megaloma? splendida
Gravel ✓	Brown <sup>light</sup> ✓	Slight	
Sand VCC M F VF	Brown surface ✓	Moderate	
Silt	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

(10%)  
little

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓	✓			Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)	2 16oz glass w/ N <sub>2</sub>			ARI	✓		
Resin / Guai		✓			ARI	✓		
Organotin					ARI			
Ammonia		1 16oz glass w/ 5 SVOC RES.			ARI	✓		
Sulfide			1 2oz glass		ARI	✓	w/ Zn Ac	
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal		2 16oz glass ✓			TA	✓		
Hg		✓			TA	✓		
Bioassay				1 ✓	NF	✓		

Sampler Signatures

[Signature] 6/21/08 RDW

[Signature] DB QA 6/21/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: 0005  
 Date: 7/22/08  
 Time: 1657  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide (Rayonier)  
 Area of Concern: DEEP OUTFALL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 471931.3  
 Y 5330261.4

Coring Start Time: 1657  
 Water Depth: 59.8 Ft.  
 Core Bottom Depth: 3.3 Ft.  
 Coring Finish Time: 1658  
 Overall Recovery (%): 64%

2.1 FEET OF MATERIAL RECOVERED

Sample ID: <u>0005B</u>		Depth Interval: <u>6</u> in. to <u>12</u> in.	
Sediment Type (%): Cobble <input checked="" type="checkbox"/> / Gravel <input checked="" type="checkbox"/> / Sand (V C M F VF) _____ / Silt <input checked="" type="checkbox"/> / Clay <input checked="" type="checkbox"/> / Organic mtrl _____ / Woody debris <input checked="" type="checkbox"/> / Shell debris <input checked="" type="checkbox"/> / Other: _____			
Sediment Color: <u>Drab olive (Sand)</u> / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: <u>Polychaetes</u>			
Samples Collected:		Immediate Analysis	
16 oz poly jar	<u>1</u>	TOC/Grain size	<u>X</u>
16 oz glass jar	<u>1</u>	Dioxins/Furans	<u>X</u>
16 oz glass jar	<u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>
16 oz glass jar	<u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: <u>0005C</u>		Depth Interval: <u>12</u> in. to <u>16</u> in.	
Sediment Type (%): Cobble <input checked="" type="checkbox"/> / Gravel <input checked="" type="checkbox"/> / Sand (V C M F VF) _____ / Silt <input checked="" type="checkbox"/> / Clay <input checked="" type="checkbox"/> / Organic mtrl _____ / Woody debris _____ / Shell debris <input checked="" type="checkbox"/> / Other: _____			
Sediment Color: <u>Drab olive (Sand)</u> / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____			
Samples Collected:		Immediate Analysis	
16 oz poly jar	<u>1</u>	TOC/Grain size	<u>X</u>
16 oz glass jar	<u>1</u>	Dioxins/Furans	<u>X</u>
16 oz glass jar	<u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>
16 oz glass jar	<u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble _____ / Gravel _____ / Sand (V C M F VF) _____ / Silt _____ / Clay _____ / Organic mtrl _____ / Woody debris _____ / Shell debris _____ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____			
Samples Collected:		Immediate Analysis	
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble _____ / Gravel _____ / Sand (V C M F VF) _____ / Silt _____ / Clay _____ / Organic mtrl _____ / Woody debris _____ / Shell debris _____ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____			
Samples Collected:		Immediate Analysis	
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____

NOTES:

# Sediment Core Log

FOR SAMPLE

11/10/08

Station ID: 0005

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/24/08

Location Data: Harbor-wide / Rayonier

Time: 0950

Area of Concern: DEEP OUTFALL

Boat: RSS OLYMPIAN DEW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBROCORE w/ FOOT PKG

Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_

Sample Team: LONGTINE

Y \_\_\_\_\_

Coring Start Time: 0950

Water Depth: 57.5 Ft.

Core Bottom Depth: 3.7 Ft.

Coring Finish Time: 0951

Overall Recovery (%): 59%

26" OF MATERIAL RECOVERED. CONSISTS OF SILTY FINE-MED SAND WITH WHOLE CLAM SHELLS AND LIVE GEODUCK, GREYISH BROWN. GRAVEL AND SAND IN BOTTOM ~6". GRAVEL TO 1 1/2" SUBRD.

Sample ID: _____	Depth Interval: _____ in. to _____ in.																														
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____																															
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____																															
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____																															
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____																															
Samples Collected:	<table border="0"> <tr> <td>16 oz poly jar</td> <td>_____</td> <td>TOC/Grain size</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>16 oz glass jar</td> <td>_____</td> <td>Dioxins/Furans</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>16 oz glass jar</td> <td>_____</td> <td>SVOCs / resin / TBT / Ammonia</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>16 oz glass jar</td> <td>_____</td> <td>Pest / PCBs / TPH / Metals / Hg</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>4 oz glass jar</td> <td>_____</td> <td>Sulfide / Other: _____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>core</td> <td>_____</td> <td>Radioisotope Dating</td> <td>_____</td> <td>_____</td> </tr> </table>	16 oz poly jar	_____	TOC/Grain size	_____	_____	16 oz glass jar	_____	Dioxins/Furans	_____	_____	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____	4 oz glass jar	_____	Sulfide / Other: _____	_____	_____	core	_____	Radioisotope Dating	_____	_____
16 oz poly jar	_____	TOC/Grain size	_____	_____																											
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16 oz poly jar	_____	TOC/Grain size	_____	_____																											
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core	_____	Radioisotope Dating	_____	_____																											
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16 oz poly jar	_____	TOC/Grain size	_____	_____																											
16 oz glass jar	_____	Dioxins/Furans	_____	_____																											
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____																											
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____																											
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core	_____	Radioisotope Dating	_____	_____																											
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16 oz poly jar	_____	TOC/Grain size	_____	_____																											
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16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____																											
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____																											
core	_____	Radioisotope Dating	_____	_____																											

SEE ATTEMPT (7/22/08)

NOTES:

# Sediment Core Log

FOR SAMPLE

11/11/08

Station ID: D00.5

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/24/08

Location Data: Harbor-wide / Rayonier

Time: 1045

Area of Concern: \_\_\_\_\_

Boat: RSS CAROLYN DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBROCORE w/ FLIGHT PKG

Location (UTM Zone 10, NAD 83 meters): X

Sample Team: LONGTIN

Y

Coring Start Time: 1045  
 Water Depth: 57.1 Ft.  
 Core Bottom Depth: 4.0 Ft.  
 Coring Finish Time: 1046  
 Overall Recovery (%): 38%

18" MATERIAL RECOVERED CONSISTED OF SILTY SAND WITH CLAM SHELLS (WOODS) AND SAND AND GRAVEL IN SIDE. GRAVEL TO 1", SUB RND.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

SAMPLE NO 1  
 ATTEMPT FOR SAMPLE (7/22/08)

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
0"	1	No sample (0"-6")	(0"-6") Dark brown silt, trace clay, polychaetes, shell fragments, no odor, no wood material	No	No wood material
	2				
	3				
	4				
	5				
	6				
6"	7	D005B (6"-12")	(6"-12") Dark brown silt, trace clay, polychaetes, shell fragments, one piece of wood chips (1")	one piece	one piece
	8				
12"	9	D005C (12"-16")	(12"-16") Dark brown silt, trace clay, shell fragments, small cobble, no wood material, no odor	No	No wood material
	10				
	11				
	12				
16"	13	D005C (12"-16")	(12"-16") Dark brown silt, trace clay, shell fragments, small cobble, no wood material, no odor	No	No wood material
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
2	23				
	24				
	25				
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	60				

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/2/08

**Sample ID:** ECOLA

**Time:** 1224

**Area of Concern:** Ennis Creek

**Location Data:** Harbor-Wide (Rayonier) GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** Carolyn Dewey Pate, Jan

Bottom depth (ft): N/A (intertidal) Penetration depth (cm): 10cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input checked="" type="checkbox"/> Cobble	Drab olive	<input checked="" type="checkbox"/> None	1 worm
<input checked="" type="checkbox"/> Gravel	<input checked="" type="checkbox"/> Brown	<input checked="" type="checkbox"/> Slight	
<input checked="" type="checkbox"/> Sand VCC M F VF	Brown surface	Moderate	
Silt	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	<input checked="" type="checkbox"/> Other	Sulfur	
Woody debris	rocks	Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16oz Amber			Axys	<input checked="" type="checkbox"/>		
Grain size/TOC		1			ARI	<input checked="" type="checkbox"/>		
SVOCs	1 (2 if arch)				ARI	<input checked="" type="checkbox"/>		
Resin / Guai		16oz glass			ARI	<input checked="" type="checkbox"/>		
Organotin					ARI			
Ammonia					ARI	<input checked="" type="checkbox"/>		
Sulfide		2oz	1 glass		ARI	<input checked="" type="checkbox"/>		w/PCA
Pesticide	1 (2 if arch)				TA	<input checked="" type="checkbox"/>		
PCB					TA	<input checked="" type="checkbox"/>		
TPH		16oz glass			TA	<input checked="" type="checkbox"/>		
Metal					TA	<input checked="" type="checkbox"/>		
Hg					TA	<input checked="" type="checkbox"/>		
Bioassay				1	NF	<input checked="" type="checkbox"/>		

Sampler Signatures

[Signature] 6/2/08 RDN

DB QA 6/2/08 RDN

Sample Custodian Signature

**Project:** Port Angeles Harbor Sediment

**Grab Sediment Sample Log**

Characterization Study

Date: 6/21/08 ✓✓

Sample ID: ECO2A ✓

Time: 1257 ✓✓

Area of Concern: Emis Creek

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Pete, Ten

Bottom depth (ft): N/A (intermittent) Penetration depth (cm): 10cm ✓

902

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input checked="" type="checkbox"/> Cobble	Drab olive	<input checked="" type="checkbox"/> None	No biota medium fine Sand to 4cm
<input checked="" type="checkbox"/> Gravel	Brown	Slight	
<input checked="" type="checkbox"/> Sand VC COM FVE	Brown surface	Moderate	
<input type="checkbox"/> Silt	<input checked="" type="checkbox"/> Gray	Strong	
<input type="checkbox"/> Clay	Black	Overwhelming	
<input type="checkbox"/> Organic matter	Other:	Sulfur	
<input type="checkbox"/> Woody debris		Petroleum	
<input type="checkbox"/> Shell debris		Other:	
<input type="checkbox"/> Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 ✓ Amber				Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)				ARI	✓		
Resin / Guai				16oz glass ✓	ARI	✓		
Organotin					ARI			
Ammonia					ARI	✓		
Sulfide		2oz	1 glass ✓		ARI	✓	✓	w/ Zn Ac.
Pesticide	1 (2 if arch)				TA	✓		
PCB					TA	✓		
TPH				16oz glass	TA	✓		
Metal					TA	✓		
Hg					TA	✓		
Bioassay				1 ✓	NF	✓		

Sampler Signatures

[Signature] 6/22/08 RDW

DB QA 6/22/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: ECO3

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: ENNIS CREEK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469829.5  
 Y 5329572.4

Date: 7/16/08  
 Time: 0905  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRACORE  
 Sample Team: LONGTINE

Coring Start Time: 0905  
 Water Depth: 16.9 Ft.  
 Core Bottom Depth: 8.0 Ft.  
 Coring Finish Time: 0906  
 Overall Recovery (%): 25%

*25% RECOVERY. RECOVERED MATERIAL CONSISTS OF SILT, SAND, WITH SOME GRAVEL, FOUNDED TO SUBFOUNDED TO 1 1/2", AND WOODY DEBRIS INCL. CHIPS TO 2". SULFUR ODOR. DARK GRAYISH BROWN TO BROWNISH GRAY.*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

*No samples tested*

NOTES:



# Sediment Core Log

Station ID: ECO3

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide Rayonier  
 Area of Concern: ENNIS CREEK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469827.7  
 Y 5329574.2

Date: 7/16/08  
 Time: 1015  
 Boat: RSS OROLYN DOW  
 Core Collection Method: UTBR/CORE  
 Sample Team: LONGTINE

Coring Start Time: 1015  
 Water Depth: 17.6 Ft.  
 Core Bottom Depth: 7.5 Ft.  
 Coring Finish Time: 1016  
 Overall Recovery (%): 20%

*20% RECOVERY. RECOVERED MATERIAL CONSISTED OF MIXED WOOD DEBRIS (CHIPS, STRAWS) AND DARK GRAYISH BROWN SAND AND SILT/CLAY.*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

*NO SAMPLES RECOVERED*

NOTES:

# Sediment Core Log

THIRD ATTEMPT

Station ID: ECO3

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/16/08

Location Data: Harbor-wide / Rayonier

Time: 1055

Area of Concern: ENNIS CREEK

Boat: RSS CHARLYN DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBROCORE

Location (UTM Zone 10, NAD 83 meters): X 469827.0

Sample Team: LONGTINE

Y 5329573.1

Coring Start Time: 1055

APPEARED CORE APPARATUS LAYED OVER DUE TO DIFFICULTY STAYING ON POSITION WITH ONE ANCHOR. ONLY 1.5' MATERIAL RECOVERED. CONSISTED OF SAND, FINES, AND WOODY DEBRIS INCLUDING CHIPS AND STRANDS TO 2" DARK GRAYISH BROWN. SULFUR ODOR. WILL RESET ANCHORS AND TRY AGAIN.

Water Depth: 18.0 Ft.

Core Bottom Depth: SEE COMMENT Ft.

Coring Finish Time: 1057

Overall Recovery (%): —

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	

NO SAMPLES RECOVERED

NOTES:

*MS/MSD*

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/20/08 ✓✓

**Sample ID:** ECO3A ✓✓

**Time:** 1152 ✓✓

**Area of Concern:** Emmis Creek

**Location Data** Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

Bottom depth (ft): 17.4 ft ✓ Penetration depth (cm): 20 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Callianacid Amphipoda (on kelp) Terebelidae
Gravel	Brown	Slight	
Sand	Brown surface	Moderate	
Silt	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

*mostly*

Analyses	Sample Containers					Lab	Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag					
Dioxin/Furan	1 Amber					Axys	✓		
Grain size/TOC		1 ✓				ARI	✓		
SVOCs	1 (2 if arch)	} 16oz glass				ARI	✓		
Resin / Guai						ARI	✓		
Organotin						ARI	✓		
Ammonia						ARI	✓		
Sulfide			1 2oz Glass			ARI	✓ w/ZnAc		
Pesticide	1 (2 if arch)	} 16oz glass ✓				TA	✓		
PCB						TA	✓		
TPH						TA	✓		
Metal						TA	✓		
Hg						TA	✓		
Bioassay				1		NF			

*MS/MSD*

*MS/MSD*

**Sampler Signatures**

*[Signature]* 6/20/08 EDW  
**Sample Custodian Signature**

*[Signature]* 6/20/08 BQA

# Sediment Core Log

Station ID: EC03

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/16/09

Location Data: Harbor-wide / Rayonier

Time: 1135

Area of Concern: ENNIS CREEK

Boat: RSS CATOLIN DOW

GPS Time: 1135

Core Collection Method: VIBRATION

Location (UTM Zone 10, NAD 83 meters): X 469828.8  
Y 5329573.1

Sample Team: LONGTUE

Coring Start Time: 1135  
Water Depth: 19.0 Ft.  
Core Bottom Depth: 4.0 Ft.  
Coring Finish Time: 1137  
Overall Recovery (%): 65%

REFUSAL AT 4.0 FT PENETRATION. 31" RECOVERED  
65%, CORE RECOVERABLE - HARD SILT IN CUTTING  
SHOE.

Sample ID: EC03B Depth Interval: 6 in. to 12 in. #3/16

Sediment Type (%): Cobble  / Gravel  / Sand (VC C M F VF)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other:

Sediment Color: Drab olive (Brown) / Brown surface / Gray / Black / Other:

Sediment Odor: None (Slight) / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Kelp/bivalves/Callinacidae #3/16 Immediate Analysis Archive for Later Analysis

Samples Collected:	16 oz poly jar	1	TOC/Grain size	X	
	16 oz glass jar	1	Dioxins/Furans	X	
	16 oz glass jar	1	SVOCs / resin / TBT / Ammonia	X	
	16 oz glass jar	1	Pest / PCBs / TPH / Metals / Hg	X	
	4 oz glass jar		Sulfide / Other:		
	core		Radioisotope Dating		

Sample ID: EC03C Depth Interval: 12 in. to 24 in.

Sediment Type (%): Cobble  / Gravel  / Sand (VC C M F VF)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other:

Sediment Color: Drab olive (Brown) / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:	16 oz poly jar	1	TOC/Grain size	X	
	16 oz glass jar	1	Dioxins/Furans	X	
	16 oz glass jar	1	SVOCs / resin / TBT / Ammonia	X	
	16 oz glass jar	1	Pest / PCBs / TPH / Metals / Hg	X	
	2 oz glass jar	1	Sulfide / Other:	X	
	core		Radioisotope Dating		

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble  / Gravel  / Sand (VC C M F VF)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other:

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:	16 oz poly jar		TOC/Grain size		
	16 oz glass jar		Dioxins/Furans		
	16 oz glass jar		SVOCs / resin / TBT / Ammonia		
	16 oz glass jar		Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar		Sulfide / Other:		
	core		Radioisotope Dating		

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble  / Gravel  / Sand (VC C M F VF)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other:

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:	16 oz poly jar		TOC/Grain size		
	16 oz glass jar		Dioxins/Furans		
	16 oz glass jar		SVOCs / resin / TBT / Ammonia		
	16 oz glass jar		Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar		Sulfide / Other:		
	core		Radioisotope Dating		

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization		
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers		
0 - 6"	1	No sample	(0-6") Dark brown	Wood material: wood chips small and large (found), natural detritus. No teredos, largest chip = ~2"		
	2		large amount of Kelp and clam shells, wood			
	3					
	4					
	5					
	6					
6 - 12"	7	ECO3B	(6"-12") Dark brown SILT	No significant wood material		
	8		No shell fragments			
	9		No wood material			
	10		petroleum and sulfur odor, trace Kelp			
	11					
1	12					
12 - 24"	13	ECO3C	Black silt with clay, trace natural detritus, petroleum odor (moderate), medium plasticity. Non mineral material may be causing plasticity. trace clam shells, old worm tube (no worm)	trace of natural detritus (extremely small amount), trace small wood chips (~1/2" long (extremely small amount))		
	14				(12"-24")	
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	2				24	
24 - 36"	25					
	26					
	27					
	28					
	29					
	30					
	31					
	32					
	33					
	34					
	35					
	3		36			
	36 - 48"		37			
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
4		48				
48 - 60"	49					
	50					
	51					
	52					
	53					
	54					
	55					
	56					
	57					
	58					
	59					
	5		60			

old worm tube

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/20/08 ✓✓

Sample ID: ECO4A ✓✓

Time: 1224 ✓✓

Area of Concern: EMIS Creek

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 13.9 ft ✓ Penetration depth (cm): 12 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	<u>None</u>	Callianacidae Pandalus sp Lots of kelp algae 5-6cm <sup>silt</sup> <del>water</del> sand
Gravel	Brown	Slight ✓	
<u>Sand</u> VCC M F VF	Brown surface	Moderate	
<u>Silt</u>	<u>Gray</u> ✓	Strong	
Clay	<u>Black</u>	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

mostly

Analyses	Sample Containers				Lab	Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag				
Dioxin/Furan	1 Amber ✓				Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)				ARI	✓		
Resin / Guai		2 16oz glass ✓			ARI	✓		
<del>Organotin</del>					ARI			
Ammonia					ARI	✓		
Sulfide			1 2oz glass ✓		ARI	✓		W/20AC
Pesticide	1 (2 if arch)				TA	✓		
PCB					TA	✓		
TPH		2 16oz glass ✓			TA	✓		
Metal					TA	✓		
Hg					TA	✓		
Bioassay				1 ✓	NF	✓		

Sampler Signatures

[Signature] 6/21/08 RDW      RDW 6/21/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: ECO4

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: ENNIS CREEK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469855.9  
 Y 5329550.5

Date: 7/16/68  
 Time: 1320  
 Boat: BSS CAPOLYN DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 1320 41" RECOVERY, CORE ACCEPTABLE.  
 Water Depth: 19.0 Ft.  
 Core Bottom Depth: 5.2 Ft.  
 Coring Finish Time: 1321  
 Overall Recovery (%): EST. 78%

Sample ID: <u>ECO4B</u>	Depth Interval: <u>12</u> in. to <u>24</u> in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) <input checked="" type="checkbox"/> / Silt <input checked="" type="checkbox"/> / Clay ___ / Organic mtrl <input checked="" type="checkbox"/> / Woody debris <input checked="" type="checkbox"/> / Shell debris ___ / Other: ___	
Sediment Color: <u>Drab olive / Brown / Brown surface / Gray / Black / Other:</u>	
Sediment Odor: <u>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: <u>H<sub>2</sub>S</u></u>	
Biota: _____	Immediate Analysis _____
Archive for Later Analysis _____	
Samples Collected: 16 oz poly jar <input checked="" type="checkbox"/> TOC/Grain size <input checked="" type="checkbox"/>	
16 oz glass jar <input checked="" type="checkbox"/> Dioxins/Furans <input checked="" type="checkbox"/>	
16 oz glass jar <input checked="" type="checkbox"/> SVOCs / resin / TBT / Ammonia <input checked="" type="checkbox"/>	
16 oz glass jar <input checked="" type="checkbox"/> Pest / PCBs / TPH / Metals / Hg <input checked="" type="checkbox"/>	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___	
Sediment Color: <u>Drab olive / Brown / Brown surface / Gray / Black / Other:</u>	
Sediment Odor: <u>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</u>	
Biota: _____	Immediate Analysis _____
Archive for Later Analysis _____	
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___	
Sediment Color: <u>Drab olive / Brown / Brown surface / Gray / Black / Other:</u>	
Sediment Odor: <u>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</u>	
Biota: _____	Immediate Analysis _____
Archive for Later Analysis _____	
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___	
Sediment Color: <u>Drab olive / Brown / Brown surface / Gray / Black / Other:</u>	
Sediment Odor: <u>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</u>	
Biota: _____	Immediate Analysis _____
Archive for Later Analysis _____	
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	

NOTES: Note: No "C" interval collected due to a lack of sub wood waste interval. Several attempts were made ending in refusal. Due to lack of options because of difficult coring <sup>⊗</sup> Made decision to sample this core based on recovery and quality. Not known if further core penetration is possible with current setup.

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
0" - 6"	1	No sample (0-6")	(0-6") Dark brown sand with some silt, kelp present, some rounded pebbles, trace clam shells, polycrystalline natural detritus, algae, no odor	Natural detritus	
	2			No wood material	
	3				
	4				
	5				
	6				
6" - 12"	7	No sample (6-12")	(6-12") Dark brown silty sand with trace shell fragments. Natural detritus, trace small pebbles; slight sulfide odor.	Natural detritus	
	8			with some small wood chips (composize)	
	9			mostly naturally occuring	
	10			Natural detritus	
	11				
	12				
12" - 24"	13	ECO413 (12"-24")	(12"-24") Grayish black silt with trace sand and some clay. Strong sulfur odor, trace shell fragments; some pebbles	Natural detritus and a large amount of wood chips. Some brown in color, some red in color. Sizes range from centimeters to 3".	
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
	24				
24" - 32"	25	No sample (24"-32")	(24"-32") same composition as 12"-24"	Wood chips - same as above, but somewhat further degraded	
	26				
	27				
	28				
	29				
	30				
31					
32					
33					
34					
35					
3	36				
	37				
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
4	48				
	49				
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
5	60				

Note: Wood appears more degraded with depth



# Sediment Core Log

Station ID: EC05

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide Rayonier  
 Area of Concern: EUNIS CREEK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X  
Y

Date: 7/24/08  
 Time: SEE BELOW  
 Boat: BSS ADELYN POW  
 Core Collection Method: VIBRACORE  
 Sample Team: LONGTINE

ATTEMPT ①

Coring Start Time: <u>1720</u>	② <u>1735</u>	③ <u>1749</u>
Water Depth: <u>2.0</u> Ft.	<u>2.0</u>	<u>2.0</u>
Core Bottom Depth: <u>1.7</u> Ft.	<u>1.6</u>	<u>1.0</u>
Coring Finish Time: <u>1721</u>	<u>1736</u>	<u>1750</u>
Overall Recovery (%): <u>—</u>	<u>—</u>	<u>—</u>
<u>11" RECOVERED SAND WASHED OUT</u>	<u>COBBLES + GRAVEL ONLY</u>	<u>COBBLES + GRAVEL ONLY</u>

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating _____

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating _____

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating _____

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating _____

NO SAMPLES

NOTES:

	X	Y
ATTEMPT ①	469868.8	5329402.8
②	469870.5	5329397.8
③	469871.5	5329396.2

ATTEMPT ①: 11" MIXED SAND, GRAVEL, AND COBBLES TO 3". SAND WASHED OUT OF CORE TUBER UPON RETRIEVAL. NO SAMPLE. COBBLES SUB RND.

② RECOVERED GRAVEL AND COBBLES TO 2" ONLY. SMALL AMOUNT (A FEW COBBLES + PEBS) ABOVE CORE CUTTER. NO SAND.

③ SAME AS ATTEMPT ②

Project: Port Angeles Harbor Sediment  
 Characterization Study

Grab Sediment Sample Log

Date: 6/21/08

Sample ID: EC05A

Time: 1240

Area of Concern: Emis Creek

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow, Pete, Jen

Bottom depth (ft): N/A (intertidal) Penetration depth (cm): 10 cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input checked="" type="checkbox"/> Cobble	Drab olive	None	<u>no biota</u>
<input checked="" type="checkbox"/> Gravel	<u>Brown</u>	Slight	
<input checked="" type="checkbox"/> Sand <u>VCC M F VF</u>	Brown surface	Moderate	
<input type="checkbox"/> Silt	<u>Gray</u>	Strong	
<input type="checkbox"/> Clay	Black	Overwhelming	
<input type="checkbox"/> Organic matter	Other:	Sulfur	
<input type="checkbox"/> Woody debris		Petroleum	
<input type="checkbox"/> Shell debris		Other:	
<input type="checkbox"/> Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	<u>1</u>				Axys	<input checked="" type="checkbox"/>		
Grain size/TOC		<u>1</u>			ARI	<input checked="" type="checkbox"/>		
SVOCs	1 (2 if arch)	<u>16 oz glass</u>			ARI	<input checked="" type="checkbox"/>		
Resin / Guai					ARI	<input checked="" type="checkbox"/>		
Organotin					ARI	<input checked="" type="checkbox"/>		
Ammonia					ARI	<input checked="" type="checkbox"/>		
Sulfide		<u>2oz</u>	<u>1 Glass</u>		ARI	<input checked="" type="checkbox"/>		<u>w/2.0 Ac</u>
Pesticide	1 (2 if arch)	<u>16 oz glass</u>			TA	<input checked="" type="checkbox"/>		
PCB					TA	<input checked="" type="checkbox"/>		
TPH					TA	<input checked="" type="checkbox"/>		
Metal					TA	<input checked="" type="checkbox"/>		
Hg					TA	<input checked="" type="checkbox"/>		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/21/08 RDW

DB QA 6/22/08 RDW

Sample Custodian Signature

Empty Jar

Project: Port Angeles Harbor Sediment Characterization Study

Tissue Sample Log

Date: 6-22-08

Boat/Sampling Team: LEKC / Ryan

✓ JSE-WHITEZEN

Location Data Harbor-Wide / Rayonier Area of Concern: Earl's Creek  
 GPS Date/Time 6-22-08/1250 <sup>N</sup> 5329681.15 <sup>E</sup> 469888.46 GPS PDOP NAD83(m)

Sample ID:	Time:	Depth from water surface (ft):	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
<u>EC06TH</u>	<u>1310</u>	<u>21</u>	
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
Horse Clam	#: <u>2</u> (5 min)	<u>est</u> Lbs in	<u>4.5 x 3.5"</u> <u>4.25 x 3.5" Apx</u> <u>SVOC, Pest, PCB, Dioxin, Metal, Hg</u>
Macroalgae	kelp / eelgrass	Lbs	

Location Data Harbor-Wide / Rayonier Area of Concern: \_\_\_\_\_  
 GPS Date/Time \_\_\_\_\_ Lat \_\_\_\_\_ Long \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Sample ID:	Time:	Depth from water surface (ft):	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
Horse Clam	#: (5 min)	Lbs in	
Macroalgae	kelp / eelgrass	Lbs	

[Signature] 6/22/08 RDW  
 Sampler Signatures

DBQA 6/23/08 RDW

\_\_\_\_\_  
 Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/21/08

Sample ID: ED01A

Time: 12:45

Area of Concern: East Dock

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Peter Jan

Bottom depth (ft): 38.9 Penetration depth (cm): 19cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	1 cm RPD Spirochaetoptera Pandalus sp. Gastropods (on algae) Maldanidae Amphipods (on algae)
Gravel	Brown	Slight	
<u>10% &gt; x</u> Sand VC C M F VF	Brown surface	Moderate	
<u>5% &gt; x</u> Silt	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
<u>Woody debris</u>		Petroleum	
Shell debris		Other:	

Analyses	Sample Containers				Lab	Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag				
Dioxin/Furan	1	<del>1</del>	16 oz Amber	Amber	Axys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Grain size/TOC		1			ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SVOCs	1 (2 if arch)				ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Resin/Guai				16 oz glass	ARI			
Organotin						ARI		
Ammonia						ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sulfide		2 oz	16 glass		ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Pesticide	1 (2 if arch)				TA			
PCB					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
TPH					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Metal				16 oz glass		TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hg						TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Bioassay				1	NF			

Sampler Signatures

[Signature]

DB 06/22/08 RDW

Sample Custodian Signature

FIRST ATTEMPT

# Sediment Core Log

Station ID: ED01

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide (Rayonier)  
 Area of Concern: EAST OF MUD DOCK  
 GPS Time: 0850  
 Location (UTM Zone 10, NAD 83 meters): X 469 766.3  
 Y 533 0019.8

Date: 6/19/08 ✓  
 Time: 1903  
 Boat: ANNUAL SALVAGER I  
 Core Collection Method: VIBROCORE  
 Sample Team: M LONGTINE C FUNK S PEUTNEY

Coring Start Time: 0903 NOTE: TURNED ON VIBROCORE HEAD WHILE CUTTING SHAPE EST. 1 FT ABOVE  
 Water Depth: 34' 1" Ft. MUDLINE  
 Core Bottom Depth: 39' 1" Ft.  
 Coring Finish Time: 0906  
 Overall Recovery (%): SEE NOTES  
 12' CORE BARREL  
 10' CORE SLEEVE  
 0940 UPON RETRIEVAL OF CORE SLEEVE, INSPECTED CORE IN SLEEVE. RECOVERED 7" OF SEDIMENT, SIGNIFICANTLY MORE THAN 5' 0" PENETRATION. CONFIDENT THAT GETTING GOOD DEPTH CONTROL (FIRM BOTTOM SOUNDED WITH LEADLINE). OTHER POSSIBLE REASON FOR OVER-RECOVERY IS THAT WAVE ACTION

Sample ID: SEE 2nd ATTEMPT LOG Depth Interval:      in. to      in.

Sediment Type (%): Cobble  / Gravel  / Sand (V C C M F V F)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other:

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota:  Immediate Analysis  Archive for Later Analysis

Samples Collected:

16 oz poly jar	<u>1</u>	TOC/Grain size	<input checked="" type="checkbox"/>	
16 oz glass jar	<u>1</u>	Dioxins/Furans	<input checked="" type="checkbox"/>	
16 oz glass jar	<u>1</u>	SVOCs / resin / TBT / Ammonia	<input checked="" type="checkbox"/>	
16 oz glass jar	<u>1</u>	Pest / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>	
4 oz glass jar		Sulfide / Other:		
core		Radioisotope Dating		

Sample ID: ED01C ✓ ✓ Depth Interval: 72 in. to 84 in.

Sediment Type (%): Cobble  / Gravel  / Sand (V C C M F V F)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other:

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: Time = 0906 ✓

Biota:  Immediate Analysis  Archive for Later Analysis

Samples Collected:

16 oz poly jar	<u>1</u>	TOC/Grain size	<input checked="" type="checkbox"/>	
16 oz glass jar	<u>1</u>	Dioxins/Furans	<input checked="" type="checkbox"/>	
16 oz glass jar	<u>1</u>	SVOCs / resin / TBT / Ammonia	<input checked="" type="checkbox"/>	
16 oz glass jar	<u>1</u>	Pest / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>	
4 oz glass jar		Sulfide / Other:		
core		Radioisotope Dating		

Sample Rec'd  
6/21/08 RED  
DB 6/21/08 RED

Sample ID:      Depth Interval:      in. to      in.

Sediment Type (%): Cobble  / Gravel  / Sand (V C C M F V F)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other:

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota:  Immediate Analysis  Archive for Later Analysis

Samples Collected:

16 oz poly jar		TOC/Grain size		
16 oz glass jar		Dioxins/Furans		
16 oz glass jar		SVOCs / resin / TBT / Ammonia		
16 oz glass jar		Pest / PCBs / TPH / Metals / Hg		
4 oz glass jar		Sulfide / Other:		
core		Radioisotope Dating		

Sample ID:      Depth Interval:      in. to      in.

Sediment Type (%): Cobble  / Gravel  / Sand (V C C M F V F)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other:

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota:  Immediate Analysis  Archive for Later Analysis

Samples Collected:

16 oz poly jar		TOC/Grain size		
16 oz glass jar		Dioxins/Furans		
16 oz glass jar		SVOCs / resin / TBT / Ammonia		
16 oz glass jar		Pest / PCBs / TPH / Metals / Hg		
4 oz glass jar		Sulfide / Other:		
core		Radioisotope Dating		

NOTES: CAUSES ROCKING OF BOAT DURING CORING. ROCKING CAUSES SLIGHT REPEATED RAISING-LOWERING OF CORE TUBE. WHEN RAISED, SLUFFED SIDEWALL MATERIAL ENTERS VOID, AND UPON LOWERING, THIS MATERIAL IS CAPTURED IN CUTTING SIDE AND PUSHED INTO CORE BARREL.

0945 DECIDE TO RETAIN THIS INTACT CORE FOR POSSIBLE USE LATER FOR DATA COLLECTION OF 2nd ATTEMPT CORE.

1100 DECIDE TO COLLECT "C" INTERVAL SAMPLE FROM FIRST ATTEMPT CORE. SEE 2nd ATTEMPT LOG FOR STRATIGRAPHIC DESCRIPTION AND "B" INTERVAL SAMPLE. NOTE THAT DEPTH OF BOTTOM OF WOOD WASTE NOTED IN FIRST ATTEMPT CORE (72") IS →

1st attempt

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization			
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers			
	61		see Core log and notes from the sample data sheet and the 1st & 2nd attempt @ EDO				
	62						
	63						
	64						
	65						
	66						
	67						
	68						
	69						
	70						
6	71						
	72						
72"	73	↑ EOD ↓	Small and large pebbles, some sand (coarse)				
	74						
	75						
	76						
	77						
84"	78				no wood waste, some SH pebbles range from a few centimeters to 2" x 2" pebbles are rounded to angular		
	79						
	80						
	81						
	82						
	83						
7	84						
	85		<del>interval closely correlates with</del> (6) 6-19-08				
	86						
	87						
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10	120						

# Sediment Core Log

Station ID: EDOI

2<sup>nd</sup> attempt

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: East of Mill Dock  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 3 SAME AS 1<sup>st</sup> ATTEMPT  
Y J

Date: 6/19/08 ✓  
 Time: 0954  
 Boat: NWJWC Salvager I  
 Core Collection Method: Vibracore J  
 Sample Team: M. Lonatone, C. Funk  
S. Penthen

Coring Start Time: 0954  
 Water Depth: 34.6" @ 0953 Ft.  
 Core Bottom Depth: 39.6" Ft.  
 Coring Finish Time: 0955  
 Overall Recovery (%): 90%

1015 upon refusal core visually inspected within sleeve. 90% recovery  
 1030 Core sleeve opened and further inspection show that  
 the stratigraphy of core appears intact. Will use this  
 for stratigraphic description and "B" sample (woody interval)

Core penetration: 5'0"  
 Core recovery: 4'6"

Sample ID: <u>EDOI B (wood waste)</u>	Depth Interval: <u>24</u> in. to <u>36</u> in. ✓																																				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C C M F V F) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																																					
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____																																					
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____																																					
Biota: _____																																					
Samples Collected:	<table border="0"> <tr> <td>16 oz poly jar</td> <td>✓</td> <td>TOC/Grain size</td> <td>✓</td> <td>Immediate Analysis</td> <td>Archive for Later Analysis</td> </tr> <tr> <td>Amber 16 oz glass jar</td> <td>✓</td> <td>Dioxins/Furans</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>16 oz glass jar</td> <td>✓</td> <td>SVOCs / resin / TBT / Ammonia</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>16 oz glass jar</td> <td>✓</td> <td>Pest / PCBs / TPH / Metals / Hg</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>4 oz glass jar</td> <td>___</td> <td>Sulfide / Other: _____</td> <td>___</td> <td></td> <td></td> </tr> <tr> <td>core</td> <td>___</td> <td>Radioisotope Dating</td> <td>___</td> <td></td> <td></td> </tr> </table>	16 oz poly jar	✓	TOC/Grain size	✓	Immediate Analysis	Archive for Later Analysis	Amber 16 oz glass jar	✓	Dioxins/Furans	✓			16 oz glass jar	✓	SVOCs / resin / TBT / Ammonia	✓			16 oz glass jar	✓	Pest / PCBs / TPH / Metals / Hg	✓			4 oz glass jar	___	Sulfide / Other: _____	___			core	___	Radioisotope Dating	___		
16 oz poly jar	✓	TOC/Grain size	✓	Immediate Analysis	Archive for Later Analysis																																
Amber 16 oz glass jar	✓	Dioxins/Furans	✓																																		
16 oz glass jar	✓	SVOCs / resin / TBT / Ammonia	✓																																		
16 oz glass jar	✓	Pest / PCBs / TPH / Metals / Hg	✓																																		
4 oz glass jar	___	Sulfide / Other: _____	___																																		
core	___	Radioisotope Dating	___																																		
Time = 0955 ✓																																					
Sample ID: <u>See 1<sup>st</sup> attempt log</u>																																					
Depth Interval: _____ in. to _____ in.																																					
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C C M F V F) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																																					
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____																																					
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____																																					
Biota: _____																																					
Samples Collected:	<table border="0"> <tr> <td>16 oz poly jar</td> <td>___</td> <td>TOC/Grain size</td> <td>___</td> <td>Immediate Analysis</td> <td>Archive for Later Analysis</td> </tr> <tr> <td>16 oz glass jar</td> <td>___</td> <td>Dioxins/Furans</td> <td>___</td> <td></td> <td></td> </tr> <tr> <td>16 oz glass jar</td> <td>___</td> <td>SVOCs / resin / TBT / Ammonia</td> <td>___</td> <td></td> <td></td> </tr> <tr> <td>16 oz glass jar</td> <td>___</td> <td>Pest / PCBs / TPH / Metals / Hg</td> <td>___</td> <td></td> <td></td> </tr> <tr> <td>4 oz glass jar</td> <td>___</td> <td>Sulfide / Other: _____</td> <td>___</td> <td></td> <td></td> </tr> <tr> <td>core</td> <td>___</td> <td>Radioisotope Dating</td> <td>___</td> <td></td> <td></td> </tr> </table>	16 oz poly jar	___	TOC/Grain size	___	Immediate Analysis	Archive for Later Analysis	16 oz glass jar	___	Dioxins/Furans	___			16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___			16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___			4 oz glass jar	___	Sulfide / Other: _____	___			core	___	Radioisotope Dating	___		
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core	___	Radioisotope Dating	___																																		
Sample ID: _____																																					
Depth Interval: _____ in. to _____ in.																																					
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C C M F V F) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																																					
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4 oz glass jar	___	Sulfide / Other: _____	___																																		
core	___	Radioisotope Dating	___																																		

Sample Rec'd  
 6/21/08  
 DB CA 6/21/08 RDL

NOTES: wood debris observed through entire length of core. Unable to collect "C" interval.  
 See 1<sup>st</sup> attempt for information on C interval

2<sup>nd</sup> attempt

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
0 15"	1	0-12"	Very dark brown Sandy silt with clay and a large amount of small and large pebbles - subrounded. some angular small amount of wood waste - mostly chips - slight H <sub>2</sub> S odor		100% wood waste mostly chips - red and brown in color slight H <sub>2</sub> S odor
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
	12				
1 12"	13	12"-36"	Wood waste with some sand (98% wood waste) mostly red and brown bark with some twigs and some wood chips - No wood pulp - the most bark seen up to present time		98% wood waste - see description to the left
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
	24				
2 36"	25	36"-100"	No color - slight H <sub>2</sub> S odor SIZES of bark varies from a few centimeters to 4" long Not able to determine much stratigraphic information due to large amount of wood waste		- No teredos infestation - twigs weathered (rounded) - No pulp observed - No saw dust - natural detritus observed bark - deep red and brown
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
3 36"	37	36"-54"	Very dark brown fine to medium sand, and large amount of small and large pebbles. Some wood waste present (30%)		30% wood waste - mostly wood chips
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
	48				
4 54"	49	54"-60"	Wood waste is present to 54", so do not collect a "C" sample Very rocky - pebbles make up at least 75% of interval majority		No wood waste observed 54"-60" MC
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
	60				



**Project:** Port Angeles Harbor Sediment

**Grab Sediment Sample Log**

Characterization Study

Date: 6/19/08 ✓✓

Sample ID: ED02A ✓✓

Time: 1553 ✓✓

Area of Concern: Eastern Dock

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 38.8 ft ✓ Penetration depth (cm): 24 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<del>Drab olive</del>	None	Spionidae Spirochaetopteris 1.5 cm RPD Margerites Pnidepio
Gravel	<del>Brown</del>	<del>Slight</del>	
Sand V C C M F V F	<del>Brown surface</del>	Moderate	
Silt	Gray	Strong	
Clay	<del>Black / green</del>	Overwhelming	
<del>Organic matter</del>	Other:	Sulfur	
Woody debris	<u>Black below 10cm</u>	Petroleum	
<del>Shell debris</del>		Other:	
Other:			

Analyses	Sample Containers				Lab	Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag				
Dioxin/Furan	1 Amber ✓	✓			Axys	⊗ ✓		
Grain size/TOC		1 ✓			ARI	⊗ ✓		
SVOCs	1 (2 if arch)	2			ARI	⊗ ✓		
Resin / Guai					ARI	⊗ ✓		
<del>Organotin</del>					ARI			
Ammonia					ARI	⊗ ✓		
Sulfide			1 2oz glass ✓		ARI	⊗ ✓	w/ Zn Ac	
Pesticide	1 (2 if arch)	2			TA			
PCB					TA	⊗ ✓		
TPH					TA	⊗ ✓		
Metal					TA	⊗ ✓		
Hg					TA	⊗ ✓		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/12/08 RDW

DB QA 6/21/08 RDW

Sample Custodian Signature

# Sediment Core Log

ATTEMPT  
No. 1

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: EAST OF MILL DOCK  
 GPS Time: 1508  
 Location (UTM Zone 10, NAD 83 meters): X 469750.3  
 Y 5329868.4

Station ID: ED02  
 Date: 6/18/08  
 Time: 1515  
 Boat: NWUWC SALVAGER I  
 Core Collection Method: VIBRACORE  
 Sample Team: M LONGTINE C FUNK  
S PENTNEY

Coring Start Time: 1514  
 Water Depth: 38' 0" Ft.  
 Core Bottom Depth: 1515 Ft. 5' 0"  
 Coring Finish Time: 1515  
 Overall Recovery (%): > 100% APPARENTLY  
 ↳ SEE NOTES

1525 RIVETS REMOVED FROM CUTTING SITE. EXTRACT SLEEVE FOR INSPECTION. UPON REMOVAL OF 5 FT SLEEVE FROM BARREL, ESTIMATED 1 TO 1.5 FEET OF SEDIMENT THAT WAS PUSHED INTO BARREL ABOVE TOP OF SLEEVE FELL OUT OF BARREL. ENTIRE 5 FT SLEEVE FULL OF SEDIMENT. UNCLEAR AS TO WHY MORE THAN 5 FT OF SEDIMENT IN BARREL. CONSISTS OF FINES AND SAND BASED ON INSPECTION OF SEDIMENT. → DECIDE TO RETAIN CORE (UPRIGHT, INTACT), AND ATTEMPT CORE AGAIN.

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			

ADD SAMPLES - CORE NO. 2  
 NOT SEE ATTEMPT NO. 2

NOTES:

ATTEMPT NO. 2

# Sediment Core Log

Station ID: E002

Project: Port Angeles Harbor Sediment Characterization Study

Date: 6/18/08 ✓

Location Data: Harbor-wide (Rayonier)

Time: 1540

Area of Concern: EAST OF

Boat: NWUWC SALVAGER I

GPS Time: 1535

Core Collection Method: VIBROCORE

Sample Team: M LONGTINE C FUNK S PENTNEY

Location (UTM Zone 10, NAD 83 meters): X 469750.9  
Y 5329867.6

Coring Start Time: 1540  
Water Depth: 38' 8" Ft.  
Core Bottom Depth: 6' 0" Ft.  
Coring Finish Time: 1542  
Overall Recovery (%): 100+

1350 CORE RETRIEVED FROM BARREL. TOP OF SEDIMENT MEASURED AT 32" FROM TOP OF SLEEVE → 7' 4" OF SEDIMENT RECOVERED IN 10 FT SLEEVE. REASON FOR APPARENT EXCESS RECOVERY (16" MORE THAN APPARENT PENETRATION OF 6' 0") MAY BE DUE TO DIFFICULTY MEASURING DEPTH WITH TAPE (EG. IF TAPE WITH WEIGHT [SHACKLE] IS NOT PLUMP, OVERESTIMATES DEPTH). WILL PROCESS THIS CORE.

120  
1535  
33

Sample ID: <u>E002B</u> ✓	Depth Interval: <u>12</u> in to <u>24</u> in. ✓
Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:	TIME = 1542
Biota:	Immediate Analysis
Samples Collected:	Archive for Later Analysis
16 oz poly jar ✓	✓ <u>16 oz Poly</u>
16 oz glass jar ✓	✓ <u>16 oz Amber</u>
16 oz glass jar ✓	✓ <u>16 oz glass</u>
16 oz glass jar ✓	✓ <u>16 oz glass</u>
4 oz glass jar	
core	

Sample ID: <u>E002C</u> ✓	Depth Interval: <u>36</u> in to <u>48</u> in. ✓
Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:	TIME = 1542
Biota:	Immediate Analysis
Samples Collected:	Archive for Later Analysis
16 oz poly jar ✓	✓ <u>16 oz Poly</u>
16 oz glass jar ✓	✓ <u>16 oz Amber</u>
16 oz glass jar ✓	✓ <u>16 oz Glass</u>
16 oz glass jar ✓	✓ <u>16 oz Glass</u>
4 oz glass jar	
core	

Sample ID:	Depth Interval: in to in.
Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:	
Biota:	Immediate Analysis
Samples Collected:	Archive for Later Analysis
16 oz poly jar	
16 oz glass jar	
16 oz glass jar	
16 oz glass jar	
4 oz glass jar	
core	

Sample ID:	Depth Interval: in to in.
Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:	
Biota:	Immediate Analysis
Samples Collected:	Archive for Later Analysis
16 oz poly jar	
16 oz glass jar	
16 oz glass jar	
16 oz glass jar	
4 oz glass jar	
core	

NOTES: Samples Received: 6/19/08 RDW

DB QA 06/20/08 RDW

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos infestation: none / light / medium / heavy
	1				Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	2		MIXED SAND, FINES		
	3		AND ORGANIC MUCK.		
	4		DARK GRAYISH BROWN.		
	5		SAND UP TO MED		
	6		GRAINED. LOOSE. WET.		
	7		SULFUR ODOR, MILD.		
	8				
	9				
	10				
	11				
1	12				
	13		MIXED SAND, FINES,	NONE NOTED	
	14		AND ORGANIC MUCK		
	15		GRAYISH BROWN. MILD		
	16		SULFUR ODOR. VERY		
	17		LOOSE, WET. SAND		
	18		UP TO MED GRAINED.		
	19		ORGANIC MATERIAL		
	20		UNIDENTIFIABLE (NO		
	21		FINE).		
	22				
	23				
2	24				
	25		MIXED SAND, FINES,		
	26		GRAVEL, AND SHELL		
	27		DEBRIS. SAND UP TO		
	28		COARSE. GRAVEL SUBSAND		
	29		TO 1". SOME CLAY.		
	30		MILD SULFUR ODOR.		
	31		OVERALL GRAYISH BRN		
	32		GRAVEL. SHELL DEBRIS		
	33		TO 2".		
	34				
	35				
3	36				
	37		AS DESCRIBED FOR		
	38		INTERVAL 24 TO		
	39		36"		
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
4	48				
	49		AS DESCRIBED FOR		
	50		INTERVAL 48" TO 55" (PL)		
	51		36" TO 48"		
	52				
	53				
	54				
	55				
	56		SAND AND SILT AND		
	57		SILTY SAND, INTERLAYERED		
	58		SILT IS GRAY, SANDY		
	59		LAYERS BROWNISH GRAY.		
5	60		MILD TO NO SULFUR ODOR		

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	61		AS ABOVE	
	62			
	63			
	64			
	65			
	66			
	67			
	68			
	69			
	70			
	71			
6	72			
	73			
	74			
	75			
	76			
	77			
	78			
	79			
	80			
	81			
	82			
	83			
	7	84		
	85		↓ BOTTOM OF CORE	
	86			
	87			
	88			
	89			
	90			
	91			
	92			
	93			
	94			
	95			
	8	96		
	97			
	98			
	99			
	100			
	101			
	102			
	103			
	104			
	105			
	106			
	107			
9	108			
	109			
	110			
	111			
	112			
	113			
	114			
	115			
	116			
	117			
	118			
	119			
10	120			

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/20/08

Sample ID: ED03A

Time: 1613

Area of Concern: East Dock

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): <u>36.7ft</u>		Penetration depth (cm): <u>23cm</u>						
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>					
Cobble	<u>Drab olive surface</u>	None	5mm RPD 10 biota					
Gravel	Brown	<u>Slight</u>						
Sand V C C M F V F	Brown surface	<u>Moderate</u>						
<u>Silt</u>	Gray	Strong						
Clay	Black	Overwhelming						
Organic matter	Other:	<u>Sulfur</u>						
Woody debris		Petroleum						
Shell debris		<u>Other:</u> Sweet?						
Other:								
<b>Analyses</b>	<b>Sample Containers</b>							
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1 Amber				Axys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Grain size/TOC		1			ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SVOCs	1 (2 if arch)	16oz Glass			ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<del>Resin/Guai</del>					ARI			
<del>Organotin</del>					ARI			
Ammonia					ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Sulfide		4oz	1	Blue Glass	ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	w/ Zn Ac
Pesticide	1 (2 if arch)				TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PCB					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
TPH		16oz Glass			TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Metal					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Hg					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Bioassay				1	NF	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Sampler Signatures

[Signature] 6/21/08 RDW  
Sample Custodian Signature

DB QA 6/21/08 RDW

[Signature]  
RDW

1 of 2

2 of 3

1st attempt

# Sediment Core Log

Station ID: FDO3

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: Rayonier - Eastern Mill Dock  
 GPS Time: 0807  
 Location (UTM Zone 10, NAD 83 meters): X 469737.75  
 Y 5329788.65

Date: 6-18-08  
 Time: start 0740  
 Boat: Salvager I  
 Core Collection Method: Vibracore  
 Sample Team: logging: C. Funk, m. Longhini, S. Pentney

Coring Start Time: 0810  
 Water Depth: 29.4 Ft. 29'9"  
 Core Bottom Depth: 35 Ft.  
 Coring Finish Time: 0813  
 Overall Recovery (%): —  
 Note: 12' borell

0828 After examination of core it is observed that the top 3 1/2 feet of sediment is extremely saturated and soupy - wood debris was observed in this interval, so for matters of quality assurance will cor deploy another core to gain a better understanding of the wood waste interval - 2nd attempt will be made but 1st attempt is being kept upright for the possibility

Sample ID:	Depth Interval:		in. to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:			Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar	TOC/Grain size		
	16 oz glass jar	Dioxins/Furans		
	16 oz glass jar	SVOCs / resin / TBT / Ammonia		
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar	Sulfide / Other:		
	core	Radioisotope Dating		

of using the "c" interval

Sample ID: <u>FDO3C 0813</u>	Depth Interval: <u>33</u>		in. to	<u>45</u>	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	<u>TOC/Grain size</u>	<u>16 oz Poly</u>		
	16 oz glass jar	<u>Dioxins/Furans</u>	<u>16 oz Amber</u>		
	16 oz glass jar	<u>SVOCs / resin / TBT / Ammonia</u>	<u>16 oz Glass</u>		
	16 oz glass jar	<u>Pest / PCBs / TPH / Metals / Hg</u>	<u>16 oz Glass</u>		
	4 oz glass jar	<u>Sulfide / Other: HClD</u>			
	core	Radioisotope Dating			

Sample ID:	Depth Interval:		in. to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:			Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar	TOC/Grain size		
	16 oz glass jar	Dioxins/Furans		
	16 oz glass jar	SVOCs / resin / TBT / Ammonia		
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar	Sulfide / Other:		
	core	Radioisotope Dating		

Sample ID:	Depth Interval:		in. to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:			Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar	TOC/Grain size		
	16 oz glass jar	Dioxins/Furans		
	16 oz glass jar	SVOCs / resin / TBT / Ammonia		
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar	Sulfide / Other:		
	core	Radioisotope Dating		

### NOTES:

Samples Received:  
6/19/08 RDW

DB QA 6/20/08 RDW

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1		INTERVAL FROM TOP OF		
	2		CORE TO 22" IS TOO		
	3		DISTURBED (SOOPY)		
	4		TO CHARACTERIZE.		
	5		APPARENTLY POOR RECOVERY		
	6		OF UPPER INTERVAL 0-22"		
	7		SEE ATTEMPT # 2 LOG		
	8		FOR LITHOLOGIC DESCRIPTION		
	9		AND COLLECTION OF		
	10		"B" INTERVAL SAMPLE.		
	11				
1	12				
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22		✓		
	23		SILT WITH INCREASING	WOOD DEBRIS CONSISTS	
	24		SAND (VF AND F) DOWNWARD,	OF REDDISH BRN BARK	
	25		WITH SOME WOOD DEBRIS TO 1"	AND HIGHLY DECOMPOSED	
	26		DARK OBTUSH BROWN.	STRANDS, PULP,	
	27		SOFT. STRONG SWEET		
	28		ODOR		
	29				
	30				
	31				
	32				
	33				
	34		SAND, MINOR FINES,	NO WOOD WASTE	
	35		GRADING DOWNWARD		
3	36		FROM VF (TOP) TO		
	37		C AND V. COARSE AT		
	38		BOTTOM OF INTERVAL.		
	39		OVERAL GRAY. WEAK		
	40		SULFUR ODOR.		
	41		MINOR SHELL FRAGMENTS		
	42				
	43				
	44				
	45				
	46		SAND AND GRAVEL WITH		
	47		SHELL DEBRIS. FEW MINOR		
4	48		OBSERVABLE FINES.		
	49		OVERALL GRAY COAR.		
	50		GRAVEL SUB RND TO		
	51		RND, TO 2". SHELL		
	52		FRAGMENTS TO 1". SAND		
	53		M TO V. COARSE.		
	54				
	55				
	56				
	57				
	58				
	59				
5	60				

ED03



# Sediment Core Log

1 of 3

2nd attempt

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: Eastern mill dock  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X  
 Y

Station ID: ED03  
 Date: 6-18-08  
 Time: Start 0845  
 Boat: Salvager I  
 Core Collection Method: Vibracore  
 Sample Team: loading: C. Funk  
M. Donstine, S. Pentney

Coring Start Time: 0904  
 Water Depth: 29' 2" Ft.  
 Core Bottom Depth: 50' Ft.  
 Coring Finish Time: 0907  
 Overall Recovery (%): 100%

0915 for 2<sup>nd</sup> attempt tried turning on vibracore  
 2' above sediment to troubleshoot soupy layer  
 problem - attempt successful  
 Note: coarse grained sand with small + large  
 pebbles seen in cutting shoe

Sample ID: ED03B Depth Interval: 6 in to 18 in.

Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: T, me = 0907  
 Biota: \_\_\_\_\_ Immediate Analysis \_\_\_\_\_ Archive for Later Analysis \_\_\_\_\_  
 Samples Collected: 16 oz poly jar ✓ TOC/Grain size ✓ 16 oz Poly  
 16 oz glass jar ✓ Dioxins/Furans ✓ 16 oz Amber  
 16 oz glass jar ✓ SVOCs / resin / TBT / Ammonia ✓ 16 oz Glass  
 16 oz glass jar ✓ Pest / PCBs / TPH / Metals / Hg ✓ 16 oz Glass  
 4 oz glass jar \_\_\_\_\_ Sulfide / Other: \_\_\_\_\_  
 core \_\_\_\_\_ Radioisotope Dating \_\_\_\_\_

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in to \_\_\_\_\_ in.

Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:  
 Biota: \_\_\_\_\_ Immediate Analysis \_\_\_\_\_ Archive for Later Analysis \_\_\_\_\_  
 Samples Collected: 16 oz poly jar \_\_\_\_\_ TOC/Grain size \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ Dioxins/Furans \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ SVOCs / resin / TBT / Ammonia \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ Pest / PCBs / TPH / Metals / Hg \_\_\_\_\_  
 4 oz glass jar \_\_\_\_\_ Sulfide / Other: \_\_\_\_\_  
 core \_\_\_\_\_ Radioisotope Dating \_\_\_\_\_

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in to \_\_\_\_\_ in.

Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:  
 Biota: \_\_\_\_\_ Immediate Analysis \_\_\_\_\_ Archive for Later Analysis \_\_\_\_\_  
 Samples Collected: 16 oz poly jar \_\_\_\_\_ TOC/Grain size \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ Dioxins/Furans \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ SVOCs / resin / TBT / Ammonia \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ Pest / PCBs / TPH / Metals / Hg \_\_\_\_\_  
 4 oz glass jar \_\_\_\_\_ Sulfide / Other: \_\_\_\_\_  
 core \_\_\_\_\_ Radioisotope Dating \_\_\_\_\_

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in to \_\_\_\_\_ in.

Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:  
 Biota: \_\_\_\_\_ Immediate Analysis \_\_\_\_\_ Archive for Later Analysis \_\_\_\_\_  
 Samples Collected: 16 oz poly jar \_\_\_\_\_ TOC/Grain size \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ Dioxins/Furans \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ SVOCs / resin / TBT / Ammonia \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ Pest / PCBs / TPH / Metals / Hg \_\_\_\_\_  
 4 oz glass jar \_\_\_\_\_ Sulfide / Other: \_\_\_\_\_  
 core \_\_\_\_\_ Radioisotope Dating \_\_\_\_\_

NOTES:

Samples received:  
6/19/08 RDW

DB QA 6/20/08 RDW

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0 - 16"	1		Very dark brown silt with large amount of wood waste, moderate odor, (H <sub>2</sub> S) some fine sand	70% wood waste mostly wood chips moderate H <sub>2</sub> S odor
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
1	12			
16"	13		within interval, appears to be coarsening with depth	↓
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
2	24		fine grained sandy silt (very dark brown)	
42"	25		extremely saturated, trace wood material observed, slight H <sub>2</sub> S odor, some pebbles, trace <del>no</del> No	trace wood debris slight H <sub>2</sub> S odor
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
3	36		shell on water	
42"	37		Sand silt with clay (very dark brown),	No wood material observed
	38			
	39			
	40			
	41			
	42			
	43			
	44			
	45			
	46			
	47			
4	48			
60"	49		small and large pebbles, large amount of shell fragments pebbles are rounded and subangular, no odor, (H <sub>2</sub> S) no wood material observed	↓
	50			
	51			
	52			
	53			
	54			
	55			
	56			
	57			
	58			
	59			
5	60			

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/20/08 ✓✓

Sample ID: ED04A ✓✓

Time: 1516 ✓✓

Area of Concern: East Dock

Location Data Harbor-Wide/ Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): <u>31.1ft</u> ✓		Penetration depth (cm): <u>30cm</u> ✓						
<b>Sediment type:</b> Cobble Gravel Sand VCC M F VF <u>Silt</u> Clay ✓ <del>Organic matter</del> Woody debris Shell debris Other:	<b>Sediment color:</b> Drab olive Brown ✓ Brown surface <u>Gray</u> <u>Black</u> Other:	<b>Sediment Odor:</b> None Slight Moderate ✓ <u>Strong</u> <u>Overwhelming</u> <u>Sulfur</u> Petroleum Other: <u>methane</u>	<b>Comments:</b> <u>Callicianacid</u> <u>Small crabs</u> <u>Keep</u>					
<b>Analyses</b>	<b>Sample Containers</b>							
	<b>16 oz glass jar</b>	<b>16 oz poly</b>	<b>4 oz jar</b>	<b>Plastic bag</b>	<b>Lab</b>	<b>Immediate Analysis</b>	<b>Archive</b>	<b>MS/MSD</b>
Dioxin/Furan	1 Amber ✓	✓			Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)				ARI	✓		
<del>Resin / Guai</del>					ARI			
<del>Organotin</del>		16oz glass ✓			ARI			
Ammonia					ARI	✓		
Sulfide		2oz	1		ARI	✓		
<del>Pesticide</del>	1 (2 if arch)				TA	✗ JS		
PCB					TA	✓		
TPH		16oz			TA	✓		
Metal					TA	✓		
Hg					TA	✓		
Bioassay				1 ✓	NF	✓		

*Very strong odor*

Sampler Signatures

[Signature] 6/20/08 RDW

DB DA 6/21/08 RDW

Sample Custodian Signature

1st attempt

# Sediment Core Log

Station ID: ED04

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: EAST OF MILL DOCK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469 120 . 51  
 Y 532 9703 . 18

Date: 6/18/08  
 Time: 1205  
 Boat: NWUWC SALVAGER 1  
 Core Collection Method: VIBRATOR  
 Sample Team: M LONGTINE C FUNK S PENNEY

Coring Start Time: 1203  
 Water Depth: 27' 3" FT @ 1200 ✓  
 Core Bottom Depth: 5 FL  
 Coring Finish Time: 1205  
 Overall Recovery (%): \_\_\_\_\_  
 Note: using 12' barrel

Note: Clay + rocks seen in cutting shoe - strong H<sub>2</sub>S odor while extracting sleeve - wood waste in cutting shoe - save core but go for 2nd attempt with 10' sleeve - manure smell?

Sample ID:	ED04 B ✓		Depth Interval:	36 in. to 48 in. ✓	
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:				
Biota:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:				
Samples Collected:	16 oz poly jar	✓	TOC/Grain size	✓	16 oz Poly
	16 oz glass jar	✓	Dioxins/Furans	✓	16 oz Amber
	16 oz glass jar	✓	SVOCs / resin / TBT / Ammonia	✓	16 oz Glass
	16 oz glass jar	✓	Pest / PCBs / TPH / Metals / Hg	✓	16 oz Glass
	4 oz glass jar		Sulfide / Other:		
	core		Radioisotope Dating		
<p>TIME = 1205 ✓</p> <p>DB QA 6-20-08 RDW</p>					
Sample ID:	[Crossed out]				
Sediment Type (%):	[Crossed out]				
Sediment Color:	[Crossed out]				
Sediment Odor:	[Crossed out]				
Biota:	[Crossed out]				
Samples Collected:	16 oz poly jar		TOC/Grain size		
	16 oz glass jar		Dioxins/Furans		
	16 oz glass jar		SVOCs / resin / TBT / Ammonia		
	16 oz glass jar		Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar		Sulfide / Other:		
	core		Radioisotope Dating		
Sample ID:	[Crossed out]				
Sediment Type (%):	[Crossed out]				
Sediment Color:	[Crossed out]				
Sediment Odor:	[Crossed out]				
Biota:	[Crossed out]				
Samples Collected:	16 oz poly jar		TOC/Grain size		
	16 oz glass jar		Dioxins/Furans		
	16 oz glass jar		SVOCs / resin / TBT / Ammonia		
	16 oz glass jar		Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar		Sulfide / Other:		
	core		Radioisotope Dating		
Sample ID:	[Crossed out]				
Sediment Type (%):	[Crossed out]				
Sediment Color:	[Crossed out]				
Sediment Odor:	[Crossed out]				
Biota:	[Crossed out]				
Samples Collected:	16 oz poly jar		TOC/Grain size		
	16 oz glass jar		Dioxins/Furans		
	16 oz glass jar		SVOCs / resin / TBT / Ammonia		
	16 oz glass jar		Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar		Sulfide / Other:		
	core		Radioisotope Dating		

Samples Rec'd:  
6/19/08  
RDW

NOTES: Note: may be able to use B interval, will RETAIN CORE INTACT WITHIN CORE SLEEVE IN UPRIGHT POSITION FOR POSSIBLE PROCESSING, PENDING OUTCOME OF ADDITIONAL CORING ATTEMPTS).  
 1330 DECIDED, BASED ON OUTCOME OF ATTEMPT 2 (CORE SLEEVE BROKE DUE TO HARD GRAVEL → SAMPLE LOST UPON EXTRACTION OF SLEEVE FROM BARREL) AND ATTEMPT 3 (DEFLECTION OF CORE BARREL FROM HARD [GRAVEL] SURFACE BELOW WOOD DEBRIS COLUMN), THAT WILL USE ATTEMPT 1 CORE FOR "B" SAMPLE. NO SEDIMENT BELOW WOOD WASTE RECOVERED.

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization			
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy		
	1		VERY SOUPY, DARK BLACKISH BROWN MUCK WITH WOOD WASTE AND KELP AND GRASSY - APPEARING PLANT MATTER. V. STRONG SULFUR ODOR.				
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11						
1	12						
	13		AS DESCRIBED FOR 26 TO 48" EXCEPT MOSTLY WOOD DEBRIS, LESS CLAY AND SILT.				
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
2	24						
	25		(Vertical arrow pointing down from 13 to 36)				
	26						
	27						
	28						
	29						
	30						
	31						
	32						
	33						
	34						
	35						
3	36						
	37	ED04 (Vertical arrow pointing up from 36 to 37)	MIXED FINES (CLAY AND SILT) AND WOOD DEBRIS, W/ REDDISH BROWN BARK (TO 1") TAN CHIPS AND STRANDS TO 2" AND ABUNDANT FINE STRANDS / FIBERS. WOOD COMPOSES EST 50% OVERSH DUNE GRAYISH BROWN. SOFT. VERY STRONG SULFUR ODOR.				
	38						
	39						
	40						
	41						
	42						
	43						
	44						
	45						
	46						
	47						
4	48						
	49		AS ABOVE (Vertical arrow pointing down from 48 to 60)				
	50						
	51						
	52						
	53						
	54						
	55						
	56						
	57						
	58						
	59						
5	60						

CLAY AND ROCK OBSERVED IN CUTTING SHOE. REFUSAL ATTRIBUTED TO ROCK (COBBLES).  
 NO SUB-WOOD DEBRIS INTERVAL RECOVERED IN SIEVE → THEREFORE, NO "C" SAMPLES.

2nd attempt

# Sediment Core Log

Station ID: ED04

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: East of Mill Dock  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y \_\_\_\_\_

Date: 6-18-08  
 Time: 1023  
 Boat: NWUNC SALVAGER I  
 Core Collection Method: Vibracore  
 Sample Team: M. Longfellow, C. Funk, S. Peatne

Coring Start Time: 1023  
 Water Depth: 27.5 Ft.  
 Core Bottom Depth: 5.7 Ft.  
 Coring Finish Time: 1226  
 Overall Recovery (%): \_\_\_\_\_  
 Note: using 12' barrel

Refusal @ 33' 2" (went down 6")  
 @ 33' 2" went down approx. 6' → 5' 7"

12  
 27.5  
 27.3  
 5.7

Sample ID:	Depth Interval:	in:	to:	in:
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: _____	___
	core	___	Radioisotope Dating	___
<i>NO SAMPLES - LAST CORING</i>				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: _____	___
	core	___	Radioisotope Dating	___
<i>NO SAMPLES - LAST CORING</i>				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: _____	___
	core	___	Radioisotope Dating	___

NOTES: 1236: Core sleeve broke off from cutting shoe during extraction  
 - core lost - go for 3rd attempt

3rd attempt

# Sediment Core Log

Station ID: ED04

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: EAST OF MILL DOCK  
 GPS Time: 1255  
 Location (UTM Zone 10, NAD 83 meters): X: 469719.5  
 Y: 5329705.1

Date: 6/18/08  
 Time: 1304  
 Boat: NWUWC SALVAGER 1  
 Core Collection Method: VIBRACORE  
 Sample Team: M. LONGTINE, C. FUNK, S. PENNEY

Coring Start Time: 1259  
 Water Depth: 29' 10" Ft  
 Core Bottom Depth: 34' 2" Ft  
 Coring Finish Time: 1304  
 Overall Recovery (%): 54% 55%

NOTE: USING 12" DIAM

Refusal @ 34' 2"  
 PENETRATION DEPTH = 4' 4" UPON REMOVAL OF CORE SLEEVE, OBSERVED NEARLY FULL SLEEVE (8' 7"), NEARLY DOUBLE THE APPARENT PENETRATION DEPTH. FOLLOWING INSPECTION OF CORE (ALL 8' 7" IS WOOD DEBRIS) AND CONSIDERING OBSERVATIONS DURING CORING (APPARENT

Sample ID:	Depth Interval:	in to	in
Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar	TOC/Grain size	
	16 oz glass jar	Dioxins/Furans	
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	
	4 oz glass jar	Sulfide / Other:	
	core	Radioisotope Dating	
<del>Sample ID: Depth Interval: in to in</del>			
<del>Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:</del>			
<del>Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:</del>			
<del>Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</del>			
<del>Biota:</del>		<del>Immediate Analysis</del>	<del>Archive for Later Analysis</del>
<del>Samples Collected:</del>	<del>16 oz poly jar</del>	<del>TOC/Grain size</del>	
	<del>16 oz glass jar</del>	<del>Dioxins/Furans</del>	
	<del>16 oz glass jar</del>	<del>SVOCs / resin / TBT / Ammonia</del>	
	<del>16 oz glass jar</del>	<del>Pest / PCBs / TPH / Metals / Hg</del>	
	<del>4 oz glass jar</del>	<del>Sulfide / Other:</del>	
	<del>core</del>	<del>Radioisotope Dating</del>	
<del>Sample ID: Depth Interval: in to in</del>			
<del>Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:</del>			
<del>Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:</del>			
<del>Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</del>			
<del>Biota:</del>		<del>Immediate Analysis</del>	<del>Archive for Later Analysis</del>
<del>Samples Collected:</del>	<del>16 oz poly jar</del>	<del>TOC/Grain size</del>	
	<del>16 oz glass jar</del>	<del>Dioxins/Furans</del>	
	<del>16 oz glass jar</del>	<del>SVOCs / resin / TBT / Ammonia</del>	
	<del>16 oz glass jar</del>	<del>Pest / PCBs / TPH / Metals / Hg</del>	
	<del>4 oz glass jar</del>	<del>Sulfide / Other:</del>	
	<del>core</del>	<del>Radioisotope Dating</del>	

SEE BELOW

NO SAMPLES

NOTES: LATERAL MOVEMENT OF CABLE, IT APPEARS CORE BARREL DEVIATED FROM VERTICAL WHEN IT ENCOUNTERED GRAVEL (EST 5-6 FT BELOW MUDLINE BASED ON REFUSAL OF ATTEMPTS 1 AND 2), AND SKITTERED ALONG TOP OF GRAVEL AND FILLED WITH WOOD WASTE. WILL NOT PROCESS CORE FOR SAMPLES. WILL USE 1ST ATTEMPT CORE, WHICH APPEARS REPRESENTATIVE OF WOOD WASTE COLUMN, FOR "B" SAMPLE. NO "C" SAMPLE WILL BE COLLECTED SINCE NO SUB-WOOD MATERIAL WAS RECOVERED.

# Sediment Core Log

Station ID: ED05

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: EAST OF MILL DOCK  
 GPS Time: 1432  
 Location (UTM Zone 10, NAD 83 meters): X 469697.5  
 Y 5329591.6

Date: 7/15/08  
 Time: 1432  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRA CORE  
 Sample Team: LONGTINE

Coring Start Time: 1432  
 Water Depth: 23.5 Ft.  
 Core Bottom Depth: 7.0 Ft.  
 Coring Finish Time: 1433  
 Overall Recovery (%): 3.5'

*50% CORE RECOVERY. OBSERVED CORE MATERIAL. SILT AND SAND WITH WOODY DEBRIS THROUGHOUT. LOCALIZED WHITE SILK FRAGMENTS ALSO. REJECT CORE DUE TO INSUFFICIENT RECOVERY.*

*50% RECOVERY*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

*NO SAMPLES RECOVERED*

NOTES:



# Sediment Core Log

Station ID: EDG5

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: EAST OF MILL ISLAND  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y \_\_\_\_\_

Date: 7/15/08  
 Time: 1559  
 Boat: RSS CAPOLYN DOW  
 Core Collection Method: VIBRACOR  
 Sample Team: LONGTIVE

Coring Start Time: 1559  
 Water Depth: 23.3 Ft.  
 Core Bottom Depth: 8.0 Ft.  
 Coring Finish Time: 1600  
 Overall Recovery (%): 50%

1605 RECOVERED CORE FROM CORE BARREL. ESTIMATED 4.0 FEET OF CORE RECOVERED -> 50% RECOVERY CORE REJECTED. CORE VERY SIMILAR TO FIRST ATTEMPT. WOOD DEBRIS (NEARLY 100% WOOD CHIPS, BARK, FIBERS) IN BOTTOM 1 FOOT OF CORE. THIS IS OVERLAIN BY SILTY SAND DARK GRAYISH BROWN, WITH SOME WOOD DEBRIS AND SHELLS. WOOD DEBRIS DECREASES UPWARD TO NONE OBSERVED

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	
	16 oz glass jar _____	Dioxins/Furans _____	
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	
	4 oz glass jar _____	Sulfide / Other: _____	
	core _____	Radioisotope Dating _____	
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	
	16 oz glass jar _____	Dioxins/Furans _____	
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	
	4 oz glass jar _____	Sulfide / Other: _____	
	core _____	Radioisotope Dating _____	
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	
	16 oz glass jar _____	Dioxins/Furans _____	
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	
	4 oz glass jar _____	Sulfide / Other: _____	
	core _____	Radioisotope Dating _____	
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	
	16 oz glass jar _____	Dioxins/Furans _____	
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	
	4 oz glass jar _____	Sulfide / Other: _____	
	core _____	Radioisotope Dating _____	

NO SAMPLES RECOVERED

IN UPPER 1 FOOT. SILTY SAND WOOD IN UPPER PORTION OF CORE.

NOTES:

# Sediment Core Log

Station ID: ED05 FOR ATTEMPTS 1 AND 2

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: EAST OF MILL DOCK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 4691698.1  
 Y 5329592.3

Date: 7/16/08  
 Time: 1735  
 Boat: RSS OFFSHORE DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 1725 *CORE PENETRATED 4.5 FT, AT WITHIT POINT HIT REFUSAL.*  
 Water Depth: 24.2 Ft. *SLOW PENETRATION FOR MOST OF CORE. 40" OF RECOVERY.*  
 Core Bottom Depth: 4.5 Ft. *MATERIAL OBSERVED THROUGH LINER APPEARS TO BE MIX OF*  
 Coring Finish Time: 1726 *SAND AND SILT. CORE ACCEPTABLE.*  
 Overall Recovery (%): 75%

Sample ID:	<u>ED05</u>		Depth Interval:	<u>12</u> in. to <u>24</u> in.	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	<u>I</u>	TOC/Grain size	<u>X</u>	_____
	16 oz glass jar	<u>I</u>	Dioxins/Furans	<u>X</u>	_____
	16 oz glass jar	<u>I</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>	_____
	16 oz glass jar	<u>I</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>	_____
	4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
	core	_____	Radioisotope Dating	_____	_____
Sample ID:			Depth Interval:	_____ in. to _____ in.	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____	_____
	16 oz glass jar	_____	Dioxins/Furans	_____	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
	4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
	core	_____	Radioisotope Dating	_____	_____
Sample ID:			Depth Interval:	_____ in. to _____ in.	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____	_____
	16 oz glass jar	_____	Dioxins/Furans	_____	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
	4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
	core	_____	Radioisotope Dating	_____	_____
Sample ID:			Depth Interval:	_____ in. to _____ in.	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____	_____
	16 oz glass jar	_____	Dioxins/Furans	_____	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
	4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
	core	_____	Radioisotope Dating	_____	_____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0" - 6"	1	No sample 0"-6"	(0"-6") - Dark grey fine sand with silt, shell fragments, kelp, organic detritus. No odor. No wood material	No wood material
	2			
	3			
	4			
	5			
	6			
6" - 12"	7	No sample 6"-12"	(6"-12") - Dark grey fine sand with silt, shell fragments. No odor, trace wood chips	Trace wood chips (cm in size) No odor
	8			
	9			
	10			
	11			
1	12			
12" - 24"	13	E10515 (12"-24")	(12"-24") - Dark grey/black sandy silt, shell fragments, polychete tube, moderate sulfur odor, see wood material characteristics	Wood chips, (cm to natural detritus, pulp fibers around 24"
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
	24			
2	24			
24" - 36"	25	No sample (24"-36")	(24"-36") - Dark brown/black and grey wood material difficult to determine mineral amount and composition due to large amount of wood material in interval. Very strong petroleum and sulfur odor	Wood pulp from approx. 24"-28" are am fibrous curking. Jal strong petroleum smell from 25"-36" is a large amount of wood chips and wood fibers (90%)
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
3	36			
4	37			
	38			
	39			
	40			
	41			
	42			
	43			
	44			
	45			
	46			
	47			
	48			
5	49			
	50			
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	58			
	59			
	60			

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/20/08 ✓

Sample ID: ED05A ✓

Time: 1040 ✓

Area of Concern: East Dock

Location Data Harbor-Wide/ Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 16.1 ft ✓ Penetration depth (cm): 16 ft ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<u>Cobble</u> ✓	Drab olive	<u>None</u> ✓	Lots of kelp Anthropleura Spironachaeus? (shrimp) Scallop Tellina modesta Macoma sp.
Gravel	Brown	Slight	
<u>Sand</u> V C C M (F) Y F	<u>Brown surface</u>	Moderate	
Silt	<u>Gray</u>	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
<u>Shell debris very small pieces</u>		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓	✓			Axys	✓		
Grain size/TOC		1 16oz GLASS ✓			ARI	✓	OK to leave as is per EW	
SVOCs	1 (2 if arch)				ARI	✓		
<del>Resin / Guai</del>		16oz glass ✓			ARI			
<del>Organotin</del>					ARI			
Ammonia					ARI	✓		
Sulfide			1 2oz Glass ✓		ARI	✓	w/20 Acc ✓	
Pesticide	1 (2 if arch)				TA			
PCB					TA	✓		
TPH		16oz Glass ✓			TA	✓		
Metal					TA	✓		
Hg					TA	✓		
Bioassay				1 ✓	NF	✓		

Sampler Signatures

[Signature] 6/21/08 RDW      [Signature] 6/21/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/20/08

Sample ID: EE01A

Time: 0957

Area of Concern: East Emis

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): ~3.0 ft Penetration depth (cm): 23cm

90%  
coarse

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<u>Cobble</u>	Drab olive	<u>None</u>	Crangon sp Fish: lots Algae on surface 3cm RPD thin band of dark sediment then back to gray
<del>Gravel</del>	Brown	Slight	
<del>Sand</del> <u>VOCOM FVF</u>	Brown surface	Moderate	
Silt	<u>Gray</u>	Strong	
Clay	<del>Black</del> <u>thin band</u>	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers				Lab	Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag				
Dioxin/Furan	1 Amber	✓			Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)		4oz Glass ✓		ARI	✓		
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA	✓		
PCB					TA	✓		
TPH			16oz Glass ✓		TA	✓		
Metal					TA	✓		
Hg					TA	✓		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/21/08 RDW

DB QA 6/21/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: EEO1

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/16/08

Location Data: Harbor-wide / (Rayonier)

Time: 1500

Area of Concern: EAST OF ENNIS CREEK

Boat: RSS CAROLYN DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRACORE

Location (UTM Zone 10, NAD 83 meters): X 469966.3

Sample Team: LONGTINE

Y 5329400.8

Coring Start Time: 1500  
 Water Depth: 10.9 Ft.  
 Core Bottom Depth: EST. 2.5 Ft.  
 Coring Finish Time: 1502  
 Overall Recovery (%): 63%

19 INCHES OF MATERIAL RECOVERED. REFUSAL AT ESTIMATED DEPTH OF PENETRATION OF 2.5 FT. MATERIAL CONSISTS OF GRAVEL AND SAND. SAND V. COARSE. SAME TYPE OF MATERIAL DESCRIBED FOR GRAB SAMPLE AT THIS LOCATION. ALTHOUGH LESS THAN 65% RECOVERY WILL PROCESS CORE BECAUSE DO NOT EXPECT BETTER CONDITIONS OR RESULTS.

Sample ID: EEO1B Depth Interval: 6 in. to 12 in.

Sediment Type (%): Cobble  / Gravel  / Sand (VC C M F VF)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: Pacific sand lance Immediate Analysis Archive for Later Analysis

Samples Collected:			Immediate Analysis	Archive for Later Analysis
16 oz poly jar	<u>1</u>	TOC/Grain size	<u>X</u>	_____
16 oz glass jar	<u>1</u>	Dioxins/Furans	<u>X</u>	_____
16 oz glass jar	<u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>	_____
16 oz glass jar	<u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
core	_____	Radioisotope Dating	_____	_____

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_\_\_ / Gravel \_\_\_\_\_ / Sand (VC C M F VF) \_\_\_\_\_ / Silt \_\_\_\_\_ / Clay \_\_\_\_\_ / Organic mtrl \_\_\_\_\_ / Woody debris \_\_\_\_\_ / Shell debris \_\_\_\_\_ / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_ Immediate Analysis Archive for Later Analysis

Samples Collected:			Immediate Analysis	Archive for Later Analysis
16 oz poly jar	_____	TOC/Grain size	_____	_____
16 oz glass jar	_____	Dioxins/Furans	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
core	_____	Radioisotope Dating	_____	_____

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_\_\_ / Gravel \_\_\_\_\_ / Sand (VC C M F VF) \_\_\_\_\_ / Silt \_\_\_\_\_ / Clay \_\_\_\_\_ / Organic mtrl \_\_\_\_\_ / Woody debris \_\_\_\_\_ / Shell debris \_\_\_\_\_ / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_ Immediate Analysis Archive for Later Analysis

Samples Collected:			Immediate Analysis	Archive for Later Analysis
16 oz poly jar	_____	TOC/Grain size	_____	_____
16 oz glass jar	_____	Dioxins/Furans	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
core	_____	Radioisotope Dating	_____	_____

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_\_\_ / Gravel \_\_\_\_\_ / Sand (VC C M F VF) \_\_\_\_\_ / Silt \_\_\_\_\_ / Clay \_\_\_\_\_ / Organic mtrl \_\_\_\_\_ / Woody debris \_\_\_\_\_ / Shell debris \_\_\_\_\_ / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_ Immediate Analysis Archive for Later Analysis

Samples Collected:			Immediate Analysis	Archive for Later Analysis
16 oz poly jar	_____	TOC/Grain size	_____	_____
16 oz glass jar	_____	Dioxins/Furans	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____
core	_____	Radioisotope Dating	_____	_____

No sample "C"

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0" 6"	1	No sample (0-6")	GREY med-coarse SAND, some small and large rounded gravel, some small cobble, shell fragments, one dead pacific star/larva	No wood material
	2			
	3			
	4			
	5			
	6			
6" 12"	7	FE01B (6-12")	same as above	No wood material
	8			
	9			
1	10			
	11			
	12			
	13		End @ 12"	
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
2	22			
	23			
	24			
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4	37			
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**Project:** Port Angeles Harbor Sediment

**Grab Sediment Sample Log**

Characterization Study

Date: 6/20/08 ✓

Sample ID: FE02A ✓

Time: 0921 ✓

Area of Concern: East Emis

Location Data Harbor-Wide/ Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 2.1 ft ✓ Penetration depth (cm): 18cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input checked="" type="checkbox"/> Cobble ✓	Drab olive	<input checked="" type="checkbox"/> None ✓	- 45cm RPD, then sand is finer below it. - Nereidae
<input type="checkbox"/> Gravel	Brown	Slight	
<input checked="" type="checkbox"/> Sand <u>VCCM FVF</u>	<u>Brown surface</u>	Moderate	
<input type="checkbox"/> Silt	<input checked="" type="checkbox"/> Gray	Strong	
<input type="checkbox"/> Clay	<input checked="" type="checkbox"/> Black	Overwhelming	
<input type="checkbox"/> Organic matter	Other:	Sulfur	
<input type="checkbox"/> Woody debris		Petroleum	
<input type="checkbox"/> Shell debris		Other:	
<input type="checkbox"/> Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓				Axys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Grain size/TOC		1 ✓			ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SVOCs	1 (2 if arch)				ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PCB					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
TPH					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Metal					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Hg					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Bioassay				1	NF			

**Sampler Signatures**

[Signature] 6/21/08 RPDW

[Signature] DP QA 6/21/08 RPDW

**Sample Custodian Signature**



# Sediment Core Log

Station ID: EE02

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: EE02  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469996.7  
 Y 5329335.0

Date: 7/21/08  
 Time: 0931  
 Boat: RSS CAPTAIN DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

ATTEMPT  
 ①  
 REJECT

Coring Start Time: 0903      ATTEMPT ②  
 Water Depth: 4.3 Ft.      0931  
 Core Bottom Depth: 3.2 Ft.      3.4  
 Coring Finish Time: 0904      4.9  
 Overall Recovery (%): 69      0932  
 Recovery 2.17'      74%  
 X 469996.7 Y 5329333.4      3.6

Sample ID: EE02B      Depth Interval: 12 in. to 24 in.

Sediment Type (%): Cobble \_\_\_ / Gravel X / Sand (VC C M F VF) X / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: help, rot, grass      Immediate Analysis      Archive for Later Analysis

Samples Collected:

16 oz poly jar	<u>1</u>	TOC/Grain size	<u>X</u>	_____
16 oz glass jar	<u>1</u>	Dioxins/Furans	<u>X</u>	_____
16 oz glass jar	<u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>	_____
16 oz glass jar	<u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>	_____
4 oz glass jar	_____	Sulfide / Other:	_____	_____
core	_____	Radioisotope Dating	_____	_____

Sample ID: EE02C      Depth Interval: 24 in. to 36 in.

Sediment Type (%): Cobble \_\_\_ / Gravel X / Sand (VC C M F VF) X / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris X / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: \_\_\_\_\_      Immediate Analysis      Archive for Later Analysis

Samples Collected:

16 oz poly jar	<u>1</u>	TOC/Grain size	<u>X</u>	_____
16 oz glass jar	<u>1</u>	Dioxins/Furans	<u>X</u>	_____
16 oz glass jar	<u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>	_____
16 oz glass jar	<u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>	_____
4 oz glass jar	_____	Sulfide / Other:	_____	_____
core	_____	Radioisotope Dating	_____	_____

Sample ID: \_\_\_\_\_      Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: \_\_\_\_\_      Immediate Analysis      Archive for Later Analysis

Samples Collected:

16 oz poly jar	_____	TOC/Grain size	_____	_____
16 oz glass jar	_____	Dioxins/Furans	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
4 oz glass jar	_____	Sulfide / Other:	_____	_____
core	_____	Radioisotope Dating	_____	_____

Sample ID: \_\_\_\_\_      Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: \_\_\_\_\_      Immediate Analysis      Archive for Later Analysis

Samples Collected:

16 oz poly jar	_____	TOC/Grain size	_____	_____
16 oz glass jar	_____	Dioxins/Furans	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____
4 oz glass jar	_____	Sulfide / Other:	_____	_____
core	_____	Radioisotope Dating	_____	_____

NOTES: REJECTED ATTEMPT # 1 CORE. INADEQUATE PENETRATION AND VOLUME OF MATERIAL RECOVERED. WILL ATTEMPT AGAIN.

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
0" 6"	1	No sample	(0"-6") Dark grey coarse SAND, some pebbles		No wood material
	2				
	3		gravel (small), kelp, teal glass,		
	4		No odor, no wood material		
	5				
	6				
6" 12"	7	No sample	(6"-12") Dark grey coarse SAND, some small gravel,		No wood material
	8				
	9		no wood material, no odor, no organic detritus		
	10				
	11				
	12				
12" 24"	13	FE02B	(12"-24") Dark grey coarse and medium sand, some small gravel, some staining throughout interval (organic?)		No wood material
	14				
	15				
	16				
	17				
	18		No odor, no wood material		
	19		no organic detritus		
	20				
	21				
	22				
	23				
	24				
24" 36"	25	FE02C	(24"-36") Dark grey mostly medium SAND, some coarse sand, some small gravel, shell fragments present, no odor, no wood material, no staining, no organic detritus		No wood material
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33		piece of amber bottle glass		
	34				
	35				
	36				
36" 48"	37				
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
	48				
48" 60"	49				
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
	60				

**Project:** Port Angeles Harbor Sediment

**Grab Sediment Sample Log**

Characterization Study

Date: 6/20/08 ✓✓

Sample ID: EE03A ✓✓

Time: 1444 ✓✓

Area of Concern: Fast Ennis

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 7.38 ✓ Penetration depth (cm): 14cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble ✓	Drab olive ✓	None ✓	Brown algae mat on top Macoma sp Spio chaetopterus
Gravel	Brown ✓	Slight	
Sand VCC M (F)VF	Brown surface	Moderate	
Silt	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓				Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)		4 oz glass ✓		ARI	✓		
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA	✓		
PCB					TA	✓		
TPH					TA	✓		
Metal					TA	✓		
Hg					TA	✓		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/21/08 RDW

DBQA 6/21/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: EE03

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: EAST OF ENNIS CREEK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y \_\_\_\_\_

Date: 7/16/08  
 Time: 1558  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRACORE  
 Sample Team: LONGTINE

Coring Start Time: 1558 41" RECOVERED. CORE ACCEPTABLE.  
 Water Depth: 10.4 Ft.  
 Core Bottom Depth: 4.7 Ft.  
 Coring Finish Time: 1600  
 Overall Recovery (%): \_\_\_\_\_

Sample ID: EE03B Depth Interval: 10 in. to 12 in.

Sediment Type (%): Cobble \_\_\_ / Gravel  / Sand (VC C M F VF)  / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris  / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / (Gray) / Black / Other:

Sediment Odor: (None) / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Polychaete tubes (2 w/ polychaete) Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	___	TOC/Grain size	<input checked="" type="checkbox"/>	___
16 oz glass jar	___	Dioxins/Furans	<input checked="" type="checkbox"/>	___
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	<input checked="" type="checkbox"/>	___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>	___
4 oz glass jar	___	Sulfide / Other: _____	___	___
core	___	Radioisotope Dating	___	___

Sample ID: EE03C Depth Interval: 12 in. to 24 in.

Sediment Type (%): Cobble \_\_\_ / Gravel  / Sand (VC C M F VF)  / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / (Gray) / Black / Other:

Sediment Odor: (None) / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Polychaete tubes Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	___	TOC/Grain size	___	___
16 oz glass jar	___	Dioxins/Furans	___	___
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
4 oz glass jar	___	Sulfide / Other: _____	___	___
core	___	Radioisotope Dating	___	___

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: \_\_\_\_\_ Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	___	TOC/Grain size	___	___
16 oz glass jar	___	Dioxins/Furans	___	___
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
4 oz glass jar	___	Sulfide / Other: _____	___	___
core	___	Radioisotope Dating	___	___

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: \_\_\_\_\_ Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	___	TOC/Grain size	___	___
16 oz glass jar	___	Dioxins/Furans	___	___
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
4 oz glass jar	___	Sulfide / Other: _____	___	___
core	___	Radioisotope Dating	___	___

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0" 6"	1	No sample	(0-6") Grey medium sand, some rounded pebbles, some shell fragments, polychete tubes	
	2			
	3			
	4			
	5		No odor	No wood material
	6		No organic materials	
6" 12"	7	FE03B	Same as above	No wood material
	8	(6"-12")		
	9			
	10			
	11			
1	12			
12" 24"	13	FE03C	(12"-24") Grey medium sand some angular pebbles/gravel, some coarse cobble (2")	No wood material
	14	(12"-24")		
	15		some large shell fragments (clam)	
	16			
	17		No odor, No organic material, polychete tubes	
	18			
	19			
	20			
	21			
	22			
2	24			
24" 27"	25	24"-27"	(24"-27") - same as above	
	26	No sample		
	27			
	28			
	29			
	30			
	31		End of boring @ 27"	
	32			
	33			
	34			
3	36			
4	37			
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# Sediment Core Log

Station ID: EE04

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide (Rayonier)  
 Area of Concern: EAST OF ENNIS CREEK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 47086.9  
 Y 530997.7

Date: 7/17/08  
 Time: 1600  
 Boat: RSS CAROLYN Dow  
 Core Collection Method: VIBRA-CORE  
 Sample Team: LONGTINE

Coring Start Time: 1600  
 Water Depth: 4.7 Ft.  
 Core Bottom Depth: 1.8 Ft.  
 Coring Finish Time: 1601  
 Overall Recovery (%): ~40

*POOR RECOVERY AND PENETRATION IN COBBLY, GRAVELLY  
 INTERTIDAL SEDIMENTS. COBBLES TO 3" WILL ATTEMPT  
 2<sup>ND</sup> TIME AT LOCATION FURTHER OUTBOARD.*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____

*COBBLES TO 3" WILL ATTEMPT 2<sup>ND</sup> TIME AT LOCATION FURTHER OUTBOARD.*

NOTES:

**Project:** Port Angeles Harbor Sediment

**Grab Sediment Sample Log**

Characterization Study

Date: 6/20/08 ✓✓

Sample ID: EE04A ✓✓

Time: 0847 ✓✓

Area of Concern: East Emis

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): ~2.0ft ✓ Penetration depth (cm): 10cm (hand sample) ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<u>Cobble</u> ✓	Drab olive ✓	<u>None</u> ✓	NO biota
<u>Gravel</u>	Brown	Slight	
<u>Sand</u> <u>VCC</u> M F VF	Brown surface	Moderate	
Silt	<u>Gray</u>	Strong	
Clay	<u>Black</u>	Overwhelming	
Organic matter	<u>Other</u>	Sulfur	
Woody debris	<u>rocks</u>	Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers				Lab	Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag				
Dioxin/Furan	1 <u>Anubel</u> ✓	✓			Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)				ARI	✓		
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA	✓		
PCB					TA	✓		
TPH					TA	✓		
Metal					TA	✓		
Hg					TA	✓		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/21/08 RDW

DB QA 6/21/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: EE04

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: EAST OF ENNIS CREEK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 470188.1  
 Y 53212068

Date: 7/17/08  
 Time: 1745  
 Boat: RSS CAPOLYN DOW  
 Core Collection Method: VIBRATION  
 Sample Team: LONGTINE

Coring Start Time: 1745  
 Water Depth: 8.0 Ft.  
 Core Bottom Depth: 6.7 Ft.  
 Coring Finish Time: 1746  
 Overall Recovery (%): 53

3.5 FT RECOVERY → 53% RECOVERY. WILL KEEP CORE FOR PROCESSING.

Sample ID: <u>EE043</u>		Depth Interval: <u>6</u> in. to <u>12</u> in.	
Sediment Type (%): Cobble <input checked="" type="checkbox"/> / Gravel <input checked="" type="checkbox"/> / Sand (VC <input checked="" type="checkbox"/> M <input checked="" type="checkbox"/> F <input checked="" type="checkbox"/> VF) <input checked="" type="checkbox"/> / Silt <input type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input type="checkbox"/> / Woody debris <input type="checkbox"/> / Shell debris <input checked="" type="checkbox"/> / Other: _____			
Sediment Color: <u>Drab olive</u> / <u>Brown</u> / Brown surface / <u>Gray</u> / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____		_____	
Samples Collected:	16 oz poly jar <u>1</u>	TOC/Grain size	<u>X</u>
	16 oz glass jar <u>1</u>	Dioxins/Furans	<u>X</u>
	16 oz glass jar <u>1</u>	SVOCs / resin / <u>TBT</u> / Ammonia	<u>X</u>
	16 oz glass jar <u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: <u>EE04C</u>		Depth Interval: <u>12</u> in. to <u>24</u> in.	
Sediment Type (%): Cobble <input checked="" type="checkbox"/> / Gravel <input checked="" type="checkbox"/> / Sand (VC <input checked="" type="checkbox"/> M <input checked="" type="checkbox"/> F <input checked="" type="checkbox"/> VF) <input checked="" type="checkbox"/> / Silt <input type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input type="checkbox"/> / Woody debris <input type="checkbox"/> / Shell debris <input checked="" type="checkbox"/> / Other: _____			
Sediment Color: <u>Drab olive</u> / <u>Brown</u> / Brown surface / <u>Gray</u> / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____		_____	
Samples Collected:	16 oz poly jar <u>1</u>	TOC/Grain size	<u>X</u>
	16 oz glass jar <u>1</u>	Dioxins/Furans	<u>X</u>
	16 oz glass jar <u>1</u>	SVOCs / resin / <u>TBT</u> / Ammonia	<u>X</u>
	16 oz glass jar <u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble <input type="checkbox"/> / Gravel <input type="checkbox"/> / Sand (VC <input type="checkbox"/> M <input type="checkbox"/> F <input type="checkbox"/> VF) <input type="checkbox"/> / Silt <input type="checkbox"/> / Clay <input type="checkbox"/> / Organic mtrl <input type="checkbox"/> / Woody debris <input type="checkbox"/> / Shell debris <input type="checkbox"/> / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____		_____	
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____

NOTES:



Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0" 6"	1	(0"-6")	(0"-6") Greyish brown	No wood material
	2	No sample	med-coarse SAND, rounded	
	3		small and large gravel	
	4		Rounded small and large	
	5		gravel, shell fragments	
	6		cobbles, no wood, no odor, no organic detritus	
	7	EEO4B	(6"-12") Greyish brown	
8		fine-medium SAND, rounded		
9		small and large gravel, rounded		
10		small and large cobbles		
11		shell fragments, no wood, no odor, no organic detritus		
12				
12" 24"	13	EEO4C	(12"-24") - SAME AS ABOVE	No wood material
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
24" 32"	23			No wood material
	24			
	25	No sample	(24"-32") dark brown (greyish brown)	
	26		fine sand, shell fragments,	
	27		small and large gravel,	
	28		no odor, no organic detritus, no wood material	
	29			
	30			
	31			
	32			
33		Note: The interval (24"-32") was not sampled because it was not a complete fast interval as per the SAP - did not have enough volume for a sample set		
34				
35				
36				
3 4	37			No wood material
	38			
	39			
	40			
	41			
	42			
	43			
	44			
	45			
	46			
	47			
	48			
4 5	49			No wood material
	50			
	51			
	52			
	53			
	54			
	55			
	56			
	57			
	58			
	59			
	60			

# Sediment Core Log

Station ID: EE05

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: EAST OF ENNIS CREEK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X  
Y

Date: 7/21/08  
 Time: SEE BELOW  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

ATTEMPT  
 ①  
 4

Coring Start Time: 1500      ② 1505      ③ 1515  
 Water Depth: \_\_\_\_\_ Ft.  
 Core Bottom Depth: 0 Ft.  
 Coring Finish Time: 1501      1506      1516  
 Overall Recovery (%):  
46 MC 7/21/08 470285.7      470285.4 MC 7/21/08  
532922.9      532915.7 MC 7/21/08

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____	
Samples Collected:	_____
16 oz poly jar	_____ TOC/Grain size _____
16 oz glass jar	_____ Dioxins/Furans _____
16 oz glass jar	_____ SVOCs / resin / TBT / Ammonia _____
16 oz glass jar	_____ Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar	_____ Sulfide / Other: _____
core	_____ Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____	
Samples Collected:	_____
16 oz poly jar	_____ TOC/Grain size _____
16 oz glass jar	_____ Dioxins/Furans _____
16 oz glass jar	_____ SVOCs / resin / TBT / Ammonia _____
16 oz glass jar	_____ Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar	_____ Sulfide / Other: _____
core	_____ Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____	
Samples Collected:	_____
16 oz poly jar	_____ TOC/Grain size _____
16 oz glass jar	_____ Dioxins/Furans _____
16 oz glass jar	_____ SVOCs / resin / TBT / Ammonia _____
16 oz glass jar	_____ Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar	_____ Sulfide / Other: _____
core	_____ Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____	
Samples Collected:	_____
16 oz poly jar	_____ TOC/Grain size _____
16 oz glass jar	_____ Dioxins/Furans _____
16 oz glass jar	_____ SVOCs / resin / TBT / Ammonia _____
16 oz glass jar	_____ Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar	_____ Sulfide / Other: _____
core	_____ Radioisotope Dating _____

NO SAMPLES RANDOMED

NOTES:

Project: Port Angeles Harbor Sediment  
 Characterization Study

Grab Sediment Sample Log

Date: 6/20/08

Sample ID: EE05A

Time: 0840

Area of Concern: East Ferris

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): ~2.0ft Penetration depth (cm): 10cm (hand sample)

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input checked="" type="checkbox"/> Cobble	Drab olive	<input checked="" type="checkbox"/> None	<u>No biota</u> ↓ 8cm = gray sed rocks for 1st 8cm
<input checked="" type="checkbox"/> Gravel	Brown	<input checked="" type="checkbox"/> Slight	
<input checked="" type="checkbox"/> Sand <u>VCC</u> M F VF	Brown surface	Moderate	
Silt	<input checked="" type="checkbox"/> Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	<input checked="" type="checkbox"/> Other: <u>rocks!</u>	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers							
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1 <u>Ambet</u>				Axys	<input checked="" type="checkbox"/>		
Grain size/TOC		1 <input checked="" type="checkbox"/>			ARI	<input checked="" type="checkbox"/>		
SVOCs	1 (2 if arch)		4 <u>oz glass</u> <input checked="" type="checkbox"/>		ARI	<input checked="" type="checkbox"/>		
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA	<input checked="" type="checkbox"/>		
PCB					TA	<input checked="" type="checkbox"/>		
TPH				2 <u>16 oz glass</u>	TA	<input checked="" type="checkbox"/>		
Metal					TA	<input checked="" type="checkbox"/>		
Hg					TA	<input checked="" type="checkbox"/>		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/21/08 RDW

DB QA 6/21/08 RDW

Sample Custodian Signature

Rejected

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-6-08

Area of Concern: Ediz Hook Area

Location Data Harbor-Wide / Rayonier

GPS Date/Time

Lat Long

GPS PDOP

Boat/Sampling Team: Carolyn Dow,

Sample ID: <u>EHO1A</u>	Time: <u>1423</u>	Bottom depth (ft): <u>120'</u>	Penetration depth (cm): <u>16 cm</u>				
<b>Sediment type:</b> Cobble Gravel <input checked="" type="checkbox"/> Sand C M (F) <input checked="" type="checkbox"/> Silt/clay Organic matter Woody debris Shell debris	<b>Sediment color:</b> <input checked="" type="checkbox"/> Drab olive Brown <input checked="" type="checkbox"/> Brown surface Gray <u>2.5cm</u> Black <u>lighted</u> Other: <u>grad into greyish black</u>	<b>Sediment Odor:</b> <input checked="" type="checkbox"/> None Slight Moderate Strong Overwhelming H2S Petroleum	<b>Comments:</b> Silty sand with onuphidae tubes, hermit crab, hydroidea, Shrimp, <del>pot</del> glyceridae				
<b>Analyses</b>	<b>Sample Containers</b>						
	<b>16 oz jar</b>	<b>1.5 oz jar</b>	<b>Plastic bag</b>	<b>Lab</b>	<b>Immediate Analysis</b>	<b>Archive</b>	<b>MS/MSD</b>
Dioxin/Furan	1			Axys			
Grain size/TOC	1			ARI			
SVOCs	1			ARI			
Resin / Guai				ARI			
Organotin				ARI			
Ammonia				ARI			
Sulfide		1		ARI			
Pesticide	1			TA			
PCB				TA			
TPH				TA			
Metal				TA			
Hg				TA			
Bioassay			1	NF			

Sampler Signatures

No samples - RW 6-7-08

Sample Custodian Signature

**PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM**

**Sample Station Identification:**

**WOOD MATERIAL DEPTH**

Surface only  Partially Buried  Entirely Buried:

**PERCENT WOOD MATERIAL:**

**WOOD MATERIAL COLOR**

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

**EVIDENCE OF TEREDOS INFESTATION**

None  Light  Medium  Heavy

**TYPE OF WOOD MATERIAL**

Bark      Size:      Species:

Wood Chips      Size:      Decomposition State:

Natural Detritus      Description:

Logs      Description:

Sawdust

Pulp Fibers

**ADDITIONAL NOTES/COMMENTS:**

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PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM

Sample Station Identification:

WOOD MATERIAL DEPTH

Surface only  Partially Buried  Entirely Buried:

PERCENT WOOD MATERIAL:

WOOD MATERIAL COLOR

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

EVIDENCE OF TEREDOS INFESTATION

None  Light  Medium  Heavy

TYPE OF WOOD MATERIAL

Bark      Size:      Species:

Wood Chips      Size:      Decomposition State:

Natural Detritus      Description:

Logs      Description:

Sawdust

Pulp Fibers

ADDITIONAL NOTES/COMMENTS:

---

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-7-08 ✓

Area of Concern: Ediz hook

Location Data Harbor-Wide / Rayonier

GPS Date/Time \_\_\_\_\_

Lat \_\_\_\_\_ Long \_\_\_\_\_

GPS PDOP \_\_\_\_\_

RPD: 3 cm

Boat/Sampling Team: Carolyn Dow

Sample ID: EHO2A	Time: 0748 ✓	Bottom depth (ft): 125	Penetration depth (cm): 18				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b> Silty sand onipheae, spinidae, hydroidea, (2 types) macoma attached to onipheae on uaphididae tubes phyllodoceae				
Cobble Gravel Sand C M F Silt/clay Organic matter Woody debris Shell debris	Drab olive Brown Brown surface Gray <sup>thin layer</sup> Black Other:	None Slight Moderate Strong Overwhelming H2S Petroleum					
<b>Analyses</b>	<b>Sample Containers</b>						
	16 oz jar	1.5 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1			Axys			
Grain size/TOC	1	16oz Poly ✓		ARI			
SVOCs	1	16oz ✓		ARI			
Resin / Guai				ARI			
Organotin				ARI			
Ammonia		4oz ✓		ARI			
Sulfide		1 2oz ✓		ARI			
Pesticide	1			TA			
PCB				TA			
TPH		16oz w/TA ✓		TA			
Metal		16oz ✓		TA			
Hg		16oz w/TA ✓		TA			
Bioassay	1		1	NF			

Courtney Funk  
Sampler Signatures

[Signature] 6/7/08 RDW  
Sample Custodian Signature

DB QA 6/7/08 RDW  
\* 2 grabs: 07:48  
08:39



PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM

Sample Station Identification:

WOOD MATERIAL DEPTH

Surface only  Partially Buried  Entirely Buried:

PERCENT WOOD MATERIAL:

WOOD MATERIAL COLOR

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

EVIDENCE OF TEREDOS INFESTATION

None  Light  Medium  Heavy

TYPE OF WOOD MATERIAL

- Bark      Size:                      Species:
- Wood Chips      Size:                      Decomposition State:
- Natural Detritus      Description:
- Logs      Description:
- Sawdust
- Pulp Fibers

ADDITIONAL NOTES/COMMENTS:

1 small piece wood

---

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-7-08

Area of Concern: Ediz hook

Location Data Harbor-Wide / Rayonier

GPS Date/Time \_\_\_\_\_

Lat \_\_\_\_\_ Long \_\_\_\_\_

GPS PDOP \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow

Sample ID: <u>EHO2A</u>	Time: <u>0839</u> ✓	Bottom depth (ft): <u>128</u>	Penetration depth (cm): <u>15cm</u>				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>				
Cobble	<u>Drab olive</u>	None	Brown surface layer - thicker				
Gravel	Brown	Slight	Onuphidae, hydroidea,				
<input checked="" type="checkbox"/> Sand C M F	<u>Brown surface</u>	Moderate	crangon, spp., spider crab				
<input checked="" type="checkbox"/> Silt/clay	Gray	Strong	luganoma acuttinata				
Organic matter	Black	Overwhelming	Rocks (3x4") rounded				
Woody debris	Other:	H2S	<u>Hydroidea</u> 6-7-08				
Shell debris		Petroleum	balanus shells on rock				
<b>Analyses</b>	<b>Sample Containers</b>						
	<b>16 oz jar</b>	<b>1.5 oz jar</b>	<b>Plastic bag</b>	<b>Lab</b>	<b>Immediate Analysis</b>	<b>Archive</b>	<b>MS/MSD</b>
Dioxin/Furan	1			Axys			
Grain size/TOC	1			ARI			
SVOCs	1			ARI			
Resin / Guai				ARI			
Organotin				ARI			
Ammonia				ARI			
Sulfide		1		ARI			
Pesticide	1			TA			
PCB				TA			
TPH				TA			
Metal				TA			
Hg				TA			
<input checked="" type="checkbox"/> Bioassay	X		1 Bag ✓	NF			

Caroline Funk  
Sampler Signatures

[Signature] 6/7/08 RDW DB QA 6/7/08 RDW  
Sample Custodian Signature

No wood debris

**PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM**

**Sample Station Identification:**

**WOOD MATERIAL DEPTH**

Surface only  Partially Buried  Entirely Buried:

**PERCENT WOOD MATERIAL:**

**WOOD MATERIAL COLOR**

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

**EVIDENCE OF TEREDOS INFESTATION**

None  Light  Medium  Heavy

**TYPE OF WOOD MATERIAL**

Bark      Size:      Species:

Wood Chips      Size:      Decomposition State:

Natural Detritus      Description:

Logs      Description:

Sawdust

Pulp Fibers

**ADDITIONAL NOTES/COMMENTS:**

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**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6-8-08 ✓

**Area of Concern:** Ediz hook

**Location Data** Harbor-Wide / Rayonier

**GPS Date/Time** \_\_\_\_\_

**Lat** \_\_\_\_\_ **Long** \_\_\_\_\_

**GPS PDOP** \_\_\_\_\_ **RPD:** 3 cm

**Boat/Sampling Team:** Carolyn Dow

TIME = 1532 ✓

Sample ID: <u>EHO3A</u> ✓	Time: <u>1532</u>	Bottom depth (ft): <u>158</u>	Penetration depth (cm): <u>20cm</u>
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b> <u>clams - comesomax sub diaphana</u> <u>throughout at least 100</u> <u>spionidae, nephthidae</u>
Cobble Gravel Sand C M F Silt/clay Organic matter Woody debris Shell debris	<u>Drab olive</u> ← <u>Brown</u> <u>barrier</u> <u>Brown surface</u> <u>Gray</u> <u>Black</u> Other:	<u>None</u> Slight Moderate Strong Overwhelming H2S Petroleum	
<b>Analyses</b>	<b>Sample Containers</b>		
	<i>16 oz jar</i>	<i>1.5 oz jar</i>	<i>Plastic bag</i>
Dioxin/Furan	1		
Grain size/TOC	1	<u>16oz Poly ✓</u>	
SVOCs	1	<u>16oz glass ✓</u>	
Resin / Guai			
Organotin			
Ammonia			
Sulfide		1	
Pesticide	1		
PCB			
TPH		<u>16oz glass w/ Hg ✓</u>	
Metal		<u>16oz glass ✓</u>	
Hg		<u>16oz glass w/ TPH ✓</u>	
Bioassay			1

sandy (silt) (surface)

(X)  
(A)

(X)  
(A)  
(X)

Sampler Signatures

[Signature] 6/9/08 RDW    DB QA 6/9/08 RDW

Sample Custodian Signature

**PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM**

**Sample Station Identification:**

**WOOD MATERIAL DEPTH**

Surface only  Partially Buried  Entirely Buried:

**PERCENT WOOD MATERIAL:**

**WOOD MATERIAL COLOR**

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

**EVIDENCE OF TEREDOS INFESTATION**

None  Light  Medium  Heavy

**TYPE OF WOOD MATERIAL**

Bark      Size:                      Species:

Wood Chips      Size:                      Decomposition State:

Natural Detritus      Description:

Logs      Description:

Sawdust

Pulp Fibers

**ADDITIONAL NOTES/COMMENTS:**

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Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6-6-08 ✓

Area of Concern: ERIZ Hook

Location Data Harbor-Wide / Rayonier

GPS Date/Time 1647

Lat 1012350.1032 Long 424399.728 GPS PDOP \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow

Sample ID: <u>EH04A</u>	Time: <u>1647</u> ✓	Bottom depth (ft): <u>127</u>	Penetration depth (cm): <u>20</u>				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>				
Cobble	<u>Drab olive to 3cm</u>	<u>None</u>	<u>Maldanidae, cirratulidae, spionidae  No wood debris</u>				
Gravel	<u>Brown</u>	<u>Slight</u>					
Sand C M F	<u>Brown surface</u>	<u>Moderate</u>					
<u>Silt/clay trace sand</u>	<u>Gray 3cm bottom</u>	<u>Strong</u>					
Organic matter	<u>Black</u>	<u>Overwhelming</u>					
Woody debris	<u>Other:</u>	<u>H2S</u>					
Shell debris		<u>Petroleum</u>					
<b>Analyses</b>	<b>Sample Containers</b>						
	<i>16 oz jar</i>	<i>1.5 oz jar</i>	<i>Plastic bag</i>	<i>Lab</i>	<i>Immediate Analysis</i>	<i>Archive</i>	<i>MS/MSD</i>
Dioxin/Furan	1			Axys			
Grain size/TOC	1 X	<u>16oz Poly ✓</u>		ARI			
SVOCs	1 X	<u>16oz ✓</u>		ARI			
Resin / Guai				ARI			
Organotin				ARI			
Ammonia				ARI			
Sulfide		1		ARI			
Pesticide	1			TA			
PCB				TA			
TPH				TA			
Metal	X	<u>16oz ✓</u>		TA			
Hg	X	<u>16oz ✓</u>		TA			
Bioassay			1	NF			

Carolyn Dow  
Sampler Signatures

[Signature] 6-7-08 RDW Database QA 6/7/08 RDW  
Sample Custodian Signature

**PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM**

**Sample Station Identification:**

**WOOD MATERIAL DEPTH**

Surface only  Partially Buried  Entirely Buried:

**PERCENT WOOD MATERIAL:**

**WOOD MATERIAL COLOR**

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

**EVIDENCE OF TEREDOS INFESTATION**

None  Light  Medium  Heavy

**TYPE OF WOOD MATERIAL**

Bark      Size:                      Species:

Wood Chips      Size:                      Decomposition State:

Natural Detritus      Description:

Logs      Description:

Sawdust

Pulp Fibers

**ADDITIONAL NOTES/COMMENTS:**

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**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/19/08 ✓

**Sample ID:** EJ01A ✓

**Time:** 1119 ✓

**Area of Concern:** Eastern Intertidal

**Location Data:** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

**Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_**

**Boat/Sampling Team:** \_\_\_\_\_

**Bottom depth (ft):** 2.82 ✓ **Penetration depth (cm):** 13cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble ✓	Drab olive	None ✓	polychaete tubes polychaetes Spirochaetopsis Below 6cm = bluish black sediment
Gravel	Brown	Slight	
Sand VCC M (F) VF	Brown surface	Moderate	
Silt	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
Grain size/TOC		1 ✓			ARI	X ✓		
SVOCs	1 (2 if arch)				ARI	X ✓		
Resin/Guai		16 oz glass ✓			ARI			
Organotin					ARI			
Ammonia					ARI	X ✓		
Sulfide		2x	1	2 oz glass	ARI	X ✓		X MS/MSD ✓
Pesticide	1 (2 if arch)				TA	X ✓		
PCB					TA	X ✓		
TPH		16 oz glass ✓			TA			
Metal					TA	X ✓		
Hg					TA	X ✓		
Bioassay				1	NF			

**Sampler Signatures**

*[Signature]* 6/21/08 RDW

DB QA 6/21/08 RDW

**Sample Custodian Signature**



# Sediment Core Log

Station ID: ET 02

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: EASTERN INTERTIDAL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 471208.2  
 Y 5329167.1

Date: 7/18/08  
 Time: 1405  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRACORE  
 Sample Team: LONGTINE

Coring Start Time: 1405  
 Water Depth: 7.8 Ft.  
 Core Bottom Depth: EST. 1 Ft.  
 Coring Finish Time: 1406  
 Overall Recovery (%): —

*PENETRATED EST 1 FOOT UPON RETRIEVAL  
 OBSERVED COBBLES IN SHOE. NO SAND. NO  
 MATERIAL IN CORE SLEEVE. REFUSAL DUE TO  
 GRAVEL AND COBBLES. ATTEMPT AGAIN,  
 MOVE OUTBOARD TO ATTEMPT TO FIND FINER  
 MATERIAL.*

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	

*NO SAND  
 NO RECOVERY IN  
 CORE BUT  
 COBBLES IN  
 SHOE*

NOTES:

# Sediment Core Log

Station ID: ET 02

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/18/08

Location Data: Harbor-wide / Rayonier

Time: 1415

Area of Concern: EASTERN INTERTIDAL

Boat: RSS CAROLYN DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRA CORE

Location (UTM Zone 10, NAD 83 meters): X 471208.0  
Y 539169.7

Sample Team: LONGTINE

Coring Start Time: 1415  
Water Depth: 7.8 Ft.  
Core Bottom Depth: EST. 1.5 Ft.  
Coring Finish Time: 1416  
Overall Recovery (%): —

RECOVERED EST. 1 FOOT OF SAND AND GRAVEL AND COBBLES. MUCH MATERIAL RECOVERED WASHED OUT UPON RETRIEVAL BASED ON OBSERVATION OF CLOUD OF SEDIMENT FROM SHOE AS LIFTED OUT OF WATER. INSUFFICIENT MATERIAL TO SAMPLE. RESET CORE AND ATTEMPT AGAIN. MOVE OUTBOARD.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____

NO SAMPLES IN ANTIQUITY AND RESISTANCE

NOTES:

Project: Port Angeles Harbor Sediment  
 Characterization Study

Grab Sediment Sample Log

Date: 6/18/08 ✓✓

Sample ID: EJ02A ✓✓

Time: 1410 ✓✓

Area of Concern: Eastern Intertidal

Location Data ~~Harbor-Wide~~ / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 7.6 ✓ Penetration depth (cm): 19cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	<u>None</u>	No RPD Very compact polychaetes and tubes Tellina carpenteri Macoma Sp.
Gravel	Brown	Slight ✓	
<u>Sand</u> VCC M (F) VF	Brown surface	Moderate	
Silt	<u>Gray</u>	Strong	
Clay	Black ✓	Overwhelming	
Organic matter	Other: ✓	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<input checked="" type="checkbox"/> Dioxin/Furan	1	16 oz	4 oz	Plastic bag	Axys	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Grain size/TOC		1	4 oz	Plastic bag	ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	16 oz Glass w/ NH <sub>2</sub>			ARI	<input checked="" type="checkbox"/>		
Resin / Guai					ARI			
Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia		16 oz Glass w/ SVOC			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Sulfide		2 oz Glass w/ ZnAc			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)	16 oz Glass w/ metal, H <sub>2</sub>			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> PCB					TA	<input checked="" type="checkbox"/>		
TPH					TA			
<input checked="" type="checkbox"/> Metal		16 oz Glass w/ Pest, ✓			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Hg				PCB	TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Bioassay		1 Bees	1		NF	<input checked="" type="checkbox"/>		

Sampler Signatures

[Signature] 6/19/08 RDN DB QA 6/19/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: ET02  
 Date: 7/18/08  
 Time: 1440  
 Boat: RSS CHARLOTTE DOW  
 Core Collection Method: VIBRATOR  
 Sample Team: LONGTIVE

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: EASTERN INTERTIDAL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 471207.9  
 Y 5329169.1

Coring Start Time: 1440  
 Water Depth: 7.8 Ft. 4L 8.0  
 Core Bottom Depth: 2.2 Ft.  
 Coring Finish Time: 1441  
 Overall Recovery (%): 70%

*18" RECOVERED. APPEARS TO BE SAND WITH GRAVEL AND COBBLES TO 2.5". CAP CORE FOR PROCESSING.*

Sample ID: <u>ET02B</u>		Depth Interval: <u>6</u> in. to <u>12</u> in.	
Sediment Type (%): Cobble <input checked="" type="checkbox"/> / Gravel _____ / Sand (VC C M F VF) <input checked="" type="checkbox"/> / Silt _____ / Clay _____ / Organic mtrl _____ / Woody debris _____ / Shell debris <input checked="" type="checkbox"/> / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: <u>Polychaete tubes</u>		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar <u>1</u>	TOC/Grain size	<u>X</u>
	16 oz glass jar <u>1</u>	Dioxins/Furans	<u>X</u>
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar <u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>
	4 oz glass jar <u>1</u>	Sulfide / Other: _____	<u>X</u>
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble _____ / Gravel _____ / Sand (VC C M F VF) _____ / Silt _____ / Clay _____ / Organic mtrl _____ / Woody debris _____ / Shell debris _____ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble _____ / Gravel _____ / Sand (VC C M F VF) _____ / Silt _____ / Clay _____ / Organic mtrl _____ / Woody debris _____ / Shell debris _____ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble _____ / Gravel _____ / Sand (VC C M F VF) _____ / Silt _____ / Clay _____ / Organic mtrl _____ / Woody debris _____ / Shell debris _____ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating	_____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0"	1	No sample	(0"-6") Dark grey fine sand, some shell fragments, polychaete, trace small trace organic, no odor, no wood material, some small + large cobble	No wood material
	2			
6"	3	E102B	(6"-12") - Same as Above	No wood material
	4			
6"	5	E102B	(6"-12") - Same as Above	No wood material
	6			
12"	7	E102B	(6"-12") - Same as Above	No wood material
	8			
1	9	E102B	(6"-12") - Same as Above	No wood material
	10			
1	11	E102B	(6"-12") - Same as Above	No wood material
	12			
2	13	E102B	(6"-12") - Same as Above	No wood material
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
3	24	E102B	(6"-12") - Same as Above	No wood material
	25			
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
4	35	E102B	(6"-12") - Same as Above	No wood material
	36			
	37			
	38			
	39			
	40			
	41			
	42			
	43			
	44			
	45			
5	46	E102B	(6"-12") - Same as Above	No wood material
	47			
	48			
	49			
	50			
	51			
	52			
	53			
	54			
	55			
	56			
57				
58				
59				
60				

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/18/08 ✓✓

Sample ID: EJ03A ✓✓

Time: 1338 ✓✓

Area of Concern: Eastern Intertidal

Location Data: Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 15.3 ✓ Penetration depth (cm): 9cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input checked="" type="radio"/> Cobble	Drab olive	<input checked="" type="radio"/> None	Amphipods Tubes? Polychaetes
<input checked="" type="radio"/> Gravel	Brown	<input checked="" type="radio"/> Slight	
<input checked="" type="radio"/> Sand VCC(M) F VF	Brown surface	Moderate	
<input checked="" type="radio"/> Silt	<input checked="" type="radio"/> Gray	Strong	
<input checked="" type="radio"/> Clay	<input checked="" type="radio"/> Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
<input checked="" type="checkbox"/> Grain size/TOC		1 16 oz Poly ✓			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	1 16 oz glass w/ NH <sub>2</sub> ✓			ARI	<input checked="" type="checkbox"/>		
Resin / Guai					ARI	<input checked="" type="checkbox"/>		
Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia		1 16 oz glass w/ SVOC ✓			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Sulfide		2 2 oz glass w/ ZNAC ✓			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)	1 16 oz glass w/ ✓			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> PCB		1 Metals, Hg ✓			TA	<input checked="" type="checkbox"/>		
TPH					TA			
<input checked="" type="checkbox"/> Metal		1 16 oz glass w/ Pest PCB ✓			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Hg					TA	<input checked="" type="checkbox"/>		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/19/08 RDN

DB QA 6/19/08 RDN

Sample Custodian Signature

# Sediment Core Log

01/10/08 #1

Station ID: E104

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/18/08

Location Data: Harbor-wide / Rayonier

Time: 1615

Area of Concern: EASTERN INTERTIDAL

Boat: RSS ORPOLY DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRACORE

Location (UTM Zone 10, NAD 83 meters): X 472121.4  
Y 5329132.0

Sample Team: LONGTINE

Coring Start Time: 1615  
Water Depth: 14.1 Ft.  
Core Bottom Depth: 2.6 Ft.  
Coring Finish Time: 1616  
Overall Recovery (%): —

14" OF SAND AND GRAVEL RECOVERED - INSUFFICIENT PERCENT RECOVERY AND VOLUME. REJECT SAMPLE 44/3/08 CORE - MOVE TO DIFFERENT POSITION AND TRY 2<sup>nd</sup> ATTEMPT.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NO SAMPLES IN THIS CORE PROBLEM

NOTES:

# Sediment Core Log

Station ID: EI04

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: EASTERN INTERTIDAL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y \_\_\_\_\_

Date: 7/18/08  
 Time: 1645  
 Boat: RSS CAROLYN POW  
 Core Collection Method: VIBRACORE  
 Sample Team: LANGTINS

Coring Start Time: 1645  
 Water Depth: 14.0 Ft.  
 Core Bottom Depth: 0.5 EST Ft.  
 Coring Finish Time: 1646  
 Overall Recovery (%): —

LESS THAN 1/2 FOOT PENETRATION. PENETRATION DEPTH DIFFICULT TO GAGE IN INCREASINGLY CHOPPY WATERS. NO RECOVERY. CORE DEVICE WAS LAYING OVER. NO CORE. MOVE SLIGHTLY AND ATTEMPT AGAIN.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NOTES:



Sediment Core Log

Station ID: E104

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/18/08

Location Data: Harbor-wide / Rayonier

Time: 1655

Area of Concern: EASTERN INTERTIDAL

Boat: RSS CAROLYN POW

GPS Time:

Core Collection Method: VIBROCORE

Location (UTM Zone 10, NAD 83 meters): X

Sample Team: LONGTINE

Y

Coring Start Time: 1655
Water Depth: 14.2 Ft.
Core Bottom Depth: 0 Ft.
Coring Finish Time: 1656
Overall Recovery (%):

NO APPARENT PENETRATION. CORE LAYING-OVER. NO MATERIAL RECOVERED. ABANDON LOCATION MATERIAL AT E104 LOCATIONS ATTEMPTED (1, 2, AND 3) APPARENTLY TOO COARSE TO COLLECT CORE.

Table with 4 rows of sample data. Each row includes fields for Sample ID, Depth Interval, Sediment Type, Color, Odor, Biota, and Samples Collected. The table is mostly empty with handwritten 'NO CORE' and 'NO SAMPLES' written across it.

NOTES:

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/18/08 ✓✓

Sample ID: ETD0 A ✓✓

Time: 1010 ✓✓

Area of Concern: Eastern Intertidal

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 8.0 SE ✓ Penetration depth (cm): 19cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	<del>None</del>	No RPD Amphipods polychaete tubes Small molluscs Telina modesta
Gravel	Brown	Slight	
<u>Sand</u> V C C M <u>F</u> V F	Brown surface	Moderate	
Silt ✓	<u>Gray</u> to 10cm	Strong	
Clay	Black	Overwhelming	
Organic matter	Other: ✓	Sulfur	
Woody debris		Petroleum ✓	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
<del>Grain size/TOC</del>		1 16 oz Poly			ARI	<del>⊗</del>		
<del>SVOCs</del>	1 (2 if arch)	16 oz glass w/ NH <sub>2</sub>			ARI	<del>⊗</del>		
Resin / Guai					ARI			
Organotin					ARI			
<del>Ammonia</del>		16 oz glass w/ SW/C			ARI	<del>⊗</del>		
<del>Sulfide</del>		2oz glass w/ ZnAc			ARI	<del>⊗</del>		
<del>Pesticide</del>	1 (2 if arch)	16 oz glass w/			TA	<del>⊗</del>		
<del>PCB</del>		Metal, H <sub>2</sub>			TA	<del>⊗</del>		
<del>TPH</del>					TA			
<del>Metal</del>		16 oz glass w/ Pest, PCB			TA	<del>⊗</del>		
<del>Hg</del>					TA	<del>⊗</del>		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/19/08 RDW

DB QA 6/19/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: ET07

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide Bayouier  
 Area of Concern: EASTERN INTERTINAL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X  
Y SEE BELOW

Date: 7/20/08  
 Time: SEE BELOW  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRACORE  
 Sample Team: LONGTINE

ATTEMPT  
①

Coring Start Time: 0815 (2) 0842 (3) 0859  
 Water Depth: 18.2 Ft. 18.7 18.3  
 Core Bottom Depth: 0 Ft. 0 0  
 Coring Finish Time: 0816 0843 0900  
 Overall Recovery (%): 0 0 0

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___/Gravel ___/Sand (VC C M F VF) ___/Silt ___/Clay ___/Organic mtrl ___/Woody debris ___/Shell debris ___/Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: _____	___
	core	___	Radioisotope Dating	___
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___/Gravel ___/Sand (VC C M F VF) ___/Silt ___/Clay ___/Organic mtrl ___/Woody debris ___/Shell debris ___/Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: _____	___
	core	___	Radioisotope Dating	___
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___/Gravel ___/Sand (VC C M F VF) ___/Silt ___/Clay ___/Organic mtrl ___/Woody debris ___/Shell debris ___/Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: _____	___
	core	___	Radioisotope Dating	___
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___/Gravel ___/Sand (VC C M F VF) ___/Silt ___/Clay ___/Organic mtrl ___/Woody debris ___/Shell debris ___/Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: _____	___
	core	___	Radioisotope Dating	___

ABANDONED  
NO SAMPLES  
NO RECOVERY

NOTES: NO PENETRATION AT ALL 3 ATTEMPTS, LIKELY DUE TO ROCKY BOTTOM.

	X	Y
ATTEMPT 1	473777.2	5329648.7
2	473776.5	5329650.8
3	473774.7	5329650.4

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6/18/08

Sample ID: EJ07A

Time: 0850 (1st grab)

Area of Concern: Eastern Intertidal

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): <u>17.2 ft</u>		Penetration depth (cm): <u>15 cm</u>	
<b>Sediment type:</b> <input checked="" type="checkbox"/> Cobble <u>large 3"-4"</u> <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand VC C (M) F VF <input type="checkbox"/> Silt <input type="checkbox"/> Clay <input type="checkbox"/> Organic matter <input type="checkbox"/> Woody debris <input type="checkbox"/> Shell debris <input type="checkbox"/> Other:	<b>Sediment color:</b> Drab-olive Brown ✓ Brown surface <input checked="" type="checkbox"/> Gray <input checked="" type="checkbox"/> Black pockets Other:	<b>Sediment Odor:</b> <input checked="" type="checkbox"/> None <input checked="" type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Strong <input type="checkbox"/> Overwhelming <input type="checkbox"/> Sulfur <input type="checkbox"/> Petroleum <input type="checkbox"/> Other:	<b>Comments:</b> Lots of laminaria Amphidae Telina modesta ~ 3cm RPD Pockets of black sediment

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<input checked="" type="checkbox"/> Dioxin/Furan	1	1/2 oz	Amber	✓	Axys	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Grain size/TOC		1 16 oz Poly	✓		ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	16 oz glass	w/ N/A	✓	ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Resin / Guai					ARI			
<input checked="" type="checkbox"/> Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia		16 oz glass	w/ SVOC	✓	ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Sulfide		2 oz glass	w/ ZnAc	✓	ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)	16 oz glass	w/	✓	TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> PCB			metals, Hg	✓	TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> TPH					TA			
<input checked="" type="checkbox"/> Metal		16 oz glass	w/ Pest.	✓	TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Hg			PCB	✓	TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Bioassay		1 Bag			NF	<input checked="" type="checkbox"/>		

see page 2

Sampler Signatures

[Signature] 6/19/08 RDW

DB QA 6/19/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

2 of 2

Date: 6/18/08

Sample ID: EIO7A

Time: 0906 (2nd grab)

Area of Concern: Eastern Intertidal

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 171 ft Penetration depth (cm): 15 cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand V C C M F V F <input type="checkbox"/> Silt <input type="checkbox"/> Clay <input type="checkbox"/> Organic matter <input type="checkbox"/> Woody debris <input checked="" type="checkbox"/> Shell debris <input type="checkbox"/> Other:	Drab olive <input checked="" type="checkbox"/> Brown Surface Brown surface <input checked="" type="checkbox"/> Gray below <input checked="" type="checkbox"/> Black surface Other: (pockets)	<input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Strong <input type="checkbox"/> Overwhelming <input type="checkbox"/> Sulfur <input type="checkbox"/> Petroleum <input type="checkbox"/> Other:	- 1cm RPD - Ensis sp. - Capitellids - Lumbricid - Spirochaetoptenid tubes - Maldanidae - Psephenia lardi

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
Grain size/TOC		1			ARI			
SVOCs	1 (2 if arch)				ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal					TA			
Hg					TA			
Bioassay		1 Bag		1	NF			

Sampler Signatures

[Signature] 6/19/08 RDW

DB QA 6/19/08 RDW

Sample Custodian Signature



FPO2A

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-7-08 ✓

Area of Concern: Fish Pen

Location Data Harbor-Wide / Rayonier

GPS Date/Time

Lat \_\_\_\_\_ Long \_\_\_\_\_

GPS PDOP \_\_\_\_\_

RPD: CM followed by grey sand, coarse sand, well sorted SAND

Boat/Sampling Team: Carolyn Dow,

Sample ID: FPO2A	Time: 1236 ✓	Bottom depth (ft): 29.6'	Penetration depth (cm): 18cm				
<b>Sediment type:</b> Cobble Gravel <input checked="" type="checkbox"/> rounded Sand <input checked="" type="checkbox"/> C <input checked="" type="checkbox"/> M <input checked="" type="checkbox"/> F Silt/clay Organic matter Woody debris Shell debris	<b>Sediment color:</b> Drab olive Brown Brown surface Gray // Brown Black + grey Other:	<b>Sediment Odor:</b> None Slight Moderate Strong Overwhelming H2S Petroleum	<b>Comments:</b> small rocks - oblong laminaria sp. Ulva sp. spirochaeteterus polychete red algae - rhodophyta				
<b>Analyses</b>	<b>Sample Containers</b>						
	16 oz jar	1.5 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
<input checked="" type="checkbox"/> Dioxin/Furan	1	16oz Amber ✓		Axys			
<input checked="" type="checkbox"/> Grain size/TOC	1	16oz Poly ✓		ARI			
<input checked="" type="checkbox"/> SVOCs	1	16oz ✓		ARI			
Resin / Guai				ARI			
Organotin				ARI			
Ammonia				ARI			
Sulfide		1		ARI			
<input checked="" type="checkbox"/> Pesticide	1	> 16oz w/ metal ✓		TA			
<input checked="" type="checkbox"/> PCB				TA			
<input checked="" type="checkbox"/> TPH		16oz w/ Hg ✓		TA			
<input checked="" type="checkbox"/> Metal		16oz w/ Pest PCB ✓		TA			
<input checked="" type="checkbox"/> Hg		16oz w/ TPH ✓		TA			
Bioassay			1	NF			

Sampler Signatures

[Signature] 6/7/08 RDW

DB QA 6/7/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6-8-08 ✓

Area of Concern: Fish Pen

Location Data: Harbor-Wide/ Rayonier

GPS Date/Time \_\_\_\_\_

Lat \_\_\_\_\_ Long \_\_\_\_\_

GPS PDOP \_\_\_\_\_

RPD: 1cm - drab

Boat/Sampling Team: Carolyn Dow ✓

olive to  
greyish  
black to black

Sample ID: <u>FPO3A</u> ✓	Time: <u>1250</u> <u>FPO20</u>	Bottom depth (ft): <u>138 @ 148</u>	Penetration depth (cm): <u>19</u>
<b>Sediment type:</b> Cobble Gravel Sand C M F <u>Silt/clay</u> Organic matter Woody debris Shell debris	<b>Sediment color:</b> <u>Drab olive</u> Brown <u>Brown surface</u> Gray Black Other:	<b>Sediment Odor:</b> <u>None</u> (6-8-08) <u>Slight</u> → very slight Moderate Strong Overwhelming <u>H2S</u> Petroleum	<b>Comments:</b> Clay from 8-10 cm maldivianae, spionidae & macoma spp. <b>NO WOOD</b>
<b>Analyses</b>	<b>Sample Containers</b>		
	16 oz jar	1.5 oz jar	Plastic bag
	Lab	Immediate Analysis	Archive
			MS/MSD
(A) Dioxin/Furan	1	16oz Amber ✓	AXYS
(X) Grain size/TOC	1	16oz Poly ✓	ARI
(A) SVOCs	1	16oz glass ✓	ARI
Resin / Guai			ARI
Organotin			ARI
Ammonia			ARI
Sulfide		1	ARI
(A) Pesticide	1	3 16oz glass w/ metals ✓	TA
(A) PCB			TA
(X) TPH		16oz w/ Hg ✓	TA
(A) Metal		16oz w/ Pest/PCBs ✓	TA
(X) Hg		16oz w/ TPH ✓	TA
Bioassay		1	NF

→ 2x 16oz glass ✓

→ 2x 16oz glass w/ metals ✓

→ 2x 16oz glass w/ Hg ✓

→ 2x 16oz glass w/ Pest/PCBs ✓

→ 2x 16oz glass w/ TPH ✓

Carolyn Dow

Sampler Signatures

[Signature] 6/8/08 RDW DB QA 6/8/08 RDW

Sample Custodian Signature



Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6/17/08

Sample ID: FTOLA

Time: 10<sup>30</sup> 1154

Area of Concern: Ferry Terminal

Location Data: Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): <u>20.94</u>		Penetration depth (cm): <u>24 cm</u>	
<b>Sediment type:</b> Cobble Gravel Sand VCC M F VF <u>Silt</u> ✓ Clay Organic matter <u>Woody debris</u> <u>5%</u> <u>Shell debris</u> <u>Sew</u> Other:	<b>Sediment color:</b> <u>Drab olive</u> Brown <u>Brown surface</u> <u>light</u> Gray Black Other: ✓	<b>Sediment Odor:</b> <del>None</del> <u>very</u> <u>Slight</u> Moderate ✓ Strong Overwhelming <u>Sulfur</u> Petroleum Other:	<b>Comments:</b> 1.5 RPD <del>Capitellidae</del> <u>TS</u> <u>Terebellidae</u> <u>sp.</u> <u>Glycera</u> <u>sp.</u> <u>Capitellidae</u>

	Analyses		Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab					
<input checked="" type="checkbox"/> Dioxin/Furan	1		16 oz Amber ✓		Axys		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> Grain size/TOC			1 16 oz Poly ✓		ARI		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)		16 oz Glass w/ lids ✓		ARI		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> Resin / Guai			4 oz Glass ✓		ARI			<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Organotin					ARI					
<input checked="" type="checkbox"/> Ammonia			16 oz Glass w/ side ✓		ARI		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> Sulfide			202 Glass w/ back ✓		ARI		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)				TA		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> PCB					TA		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> TPH			16 oz Glass ✓		TA		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> Metal					TA		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> Hg					TA		<input checked="" type="checkbox"/>			
<input checked="" type="checkbox"/> Bioassay			1 Beig ✓	1	NF		<input checked="" type="checkbox"/>			

Sampler Signatures

[Signature] 6/19/08 RDW

DB QA 6/19/08 RDW

Sample Custodian Signature

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/17/08 ✓✓

**Sample ID:** F102A ✓✓

**Time:** 1242 ✓✓

**Area of Concern:** Ferry Terminal

**Location Data:** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

**Location (UTM Zone 10, NAD83, meters) X:** \_\_\_\_\_ **Y:** \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

<b>Bottom depth (ft):</b> 26.9a ✓		<b>Penetration depth (cm):</b> 22 cm ✓						
<b>Sediment type:</b> Cobble Gravel Sand VCC M F VF <u>Silt</u> ✓ Clay Organic matter <u>Woody debris</u> <u>Shell debris</u> Other:	<b>Sediment color:</b> <u>Drab olive</u> Brown <u>Brown surface</u> <u>Gray</u> below 5mm <u>Black</u> Other: ✓	<b>Sediment Odor:</b> None <u>Slight</u> <u>Moderate</u> ✓ Strong Overwhelming <u>Sulfur</u> Petroleum Other:	<b>Comments:</b> 5mm RPD piece of steel cable caught in jaws Pobrosipio sp. Macoma frags					
<b>Analyses</b>	<b>Sample Containers</b>							
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1				Axys			
Grain size/TOC		1	16 oz poly	3	ARI	✗		✗ ✓
SVOCs	1 (2 if arch)	400 Glass	3	3	ARI	✗		✗ ✓
Resin / Guai		400 Glass	3	3	ARI		✗	✗ ✓
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA	✗		✗
PCB					TA	✗		✗
TPH		1600 Glass	3	3	TA	✗		✗ ✓
Metal					TA	✗		✗
Hg					TA	✗		✗
Bioassay				1	NF			

**Sampler Signatures**

[Signature] 6/19/08 [Signature]  
**Sample Custodian Signature**

[Signature] QA 6/19/08 [Signature]

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/17/08

Sample ID: ~~FT03A~~ <sup>35</sup> FT04A

Time: 1427

Area of Concern: Ferry Terminal

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): <u>20.0 ft</u>		Penetration depth (cm): <u>13 cm</u>						
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>			<b>Comments:</b>			
Cobble	<u>Drab olive</u>	<u>None</u>			<u>Crab</u>			
Gravel	Brown	Slight			<u>Capitellids</u>			
<u>Sand</u> VCC M(E)VF	Brown surface	Moderate			<u>Lots Callinacids (1 gravid female)</u>			
<u>Silt</u>	<u>Gray</u>	Strong			<u>Lumbricidae</u>			
Clay	Black	Overwhelming			<u>Lots of kelp</u>			
Organic matter	Other: <u>Drab/olive</u>	Sulfur			<u>Macoma sp.</u>			
Woody debris	<u>Greenish</u>	Petroleum			<u>Cancer sp.</u>			
Shell debris	<u>Surface</u>	Other:						
Other:								
<b>Analyses</b>		<b>Sample Containers</b>						
	<b>16 oz glass jar</b>	<b>16 oz poly</b>	<b>4 oz jar</b>	<b>Plastic bag</b>	<b>Lab</b>	<b>Immediate Analysis</b>	<b>Archive</b>	<b>MS/MSD</b>
<input checked="" type="checkbox"/> Dioxin/Furan	1	<u>16 oz poly</u>	<u>4 oz jar</u>	<u>Plastic bag</u>	Axys	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Grain size/TOC		1	<u>4 oz jar</u>		ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	<u>16 oz glass</u>			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Resin / Guai					ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia		<u>16 oz glass w/ SVOC des.</u>			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Sulfide		<u>2 oz glass w/ ZnAc</u>			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)				TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> PCB					TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> TPH		<u>16 oz glass</u>			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Metal					TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Hg					TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Bioassay			<u>1 Bag</u>	<u>1</u>	NF	<input checked="" type="checkbox"/>		

Sampler Signatures

[Signature] 6/19/08 RDW

[Signature] DB QA 6/19/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: FT04

Project: Port Angeles Harbor Sediment Characterization Study

Date: 6/7/08

Location Data: Harbor-wide / Rayonier

Time: 1310

Area of Concern: LANDINGS / PIER

Boat: NWUWC

GPS Time: 1306

Core Collection Method: VIBROCORE

Location (UTM Zone 10, NAD 83 meters): X 468066  
Y 5329905

Sample Team: M. LONGTINE, J. SCHMIDT, S. PENTNEY

Coring Start Time: 1310  
Water Depth: 12 Ft.  
Core Bottom Depth: 5 Ft.  
Coring Finish Time: 1312  
Overall Recovery (%): 85%

Sample ID: FT04B ✓ Depth Interval: 12 in. to 24 in.

Sediment Type (%): Cobble  / Gravel  / Sand (VC C M F V F)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: GRAYISH BROWN Time = 1312

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_

Samples Collected:

16 oz poly jar	<input checked="" type="checkbox"/>	TOC/Grain size	<input checked="" type="checkbox"/>	Immediate Analysis	Archive for Later Analysis
16 oz glass jar	<input type="checkbox"/>	Dioxins/Furans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 oz glass jar	<input checked="" type="checkbox"/>	SVOCs / resin / TBT / Ammonia	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>2x</u> 16 oz glass jar	<input checked="" type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<u>1x</u> 16 oz glass jar core	<input checked="" type="checkbox"/>	Sulfide / Other: <u>Resin</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Radioisotope Dating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Handwritten notes: 2x TPH, Hg = 1x 16oz glass jar / Pest, PCB, Metal = 1x 16oz glass jar*

Sample ID: FT04C ✓ Depth Interval: 36 in. to 48 in.

Sediment Type (%): Cobble  / Gravel  / Sand (VC C M F V F)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: GRAYISH BROWN Time = 1312 ✓

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_

Samples Collected:

16 oz poly jar	<input checked="" type="checkbox"/>	TOC/Grain size	<input checked="" type="checkbox"/>	Immediate Analysis	Archive for Later Analysis
16 oz glass jar	<input type="checkbox"/>	Dioxins/Furans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 oz glass jar	<input checked="" type="checkbox"/>	SVOCs / resin / TBT / Ammonia	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<u>2x</u> 16 oz glass jar	<input checked="" type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4 oz glass jar core	<input checked="" type="checkbox"/>	Sulfide / Other: <u>Resin</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Radioisotope Dating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Handwritten notes: Pest, PCB, Metal in one jar / TPH, Hg in one jar*

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble  / Gravel  / Sand (VC C M F V F)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_

Samples Collected:

16 oz poly jar	<input type="checkbox"/>	TOC/Grain size	<input type="checkbox"/>	Immediate Analysis	Archive for Later Analysis
16 oz glass jar	<input type="checkbox"/>	Dioxins/Furans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 oz glass jar	<input type="checkbox"/>	SVOCs / resin / TBT / Ammonia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 oz glass jar	<input type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 oz glass jar core	<input type="checkbox"/>	Sulfide / Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Radioisotope Dating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble  / Gravel  / Sand (VC C M F V F)  / Silt  / Clay  / Organic mtrl  / Woody debris  / Shell debris  / Other: \_\_\_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_

Samples Collected:

16 oz poly jar	<input type="checkbox"/>	TOC/Grain size	<input type="checkbox"/>	Immediate Analysis	Archive for Later Analysis
16 oz glass jar	<input type="checkbox"/>	Dioxins/Furans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 oz glass jar	<input type="checkbox"/>	SVOCs / resin / TBT / Ammonia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 oz glass jar	<input type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 oz glass jar core	<input type="checkbox"/>	Sulfide / Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Radioisotope Dating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTES:

*2 samples*  
*Attended 6/9/08 RDW*  
*DB QA RDW 6/9/08*

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	1		Sandy silt w/ clay <sup>some</sup>	
	2		Greyish brown	Woody debris throughout up to
	3		Sand - very fine to medium	10 to size - up to 2 inches
	4			
	5		Predominantly very fine to fine	- most smaller pieces
	6			- thin fibers & chunks
	7			& fibers - no bark
	8		Minor shell debris	
	9		throughout - predom-	
	10		inantly fragments less	
	11		than 2 mm.	
1	12		hierarchical, need	
	13	FT04	Slight to moderate	
	14		sulfur odor	
	15		Moisture ranges from	
	16		moist to very humid	
	17		and soft	
	18			
	19		Hydrocarbon stain	
	20		Noted in upper	
	21		6 inches	
	22			
	23			
2	24			
	25		<del>Stratum Series</del>	
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
3	36			
	37	FT04		
	38			
	39			
	40			
	41			
	42			
	43			
	44			
	45			
	46			
	47			
4	48			
	49			
	50		Br	
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5	60			

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6/12/08

Sample ID: FT05A

Time: 13:29

Area of Concern: Ferry Terminal

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 21cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<del>Drab olive</del> <u>Surface</u>	<del>None</del> <u>✓</u>	1cm RPD Perapionospio pinnata Spionidae <del>Cerebratilis</del> Cerebratilis Lots of worms Lumbrineridae
Gravel	Brown	Slight	
Sand VCC M F VF	<u>Brown surface</u>	Moderate	
<u>Silt</u>	Gray	Strong	
<u>Clay</u> <u>SOME</u>	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
<u>(A)</u> Grain size/TOC		<u>1/16 oz Poly</u>			ARI	<u>(A)</u>		
<u>(A)</u> SVOCs	1 (2 if arch)	<u>2/16 oz Glass</u>			ARI		<u>(A)</u>	
<u>(A)</u> Resin / Guai					ARI		<u>(A)</u>	
Organotin					ARI			
Ammonia					ARI			
<u>(A)</u> Sulfide		<u>2/16 oz Glass</u>			ARI	<u>No Sulfide (master list)</u>		
<u>(A)</u> Pesticide	1 (2 if arch)	<u>2/16 oz Glass w/ Metals</u>			TA		<u>(A)</u>	
<u>(A)</u> PCB					TA		<u>(A)</u>	
TPH					TA			
<u>(A)</u> Metal		<u>1/16 oz Glass w/ Pest, PCB</u>			TA		<u>(A)</u>	
Hg					TA			
Bioassay				1	NF			

Sampler Signatures \_\_\_\_\_

Sample Custodian Signature \_\_\_\_\_

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/12/08

Sample ID: FT06A

Time: 12:31

Area of Concern: Ferry Terminal

Location Data Harbor-Wide/ Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carlynn Dow

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 18 cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	1cm RPD <i>Macoma carlottensis</i> Mitrella Amphipoda Maldanidae Shell fragments Spionidae Lumbricidae Coarctate
Gravel	Brown	Slight	
<u>Sand</u> VCC M <u>(F)VF</u>	<u>Brown surface</u>	Moderate	
<u>Silt</u>	<u>Gray</u> below surface	Strong	
<u>Clay</u> <u>little</u>	<u>Black</u> below surface	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris	<u>More black</u> than previous samples	Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<u>(A)</u> Dioxin/Furan	1	16 oz Amber	✓		Axys		<u>(X)</u>	
<u>(X)</u> Grain size/TOC		1 16 oz Poly	✓		ARI	<u>(X)</u>		
<u>(A)</u> SVOCs	1 (2 if arch)	2 16 oz Glass	✓		ARI		<u>(X)</u>	
<u>(A)</u> Resin / Guai								
Organotin					ARI			
<u>(X)</u> Ammonia		4 oz Glass	✓		ARI	<u>(X)</u>		
<u>(X)</u> Sulfide		20 oz Glass	✓	K2Cr2O7	ARI	<u>(X)</u>		
<u>(A)</u> Pesticide	1 (2 if arch)	2 16 oz Glass w/ metal	✓		TA		<u>(X)</u>	
<u>(A)</u> PCB								
TPH					TA			
<u>(A)</u> Metal		16 oz Glass w/ red PCB	✓		TA		<u>(X)</u>	
<u>(X)</u> Hg		4 oz Glass	✓		TA	<u>(X)</u>		
<u>(X)</u> Bioassay		1 BAC	✓	1	NF	<u>(X)</u>		

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

# Sediment Core Log

Station ID: FT06

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: FERRY TERMINAL  
 GPS Time: 1035  
 Location (UTM Zone 10, NAD 83 meters): Y-X 468 358  
X# 5330519

Date: 6/9/08  
 Time: 1118  
 Boat: NWUWC - WOLF EEL  
 Core Collection Method: VIBRA CORE  
 Sample Team: M. LONOTINE, J. SCHWITZ, S. PENTNEY

ATTEMPT #1 REJECTED

Coring Start Time: 1118  
 Water Depth: 60.0 Ft.  
 Core Bottom Depth: 9.0 Ft.  
 Coring Finish Time: 1122  
 Overall Recovery (%): 55

NOTE: GPS COORDINATE TAKEN AT STARBOARD STERN CORNER OF VESSEL. THIS IS APPROXIMATELY 1.0 METER FROM POSITION OF VIBRA CORE HEAD SUSPENSION CABLE. WHEN BOOM IS IN CORING POSITION, CABLE IS 1.0 M FURTHER STARBOARD AND AFT. FIRST ATTEMPT: RECOVERED EST. 8 FT OF SEDIMENT IN 9 FT PENETRATION. INSUFFICIENT RECOVERY FOR SAMPLING. 1150 CUT OPEN LEXAN CORE TO INSPECT LITHOLOGY + ARCHITECTURE FOR REJECTED FIRST ATTEMPT CORE. MIXED SAND, GRAVEL, FINES, SHELL DEBRIS. NO WOOD WASTE OVER

Sample ID: FT06 B ✓ Depth Interval: 1 in. to 2 in. feet?

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: TIME = 1448 ✓  
 Biota: \_\_\_\_\_  
 Samples Collected: 16 oz poly jar 1 ✓ TOC/Grain size 1602P ✓ Immediate Analysis Archive for Later Analysis  
 16 oz glass jar \_\_\_\_\_ Dioxins/Furans \_\_\_\_\_  
 16 oz glass jar 2 ✓ SVOCs / resin / TBT / Ammonia SVOC 1602 ✓ RESIN 4oz ✓  
 16 oz glass jar 1 ✓ Pest / PCBs / TPH / Metals / Hg 1602 (PCB, Metal), Hg ✓  
 4 oz glass jar \_\_\_\_\_ Sulfide / Other: \_\_\_\_\_  
 core \_\_\_\_\_ Radioisotope Dating \_\_\_\_\_

Sample ID: FT06 C Depth Interval: 3 in. to 4 in. feet?

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: TIME = 14:48 ✓  
 Biota: \_\_\_\_\_  
 Samples Collected: 16 oz poly jar 1 ✓ TOC/Grain size 1602V ✓ Immediate Analysis Archive for Later Analysis  
 16 oz glass jar \_\_\_\_\_ Dioxins/Furans \_\_\_\_\_  
 16 oz glass jar 2 ✓ SVOCs / resin / TBT / Ammonia SVOC 1602 ✓ RESIN 4oz ✓  
 16 oz glass jar 1 ✓ Pest / PCBs / TPH / Metals / Hg 1602 - PCB, Hg, Metals ✓  
 4 oz glass jar \_\_\_\_\_ Sulfide / Other: \_\_\_\_\_  
 core \_\_\_\_\_ Radioisotope Dating \_\_\_\_\_

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_  
 Biota: \_\_\_\_\_  
 Samples Collected: 16 oz poly jar \_\_\_\_\_ TOC/Grain size \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ Dioxins/Furans \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ SVOCs / resin / TBT / Ammonia \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ Pest / PCBs / TPH / Metals / Hg \_\_\_\_\_  
 4 oz glass jar \_\_\_\_\_ Sulfide / Other: \_\_\_\_\_  
 core \_\_\_\_\_ Radioisotope Dating \_\_\_\_\_

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_  
 Biota: \_\_\_\_\_  
 Samples Collected: 16 oz poly jar \_\_\_\_\_ TOC/Grain size \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ Dioxins/Furans \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ SVOCs / resin / TBT / Ammonia \_\_\_\_\_  
 16 oz glass jar \_\_\_\_\_ Pest / PCBs / TPH / Metals / Hg \_\_\_\_\_  
 4 oz glass jar \_\_\_\_\_ Sulfide / Other: \_\_\_\_\_  
 core \_\_\_\_\_ Radioisotope Dating \_\_\_\_\_

NOTES:

2 Samples 6/10/08 RDW  
 DB QA 6/10/08 RDW



FT06

6/9/08

CORE ATTEMPT NO. 2

ATTEMPTING TO CORE FT06 LOCATION AGAIN. WILL USE 4.5 FT LEXAN TUBE SINCE EXPECT NO WOOD WASTE.

- 1235 DEPTH OF WATER 62 FT  
1237 LOWERING VIBRACORE TO BOTTOM.  
1240 CREW PULLING VIBRACORE BACK UP TO BOAT. APPARENTLY A PROBLEM WITH VIBRACORE HEAD, NOT VIBRATING.  
1243 ATTEMPTING TO TROUBLESHOOT VIBRACORE PROBLEM.  
1255 APPEARS THE PROBLEM IS ELECTRICAL. O-RING <sup>ON PLUG ~~ME~~</sup> CONNECTING POWER FROM BOAT GENERATOR TO VIBRACORE HEAD FAILED. NEED TO REPLACE VIBRACORE HEAD.  
1405 CREW HAS REPLACED VIBRACORE UMBILICAL CORD. OLD CORD HAD EXPOSED WIRES THAT GOT WET (EXPOSED WIRES WERE BELOW WRAPS OF ELECTRICAL TAPE).  
1406 ATTEMPTING CORING AGAIN, ATTEMPT NO. 3  
1407 WATER DEPTH: 61 FT  
BEGIN LOWERING VIBRACORE ASSEMBLY.  
1408 BEGIN CORING  
1410 FINISH CORE DRIVING.  
1418 RETRIEVED VIBRACORE ASSEMBLY. VIBRACORE TUBE WAS BENT AT ABOUT 3 FT FROM BOTTOM BY ABOUT 20 DEGREES. APPEARS TO HAVE PENETRATED HARD STRATA DOWN TO ~3 FT AND THEN DRIVEN BEYOND THAT AT AN ANGLE OFF-PLUMB.  
1445 CREW HAS REPLACED BENT 10-FT CORE BARREL WITH 8 FT BARREL. LOWERING VIBRACORE UNIT INTO WATER.  
1446 BEGIN VIBRACORING, ATTEMPT NO. 4  
1448 FINISH VIBRACORING. BEGIN RETRIEVING CORE. DROVE CORE 4.5 FT.  
1500 FINISH POPPING RIVETS, PULL LEXAN SLEEVE, CHECK RECOVERY. 100% RECOVERY.

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	1		MIXED SAND AND FINE G. GRAYISH BROWN. SAND V. FINE TO MED. MINOR SHELL FRAGMENTS TO 5mm. WET, SOFT. NO ODOR.	
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
1	12			
	13	FT06-B	Sand + silt with some clay. Sand is very fine to fine. Overall color is grayish brown. 10% shell debris to 2 inches in size. Wet loose + no odor.	
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
2	24			
	25		SAND, GRAVEL, FINES AND SHELL DEBRIS. SAND V. FINE TO MED. GRAVEL ROUNDED TO 1/2 INCH. SHELL FRAGMENTS TO 2 INCHES. NO ODOR. GRAYISH BROWN.	
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
3	36			
	37	FT06-C	Mixed sand, gravel and fines. Sand mostly very fine to medium. Gravel rounded to 1.5". Shell debris including intact bivalves to 2". Fines = silt/clay. No odor. Overall color brown. Wet / loose. Shell debris = 10%.	
	38			
	39			
	40			
	41			
	42			
	43			
	44			
	45			
	46			
	47			
4	48			
	49		AS ABOVE	
	50			
	51			
	52			
	53			
	54			
	55			
	56			
	57			
	58			
	59			
5	60			

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6/12/08 ✓

Sample ID: FT07A ✓

Time: 0954 ✓

Area of Concern: Ferry Terminal

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 20 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	Shell frags Azinopsidae Hydrodia Amphipoda clay 10 cm down Sionidae 1.5 cm RDP
Gravel	Brown	Slight ✓	
Sand V/C M F VF	<u>Brown surface</u>	Moderate	
<u>Silt</u> ✓	Gray ✓	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Maldanidae  
 Spio chaetopterus  
 Lumberris

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
<u>(X)</u> Grain size/TOC		1/16 oz poly ✓			ARI	<u>(X)</u>		
<u>(A)</u> SVOCs	1 (2 if arch)	2/16 oz poly ✓			ARI	<u>(X)</u>		
<u>(A)</u> Resin / Guai		3/16 oz glass ✓			ARI	<u>(X)</u>		
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
<u>(A)</u> Pesticide	1 (2 if arch)	2/16 oz glass w/ metals ✓			TA	<u>(X)</u>		
<u>(A)</u> PCB					TA	<u>(X)</u>		
TPH					TA			
<u>(A)</u> Metal		1/16 oz glass w/ Pest, PCB ✓			TA	<u>(X)</u>		
Hg					TA			
Bioassay				1	NF			

\_\_\_\_\_  
 Sampler Signatures

\_\_\_\_\_  
 Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
 Characterization Study

Grab Sediment Sample Log

Date: 6-11-08 ✓

Sample ID: FT08A ✓

Time: 1216 ✓

Area of Concern: Ferry Terminal

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

RPD: 1.5cm

Bottom depth (ft): 11.6 ✓ Penetration depth (cm): 19

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive ✓	None ✓	Silt grading into Silt/Clay malcanidae, lumbricaris spp. macoma fragments
Gravel	Brown ✓	Slight	
Sand VCC M F VF	Brown surface ✓	Moderate	
Silt ✓	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
Grain size/TOC		1/6oz	Poly	✓	ARI			
SVOCs	1 (2 if arch)	2/16oz	PLASS	✓	ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)	1/16oz	dist	1/16oz	TA			
PCB					TA			
TPH					TA			
Metal		1/16oz	1/16oz	1/16oz	TA			
Hg					TA			
Bioassay				1	NF			

(X)  
(A)  
(A)  
(A)  
(A)  
(A)

\_\_\_\_\_  
 Sampler Signatures

\_\_\_\_\_  
 Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
 Characterization Study

Grab Sediment Sample Log

Date: 6/12/08

Sample ID: F109A

Time: 11:11

Area of Concern: Ferry Terminal

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Covington Dow

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 24cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble Gravel Sand <input checked="" type="checkbox"/> VCCM <input checked="" type="checkbox"/> FVF Silt <input checked="" type="checkbox"/> Clay Organic matter Woody debris Shell debris Other:	Drab olive <u>surface</u> Brown Brown surface Gray <u>10cm down</u> Black Other:	None Slight <u>H<sub>2</sub>S</u> Moderate Strong Overwhelming Sulfur Petroleum Other:	- 1cm RDP - Spionidae tubes - Spirochaetoptera - Lots of plant life - Shell fragments - Maldanidae - Brown/red/green kelp (species)

- Ascidian  
 - larval shrimp  
 - Owenidae  
 - Benthoedon

	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
<input checked="" type="checkbox"/> Grain size/TOC		1 16 oz poly			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	16 oz glass			ARI		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Resin / Guai					ARI		<input checked="" type="checkbox"/>	
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)	5/16 oz glass w/ metal			TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> PCB					TA		<input checked="" type="checkbox"/>	
TPH					TA			
<input checked="" type="checkbox"/> Metal		16 oz glass w/ Pest/RSV			TA		<input checked="" type="checkbox"/>	
Hg					TA			
Bioassay				1	NF			

Sampler Signatures \_\_\_\_\_

Sample Custodian Signature \_\_\_\_\_

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/12/08

Sample ID: FT10A

Time: 10:29

Area of Concern: Ferry Terminal

Location Data (Harbor-Wide) Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carly & Don

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 23 cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	<u>Spionidae tubes</u> <u>1cm RDP</u> <u>Compact silt 10cm down</u> <u>Spio chaetoptera</u> <u>Maldanidae</u> <u>Oweniidae tubes</u>
Gravel	Brown	Slight ✓	
<u>Trace</u> Sand <u>VCCMFVF</u>	<u>Brown surface</u>	Moderate	
Silt	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<u>A</u> Dioxin/Furan	1			<u>16oz Amber</u> ✓	Axys		<u>X</u>	
<u>X</u> Grain size/TOC		1		<u>16oz Poly</u> ✓	ARI	<u>X</u>		
<u>A</u> SVOCs	1 (2 if arch)			<u>16oz Glass</u> ✓	ARI		<u>X</u>	
<u>A</u> Resin / Guai					ARI		<u>X</u>	
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
<u>A</u> Pesticide	1 (2 if arch)				TA		<u>X</u>	
<u>A</u> PCB				<u>16oz Glass w/ 16oz Metals</u>	TA		<u>X</u>	
TPH					TA			
<u>A</u> Metal				<u>16oz Glass w/ 16oz PCB</u>	TA		<u>X</u>	
Hg					TA			
Bioassay				1	NF			

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
 Characterization Study

Grab Sediment Sample Log

Date: 6/12/08 ✓

Sample ID: FT11A ✓

Time: 0849 ✓

Area of Concern: Ferry Terminal

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft):                      Penetration depth (cm): 17 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	redox depth pot = 1.5 cm Crab exoskeleton Clay below 10 cm Maldanidae Spionidae Chaetopteridae: <i>Spio chaetopteris</i> Lumbreridae
Gravel	<u>Brown</u>	Slight ✓	
<u>Sand</u> V C M F VR	<u>Brown surface</u>	Moderate	
<u>Silt</u> ✓	<u>Gray</u> slightly	Strong	
<u>Clay</u>	Black	Overwhelming	
Organic matter	Other: ✓	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Trace

	Sample Containers					Shell Fragments		
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1				Axys			
Grain size/TOC		1 16 oz Poly ✓			ARI	<del>X</del>		
SVOCs	1 (2 if arch)	2 16 oz Glass ✓			ARI	<del>X</del> 35	<del>X</del>	
Resin / Guai					ARI	<del>X</del> 35	<del>X</del>	
Organotin					ARI			
Ammonia		4 oz Glass ✓			ARI	<del>X</del>		
Sulfide		2 oz Glass w/ Znac ✓			ARI	<del>X</del>		
Pesticide	1 (2 if arch)	1 16 oz Glass w/ Metals ✓			TA		<del>X</del>	
PCB					TA		<del>X</del>	
TPH					TA			
Metal		1 16 oz Glass w/ Pest, PCB ✓			TA		<del>X</del>	
Hg		4 oz Glass ✓			TA	<del>X</del>		
Bioassay		1 Bag ✓	1		NF	<del>X</del>		

\_\_\_\_\_  
 Sampler Signatures

\_\_\_\_\_  
 Sample Custodian Signature

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-11-08 ✓✓

Sample ID: ~~0H01A~~ ✓

FT-12A

Time: 1113 ✓✓

Area of Concern: outer harbor

per Jen

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

RPP: 1cm

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 91 ✓ Penetration depth (cm): 15cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive ✓	None	Silt grading to Silt with Clay with trace sand, hermit crabs mitrella, macoma elimata spilochetopterus, hydroidea bryzoa, phaeodiosoma
Gravel	Brown ✓	Slight ✓	
Sand V C C M F V F	Brown surface	Moderate	
Silt ✓	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16oz Amber ✓			Axys			
Grain size/TOC		1 16oz Poly ✓			ARI			
SVOCs	1 (2 if arch)	1 16oz Glass ✓			ARI			
Resin / Guai		1 16oz w/ 1113 ✓			ARI			
Organotin					ARI			
Ammonia		16oz Glass / SVOC, Res ✓			ARI			
Sulfide		2oz Glass w/ Zn Ac ✓			ARI			
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH		16oz Glass ✓			TA			
Metal					TA			
Hg					TA			
Bioassay				1	NF			

- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗

*Anthony Funk*

Sampler Signatures

Sample Custodian Signature



OH01A

FT12A

- Dioxin - 16ozG ————— Already Sent
- Grain Size - 16ozP —————  Grain Size - 16oz Relabeled.
- SVOC, Resin, Ammonia - 16ozG ————— Washed -  SVOC, ~~Resin~~ Resin
- Sulfide - 2oz ————— No Sulfide
- PCB, TPH, Metal, Hg - 16oz
- Hg - 4oz
- Rest, PCB, Metals

Call TA - ~~change~~ to Change:

- label: OH01A → FT12A - OK
- : Rest, PCB, Metals - Too Late - analyzed
- : Hg - OK

Call AXYS - change

- label: OH01A → FT12A - OK
- : Dioxin - Too late - analyzed

Call AR-I - Delete OH07A Sulfide analysis. - OK

# Sediment Core Log

Station ID: FT12

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: FORM TERMINAL  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469664.9  
 Y 5330963.0

Date: 7/18/08  
 Time: 12:20  
 Boat: RSS APOLYN POW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTIVE

Coring Start Time: 12:20  
 Water Depth: 88.3 Ft.  
 Core Bottom Depth: 5.9 Ft.  
 Coring Finish Time: 12:25  
 Overall Recovery (%): 85%

85% RECOVERY. MATERIAL OBSERVED IN SLICE IS SAND AND SILT, FINE GRAINED MATERIAL OBSERVED VISUALLY THROUGH ONE SLICE IS SIMILAR. APPEARS ACCEPTABLE.

Sample ID:	<u>FT12B</u>		Depth Interval:	<u>6 in. to 12 in.</u>	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) <u>X</u> / Silt <u>X</u> / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris <u>X</u> / Other: ___				
Sediment Color:	Drab olive / <u>Brown</u> / Brown surface / Gray / Black / Other: ___				
Sediment Odor:	None / <u>Slight</u> / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:	<u>one snail</u>		Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	<u>1</u>	TOC/Grain size	<u>X</u>	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	<u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>	___
	16 oz glass jar	<u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>	<u>X</u>
	4 oz glass jar	___	Sulfide / Other:	___	___
	core	___	Radioisotope Dating	___	___

Sample ID:	<u>FT12C</u>		Depth Interval:	<u>36 in. to 48 in.</u>	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) <u>X</u> / Silt <u>X</u> / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris <u>X</u> / Other: ___				
Sediment Color:	Drab olive / <u>Brown</u> / Brown surface / Gray / Black / Other: ___				
Sediment Odor:	None / <u>Slight</u> / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:	___		Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	<u>1</u>	TOC/Grain size	<u>X</u>	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	<u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>	<u>X</u>
	16 oz glass jar	<u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>	<u>X</u>
	4 oz glass jar	___	Sulfide / Other:	___	___
	core	___	Radioisotope Dating	___	___

Sample ID:	_____		Depth Interval:	_____ in. to _____ in.	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:	___		Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other:	___	___
	core	___	Radioisotope Dating	___	___

Sample ID:	_____		Depth Interval:	_____ in. to _____ in.	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:	___		Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other:	___	___
	core	___	Radioisotope Dating	___	___

NOTES: FT12B: Picked interval (6"-12") because there was a chance of wood material being present (none observed) and there was a faint hydrocarbon odor. for "c" interval  
 FT12C: Picked interval (36"-48") because there were no observations that any particular interval was more representative than any other for the "c" interval so as per the Sap (no distinctions based on grain size, odor, or wood) picked the deepest interval (complete)

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
0" - 6"	1	(0"-6")	(0"-6") Dark brown silty fine sand, some shell fragments, natural detritus, organic detritus, no odor	some Natural	detritus
	2	No Sample			
	3				
	4				
	5				
	6				
6" - 12"	7	FT12B (6"-12")	(6"-12") Dark brown silty fine sand, some shell fragments, No wood material, very slight hydrocarbon odor, some shell	No wood	material
	8				
	9				
	10				
	11				
	12				
12" - 24"	13	No Sample	(12"-24") Dark brown silty fine sand, some shell fragments, no wood material, no odor, no organic detritus, no natural detritus	No wood	material
	14				
	15				
	16				
	17				
	18				
24" - 36"	19				
	20				
	21				
	22				
	23				
	24				
36" - 48"	25	No Sample	(24"-36") - same as above		
	26				
	27				
	28				
	29				
	30				
36" - 48"	31				
	32				
	33				
	34				
	35				
	36				
36" - 48"	37	FT12C (36"-48")	(36"-48") - same as above		
	38				
	39				
	40				
	41				
	42				
48" - 54"	43				
	44				
	45				
	46				
	47				
	48				
48" - 54"	49		(48"-54") - same as above		
	50				
	51				
	52				
	53				
	54				
54" - 60"	55				
	56				
	57				
	58				
	59				
	60				

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6-11-08

Sample ID: FT13A

Time: 1143

Area of Concern: Ferry Terminal

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

RPD: 1cm

Bottom depth (ft): 103 Penetration depth (cm): 16cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand VCC M F VF <input checked="" type="checkbox"/> Silt <input type="checkbox"/> Clay <input type="checkbox"/> Organic matter <input type="checkbox"/> Woody debris <input type="checkbox"/> Shell debris <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> Drab olive <input type="checkbox"/> Brown <input type="checkbox"/> Brown surface <input checked="" type="checkbox"/> Gray <input type="checkbox"/> Black <input type="checkbox"/> Other:	<input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Strong <input type="checkbox"/> Overwhelming <input type="checkbox"/> Sulfur <input type="checkbox"/> Petroleum <input type="checkbox"/> Other:	Silt grading to Silt/Clay - trace sand (D. O. gra trans to dark gray then black) - tubinexis spp. (2) macoma shell fragments maldanidae,

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16oz Amber			Axys			
Grain size/TOC		1 16oz Poly			ARI			
SVOCs	1 (2 if arch)	1 16oz Glass			ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH		16oz Glass			TA			
Metal					TA			
Hg					TA			
Bioassay				1	NF			

- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

# Sediment Core Log

Station ID: IEO1

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor wide / Rayonier  
 Area of Concern: INRX ED1Z  
 GPS Time: 0805  
 Location (UTM Zone 10, NAD 83 meters): X 467772  
 Y 5332015

Date: 6-17-08  
 Time: 0759  
 Boat: Salvage - NWIWC  
 Core Collection Method: Vibracore  
 Sample Team: C. Funk, M. Longfellow, S. Pentney

Coring Start Time: 0759  
 Water Depth: 46.1 Ft. 46.1' loss ✓  
 Core Bottom Depth: 10.0 Ft.  
 Coring Finish Time: 0801  
 Overall Recovery (%): 101 inches @ 86% recovery  
84%

0805. Begin tube extraction from barrel  
0811 No wood waste seen in cutting shoe  
wood waste seen on top  
- easy pushing down to 10'  
cutting @ 18" (too saturated)  
0824-finish process setup  
- cut open core

Sample ID:	<u>IEO1B</u>	Depth Interval:	<u>25 in to 35 in</u>
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Biota:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Samples Collected:	16 oz poly jar <u>1</u> ✓	TOC/Grain size	Immediate Analysis
	16 oz glass jar <u>1</u> ✓	Dioxins/Furans	Archive for Later Analysis
	16 oz glass jar <u>1</u> ✓	SVOCs / resin / TBT / Ammonia	<u>16 oz Poly</u>
	16 oz glass jar <u>1</u> ✓	Pest / PCBs / TPH / Metals / Hg	<u>16 oz Amber</u>
	4 oz glass jar <u>1</u> ✓	Sulfide / Other: <u>HClD</u>	<u>AMMONIA</u>
core		Radioisotope Dating	<u>16 oz Glass</u>
			<u>2 oz Glass w/ ZnAc</u>

Sample ID:	<u>IEO1C</u>	Depth Interval:	<u>40 in to 50 in</u>
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Biota:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Samples Collected:	16 oz poly jar <u>1</u> ✓	TOC/Grain size	Immediate Analysis
	16 oz glass jar <u>1</u> ✓	Dioxins/Furans	Archive for Later Analysis
	16 oz glass jar <u>1</u> ✓	SVOCs / resin / TBT / Ammonia	<u>16 oz Poly</u>
	16 oz glass jar <u>1</u> ✓	Pest / PCBs / TPH / Metals / Hg	<u>16 oz Amber</u>
	4 oz glass jar <u>1</u> ✓	Sulfide / Other: <u>HClD</u>	<u>16 oz Glass</u>
core		Radioisotope Dating	<u>(PCBS) 16 oz Glass</u>
			<u>4 oz 16 oz glass</u>

Sample ID:		Depth Interval:	in to in
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Biota:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Samples Collected:	16 oz poly jar	TOC/Grain size	Immediate Analysis
	16 oz glass jar	Dioxins/Furans	Archive for Later Analysis
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	
	4 oz glass jar	Sulfide / Other:	
core		Radioisotope Dating	

Sample ID:		Depth Interval:	in to in
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Biota:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Samples Collected:	16 oz poly jar	TOC/Grain size	Immediate Analysis
	16 oz glass jar	Dioxins/Furans	Archive for Later Analysis
	16 oz glass jar	SVOCs / resin / TBT / Ammonia	
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	
	4 oz glass jar	Sulfide / Other:	
core		Radioisotope Dating	

NOTES: C. Funk logging IEO1 Samples Rcvd: 6/19/08 RDW  
DB QA 6/19/08 RDW

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
5.0 - 6.0'	61		Very fine-fine dark brown SAND, large amount of shell fragments, some rounded pebbles. No odor	
	62			
	63			No wood material
	64			- No odor observed
	65			
	66			
	67			
	68			
	69			
	70			
	71			
6	72			
6.0 - 7.0'	73	SAA		No wood
	74			
	75			
	76			
	77			
	78			
	79			
	80			
	81			
	82			
	83			
7	84			debris
7.0 - 8.0' 86"	85	SAA		No wood debris
	86			
	87			
	88			
	89			
	90			
	91			
	92			
	93			
	94			
	95			
8	96			No odor observed
9	97			
	98			
	99			
	100			
	101			
	102			
	103			
	104			
	105			
	106			
	107			
10	108			
10	109			
	110			
	111			
	112			
	113			
	114			
	115			
	116			
	117			
	118			
	119			
10	120			

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
1	1	0-6" <sup>Ⓢ</sup>	Dark brown SILT, with large amount of teredos infected wood decomposed, some wood chips and bark. Moderate H <sub>2</sub> S odor	90% Teredus infected decomposed wood (0-6")	
	2			some wood chips + bark	
	3			- very small amount of native sediment	
	4				
	5				
	6				
	7	6"-1'	Dark brown SILT with large amount of wood pulp some wood chips, some pulp. Moderate odor. → H <sub>2</sub> S	80% wood pulp - very small amount native sediment	
	8				
	9				
	10				
	11				
	12				
2	13	1-2'	Dark brown SILT with large amount of wood pulp / less than previous interval, some wood chips, some bark, trace decomposed teredus infected wood. Moderate odor - H <sub>2</sub> S	70% wood pulp - large amount of wood chips throughout some red wood, some brown, some black	
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
	24				
3	25	2-3'	SAA		
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
4	37	3'-4'	Dark brown <sup>Ⓢ</sup> fine sandy silt with small amount processed wood - mostly native sediment wood is believed to have sloughed down from shallow intervals - slight odor → H <sub>2</sub> S	210% wood material	
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
	48				
5	49	4.0 - 5.0	Very fine to fine dark brown SAND with a large amount of shell fragments clams (alive) are also present. No odor and no wood was observed	No wood material observed - No odor	
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
	60				





**PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM**

**Sample Station Identification:**

**WOOD MATERIAL DEPTH**

Surface only  Partially Buried  Entirely Buried:

**PERCENT WOOD MATERIAL:**

**WOOD MATERIAL COLOR**

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

**EVIDENCE OF TEREDOS INFESTATION**

None  Light  Medium  Heavy

**TYPE OF WOOD MATERIAL**

Bark      Size:                      Species:

Wood Chips      Size:                      Decomposition State:

Natural Detritus      Description:

Logs      Description:

Sawdust

Pulp Fibers

**ADDITIONAL NOTES/COMMENTS:**

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1E03A

2 of 2

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: \_\_\_\_\_

Area of Concern: \_\_\_\_\_

Location Data Harbor-Wide / Rayonier

GPS Date/Time \_\_\_\_\_

Lat \_\_\_\_\_ Long \_\_\_\_\_

GPS PDOP \_\_\_\_\_

RPD: 1 cm followed by black/gray silt

Boat/Sampling Team: Carolyn Dow

Sample ID: 1E03A	Time: 1516	Bottom depth (ft): 74.8	Penetration depth (cm): 22				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>				
Cobble	Drab olive	None	phyto chetoperus				
Gravel	Brown	Slight <small>Not as pungent as 1st grab</small>	costatum, sponidae,				
Sand C M F	Brown surface	Moderate					
Silt/clay	Gray mottled	Strong					
Organic matter	Black	Overwhelming					
Woody debris	Other:	H2S					
Shell debris		Petroleum					
<b>Analyses</b>	<b>Sample Containers</b>						
	16 oz jar	1.5 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1			Axys			
Grain size/TOC	1		16oz Poly	ARI			
SVOCs	1		/	ARI			
Resin / Guai				ARI			
Organotin				ARI			
Ammonia				ARI			
Sulfide		1		ARI			
Pesticide	1			TA			
PCB			16oz w/ metals	TA			
TPH				TA			
Metal			16oz w/ PCB	TA			
Hg				TA			
Bioassay			1	NF			

Sampler Signatures

[Signature] 6/7/08 RDW DB QA 6/7/08 RDW

Sample Custodian Signature

**PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM**

**Sample Station Identification:**

**WOOD MATERIAL DEPTH**

Surface only  Partially Buried  Entirely Buried:

**PERCENT WOOD MATERIAL:**

**WOOD MATERIAL COLOR**

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

**EVIDENCE OF TEREDOS INFESTATION**

None  Light  Medium  Heavy

**TYPE OF WOOD MATERIAL**

Bark      Size:                      Species:

Wood Chips      Size:                      Decomposition State:

Natural Detritus      Description:

Logs      Description:

Sawdust

Pulp Fibers

**ADDITIONAL NOTES/COMMENTS:**

---

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-8-08

Area of Concern: Inner Ediz

Location Data Harbor-Wide / Rayonier

GPS Date/Time

Lat \_\_\_\_\_ Long \_\_\_\_\_

GPS PDOP \_\_\_\_\_

RPD: 1mm

Boat/Sampling Team: Carolyn Dow

Sample ID: IE04A	Time: 1011	Bottom depth (ft): 86.7	Penetration depth (cm): 12				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b> Bark → spread throughout no obvious animal signs 40% wood				
Cobble Gravel Sand C M F Silt/clay Organic matter Woody debris Shell debris	Drab olive Brown Brown surface Gray Black Other:	None Slight Moderate Strong Overwhelming H2S Petroleum					
<b>Analyses</b>	<b>Sample Containers</b>						
	16 oz jar	1.5 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
(A) Dioxin/Furan	1	16oz Amber	✓	Axys			
(X) Grain size/TOC	1	16oz Poly	✓	ARI			
(A) SVOCs	1	3 → 16oz glass (SVOCs and resins)	✓	ARI			
(A) Resin / Guai			✓	ARI			
(X) Organotin				ARI			
(X) Ammonia		4oz Glass	✓	ARI			
(X) Sulfide		1 2oz Glass	✓	ARI			
Pesticide	1			TA			
(A) PCB		16oz glass w/metals	✓	TA			
(X) TPH		16oz glass w/Hg	✓	TA			
(A) Metal		16oz glass w/PCB	✓	TA			
(X) Hg		16oz glass w/TPH	✓	TA			
Bioassay		1 Bag	(R)	NF			

Carolyn Dow

Sampler Signatures

6/8/08 RDW QADB 6/8/08 RDW

Sample Custodian Signature



**PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM**

**Sample Station Identification:**

**WOOD MATERIAL DEPTH**

Surface only  Partially Buried  Entirely Buried:

**PERCENT WOOD MATERIAL:**

**WOOD MATERIAL COLOR**

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

**EVIDENCE OF TEREDOS INFESTATION**

None  Light  Medium  Heavy

**TYPE OF WOOD MATERIAL**

Bark      Size:                      Species:

Wood Chips      Size:                      Decomposition State:

Natural Detritus      Description:

Logs      Description:

Sawdust

Pulp Fibers

**ADDITIONAL NOTES/COMMENTS:**

---

\* Sediment from grab 1 and 2 are homogenized but only bioassay sample has time of 2nd grab  
 1E04A E104A 2 & 3  
 6-8-08

Project: Port Angeles Harbor Sediment Characterization Study  
 Grab Sediment Sample Log  
 Date: 6-8-08 Area of Concern: Inner Ediz

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_  
 Lat E104A Long \_\_\_\_\_ GPS PDOP \_\_\_\_\_

1 mm RPD - black underneath

Boat/Sampling Team: Carolyn Dow,

1E04A

Sample ID: <u>E104A</u> 6-8-08	Time: <u>1027</u> ✓	Bottom depth (ft): _____	Penetration depth (cm): <u>20 cm</u>				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>				
Cobble	Drab olive	None	<u>65% wood</u> No evidence of animal life				
Gravel	Brown	Slight					
Sand C M F	<u>Brown surface</u>	<u>Moderate</u>					
<u>Silt/clay</u>	Gray	Strong					
Organic matter	<u>Black</u>	Overwhelming					
Woody debris	Other:	H2S					
Shell debris		Petroleum					
<b>Analyses</b>	<b>Sample Containers</b>						
	<i>16 oz jar</i>	<i>1.5 oz jar</i>	<i>Plastic bag</i>	<i>Lab</i>	<i>Immediate Analysis</i>	<i>Archive</i>	<i>MS/MSD</i>
Dioxin/Furan	1			Axys			
Grain size/TOC	1			ARI			
SVOCs	1			ARI			
Resin / Guai				ARI			
Organotin				ARI			
Ammonia				ARI			
Sulfide		1		ARI			
Pesticide	1			TA			
PCB				TA			
TPH				TA			
Metal				TA			
Hg				TA			
Bioassay <u>X</u>		<u>1 Bag</u> ✓	1	NF			

Conway Funk

Sampler Signatures

[Signature] 6/8/08 RDW QA DB 6/8/08 RDW

Sample Custodian Signature

PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM

Sample Station Identification:

WOOD MATERIAL DEPTH - *throughout grab*

Surface only  Partially Buried  Entirely Buried:

PERCENT WOOD MATERIAL:

WOOD MATERIAL COLOR

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

EVIDENCE OF TEREDOS INFESTATION

None  Light  Medium  Heavy

TYPE OF WOOD MATERIAL :

*Bark + ~~?~~ ~~wood~~ xylum ?*

Bark Size: *up to 6-8 inch* Species:

Wood Chips Size: *long* Decomposition State:

Natural Detritus Description:

Logs Description:

Sawdust

Pulp Fibers

ADDITIONAL NOTES/COMMENTS:

1E04A

3 of 3

Project: Port Angeles Harbor Sediment Characterization Study **Grab Sediment Sample Log**

Date: \_\_\_\_\_ Area of Concern: \_\_\_\_\_

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_

Lat \_\_\_\_\_ Long \_\_\_\_\_ GPS PDOP \_\_\_\_\_

1mm <sup>6-8-08</sup> RDR RPD

Boat/Sampling Team: Carolyn Dow

1E04A

Sample ID: <del>1E04A</del> 6-8-08	Time: 1058	Bottom depth (ft):	Penetration depth (cm): 10				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>				
Cobble	Drab olive	None	Cut at angle, less wood → (720°/6) then previous grab no signs of animals wh <sup>o</sup> except for jellyfish that probably just got caught while bringing up sampler				
Gravel	Brown	Slight to Moderate					
Sand C M F	Brown surface	Moderate					
Silt/clay	Gray	Strong					
Organic matter	Black	Overwhelming					
Woody debris	Other:	H <sub>2</sub> S					
Shell debris		Petroleum					
<b>Analyses</b>	<b>Sample Containers</b>						
	16 oz. jar	1.5 oz. jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1			Axys			
Grain size/TOC	1			ARI			
SVOCs	1			ARI			
Resin / Guai				ARI			
Organotin				ARI			
Ammonia				ARI			
Sulfide		1		ARI			
Pesticide	1			TA			
PCB				TA			
TPH				TA			
Metal				TA			
Hg				TA			
Bioassay			1	NF			

*Carolyn Dow*

Sampler Signatures

*No samples associated w third page - RDW 6/8/08*

Sample Custodian Signature



PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM

Sample Station Identification:

WOOD MATERIAL DEPTH

*throughout sampler*

Surface only  Partially Buried  Entirely Buried:

PERCENT WOOD MATERIAL:

WOOD MATERIAL COLOR

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

EVIDENCE OF TEREDOS INFESTATION

None  Light  Medium  Heavy

TYPE OF WOOD MATERIAL

Bark

Size:

Species:

Wood Chips

Size:

Decomposition State:

Natural Detritus Description:

Logs Description:

Sawdust

Pulp Fibers

ADDITIONAL NOTES/COMMENTS:

*lightly degraded*

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6-7-08 ✓

Area of Concern: Inner Ediz

Location Data Harbor-Wide / Rayonier

GPS Date/Time \_\_\_\_\_

Lat \_\_\_\_\_ Long \_\_\_\_\_

GPS PDOP \_\_\_\_\_

RPD: 1 cm following  
black +  
grey fading  
to black

1E05A

Boat/Sampling Team: Carolyn Dow

Sample ID: <u>6-120</u>	Time: <u>1610</u>	Bottom depth (ft): <u>55.9</u>	Penetration depth (cm): <u>30</u>				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>				
Cobble	Drab olive	None	Spirochaetopterus costarum, wood bark-surface and throughout, shell fragments - macoma				
Gravel	Brown	Slight <u>6-7-08</u>					
Sand C M F	Brown surface	Moderate					
Silt/clay	Gray mottled	Strong					
Organic matter	Black	Overwhelming					
Woody debris	Other:	H2S					
Shell debris		Petroleum					
<b>Analyses</b>	<b>Sample Containers</b>						
	16 oz jar	1.5 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan (A)	1 16oz Amber ✓			Axys			
Grain size/TOC (X)	1 16oz Poly ✓			ARI			
SVOCs (A)	1 3 → 16oz ✓			ARI			
Resin / Guai (A)				ARI			
Organotin				ARI			
Ammonia (X)		4oz ✓		ARI			
Sulfide (X)		1 2oz ✓		ARI			
Pesticide	1			TA			
PCB (A)		16oz w/ Metals ✓		TA			
TPH (X)		16oz w/ Hg ✓		TA			
Metal (A)		16oz w/ PCB ✓		TA			
Hg (X)		16oz w/ TPH ✓		TA			
Bioassay			1	NF			

Sampler Signatures

Carolyn Dow 6-7-08 RTDW

DB QA 6/7/08 RDW

Sample Custodian Signature

**PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM**

**Sample Station Identification:**

**WOOD MATERIAL DEPTH**

Surface only  Partially Buried  Entirely Buried:

**PERCENT WOOD MATERIAL:**

**WOOD MATERIAL COLOR**

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

**EVIDENCE OF TEREDOS INFESTATION**

None  Light  Medium  Heavy

**TYPE OF WOOD MATERIAL**

Bark      Size:                      Species:

Wood Chips      Size:                      Decomposition State:

Natural Detritus      Description:

Logs      Description:

Sawdust

Pulp Fibers

**ADDITIONAL NOTES/COMMENTS:**

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# Sediment Core Log

Station ID: IE05

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: INNER HOOK  
 GPS Time: 1318  
 Location (UTM Zone 10, NAD 83 meters): X 460622.3  
 Y 5331862.6

Date: 6/13/08 ✓  
 Time: 1313  
 Boat: NWUWC WOLF REEL  
 Core Collection Method: VIBRA CORE  
 Sample Team: M LONGTINE, C FUNK, S PEUTNEY

Coring Start Time: 1313  
 Water Depth: 66.0 Ft. @ 1311  
 Core Bottom Depth: 10.0 Ft.  
 Coring Finish Time: 1315  
 Overall Recovery (%): 100%

1315 ADVANCED CORE EASILY TO 10 FT. RETRIEVE FOR INSPECTION.  
1340 CORE RECOVERY = 100%. VERY SOOPY IN UPPER 1 FT. APPEARS MOSTLY WOOD WASTE DOWN TO ROUGHLY 6 FT VISUALLY THROUGH ZINER. SPLIT LINER TO MAKE SURE RECOVERED SEDIMENT BELOW WOOD WASTE CONFIRMED CORE RECOVERED SEDIMENT BELOW WOOD.

Sample ID: IE05 B / 1315 ✓ Depth Interval: 12 in to 24 in. ✓

Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:					Immediate Analysis			Archive for Later Analysis	
Samples Collected:	16 oz poly jar	✓	TOC/Grain size	✓	✓	✓	16oz poly	✓	
	16 oz glass jar	✓	Dioxins/Furans	✓	✓	✓	16oz Amber	✓	
	16 oz glass jar	✓	SVOCs / resin / TBT / Ammonia	✓	✓	✓	16oz glass	✓	
	16 oz glass jar	✓	Pest / PCBs / TPH / Metals / Hg	✓	✓	✓	16oz glass	✓	
	4 oz glass jar	✓	Sulfide / Other:	✓	✓	✓	2oz glass w/ ZnAc	✓	
	core		Radioisotope Dating						

Sample ID: IE05 C / 1315 ✓ Depth Interval: 98 in to 110 in. ✓

Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:					Immediate Analysis			Archive for Later Analysis	
Samples Collected:	16 oz poly jar	✓	TOC/Grain size	✓	✓	✓	16oz Poly	✓	
	16 oz glass jar	✓	Dioxins/Furans	✓	✓	✓	16oz Amber	✓	
	16 oz glass jar	✓	SVOCs / resin / TBT / Ammonia	✓	✓	✓	16oz glass	✓	
	16 oz glass jar	✓	Pest / PCBs / TPH / Metals / Hg	✓	✓	✓	16oz glass (Metals)	✓	16oz glass - PCBs ✓
	4 oz glass jar	✓	Sulfide / Other:	✓	✓	✓	2oz glass w/ ZnAc	✓	
	core		Radioisotope Dating						

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in to \_\_\_\_\_ in.

Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:					Immediate Analysis			Archive for Later Analysis	
Samples Collected:	16 oz poly jar		TOC/Grain size						
	16 oz glass jar		Dioxins/Furans						
	16 oz glass jar		SVOCs / resin / TBT / Ammonia						
	16 oz glass jar		Pest / PCBs / TPH / Metals / Hg						
	4 oz glass jar		Sulfide / Other:						
	core		Radioisotope Dating						

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in to \_\_\_\_\_ in.

Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:					Immediate Analysis			Archive for Later Analysis	
Samples Collected:	16 oz poly jar		TOC/Grain size						
	16 oz glass jar		Dioxins/Furans						
	16 oz glass jar		SVOCs / resin / TBT / Ammonia						
	16 oz glass jar		Pest / PCBs / TPH / Metals / Hg						
	4 oz glass jar		Sulfide / Other:						
	core		Radioisotope Dating						

NOTES:

6/13/08

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	1		VERY SOOPY MIX OF WOOD WASTE AND INDISCERNABLE MUCK. DARK BROWN. STRONG SULFUR ODOR. SHEEN. WOOD WASTE AS DESCRIBED FOR 12" TO 24".	
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
1	12			
	13	↑ IE05 ↓	MIXED WOOD WASTE, ORGANIC MUCK AND FINES. ORGANIC MUCK IS POSSIBLY PARTIALLY WOOD PULP (RELATINUS). OVERALL COLOR DARK GRAYISH BROWN. V. STRONG-SULFUR ODOR, SHEEN. WOOD DEBRIS IS CHIPS, STRANDS, BARK AND POSSIBLY PULP.	
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
2	24			
	25		AS PER 12" TO 24"          COARSE (ML 6/13/08) PREDOMINANTLY WOOD WASTE WITH SOME FINER MATERIAL (PULP)	
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
3	36			
	37		STRONG-SULFUR ODOR. SHEEN. WOOD DEBRIS INCLUDES CHIPS AND STRANDS AND BARK. LITTLE MINERAL SEDIMENT.	
	38			
	39			
	40			
	41			
	42			
	43			
	44			
	45			
	46			
	47			
4	48			
	49			
	50			
	51			
	52			
	53			
	54			
	55			
	56			
	57			
	58			
	59			
5	60			

6/13/08

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	61		AS ABOVE		
	62				
	63				
	64				
	65				
	66		MIXED SILT AND		
	67		WOOD WASTE. VERY		
	68		SOOPY. GRAYISH BROWN.		
	69		SMOOTH. STRONG-SULFUR		
	70		ODOR. WOOD IS CHIPS,		
	71		STRANDS AND BARK.		
6	72				
	73				
	74				
	75				
	76				
	77				
	78				
	79				
	80				
	81				
	82				
	83				
7	84				
	85				
	86				
	87				
	88				
	89				
	90				
	91				
	92				
	93				
	94				
	95				
8	96				
	97				
	98		CLAYEY SILT (in 6/13/08)	NO WOOD WASTE	
	99		SILTY CLAY WITH SOME		
	100		VF OR F SAND AND		
	101		SHELL FRAGMENTS TO 1/2		
	102		DARK GRAYISH BROWN.		
	103		MILD SULFUR ODOR		
	104				
	105				
	106				
	107				
9	108				
	109				
	110				
	111				
	112				
	113				
	114				
	115				
	116				
	117				
	118				
	119				
10	120				

IE05C

1E06A

1 of 3

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-8-08 ✓✓

Area of Concern: Inner Ediz

Location Data Harbor-Wide / Rayonier

GPS Date/Time \_\_\_\_\_

Lat \_\_\_\_\_ Long \_\_\_\_\_

GPS PDOP \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow

Sample ID: 1E06A ✓✓	Time: 1602 1629 ✓✓	Bottom depth (ft): 42' 40" ✓✓	Penetration depth (cm): 17.5cm ✓✓				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b> 75% wood very degraded w/ terrecdos				
Cobble Gravel Sand C M F Silt/clay ✓ Organic matter Woody debris Shell debris	Drab olive Brown Brown surface Gray Black Other:	None Slight Moderate to Strong ✓ Overwhelming H2S Petroleum					
<b>Analyses</b>	<b>Sample Containers</b>						
	16 oz jar	1.5 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
(A) Dioxin/Furan	1	16oz Amber ✓		Axys			
(X) Grain size/TOC	1	16oz Poly ✓		ARI			
(A) SVOCs	1	→ 16oz glass ✓		ARI			
(A) Resin / Guai				ARI			
Organotin				ARI			
(X) Ammonia		4oz glass ✓		ARI			
(X) Sulfide		2oz glass w/ pres ✓		ARI	Zinc Acetate		
Pesticide	1			TA			
(A) PCB		16oz glass w/ Metals ✓		TA			
(X) TPH		16oz glass w/ Hg ✓		TA			
(A) Metal		16oz glass w/ PCB ✓		TA			
(X) Hg		16oz glass w/ TPH ✓		TA			
Bioassay			1	NF			

Sampler Signatures

*[Signature]* 6/9/08 RDW

DB QA 6/9/08 RDW

Sample Custodian Signature

PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM

Sample Station Identification:

WOOD MATERIAL DEPTH - *through the sample*

Surface only  Partially Buried  Entirely Buried:

PERCENT WOOD MATERIAL:

WOOD MATERIAL COLOR

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

EVIDENCE OF TEREDOS INFESTATION

None  Light  Medium  Heavy

TYPE OF WOOD MATERIAL

Bark      Size:      Species:  
 Wood Chips      Size:      Decomposition State:  
 Natural Detritus      Description:      *very degraded*  
 Logs      Description:  
 Sawdust  
 Pulp Fibers

ADDITIONAL NOTES/COMMENTS:



1E06A

2 of 3

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-8-08

Area of Concern: Inner Ediz

Location Data Harbor-Wide / Rayonier

GPS Date/Time

Lat Long

GPS PDOP

Boat/Sampling Team: Carolyn Dow

Sample ID: 1E06A	Time: ① 1651 1657	Bottom depth (ft): ② 48.1 32.8	Penetration depth (cm): 10.5				
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>				
Cobble	Drab olive	None	Wood debris, bark UVA				
Gravel	Brown	Slight					
Sand C M F	Brown surface	Moderate					
Silt/clay	Gray	Strong					
Organic matter	Black	Overwhelming					
Woody debris	Other:	H2S					
Shell debris		Petroleum					
<b>Analyses</b>	<b>Sample Containers</b>						
	16 oz. jar	1.5 oz. jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1			Axys			
Grain size/TOC	1			ARI			
SVOCs	1			ARI			
Resin / Guai				ARI			
Organotin				ARI			
Ammonia				ARI			
Sulfide		1		ARI			
Pesticide	1			TA			
PCB				TA			
TPH				TA			
Metal				TA			
Hg				TA			
(X) Bioassay			1 Bag 1 ✓	NF			

Sampler Signatures

Carolyn Dow 6/9/08 RDW

DB QA 6/9/08 RDW

Sample Custodian Signature

**PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM**

**Sample Station Identification:**

**WOOD MATERIAL DEPTH**

Surface only  Partially Buried  Entirely Buried:

**PERCENT WOOD MATERIAL:**

**WOOD MATERIAL COLOR**

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

**EVIDENCE OF TEREDOS INFESTATION**

None  Light  Medium  Heavy

**TYPE OF WOOD MATERIAL**

Bark      Size:                      Species:

Wood Chips      Size:                      Decomposition State:

Natural Detritus      Description:

Logs      Description:

Sawdust

Pulp Fibers

**ADDITIONAL NOTES/COMMENTS:**

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1EOGA

3 of 3

Project: Port Angeles Harbor Sediment Characterization Study **Grab Sediment Sample Log**

Date: 6-8-08 Area of Concern: Inner Ediz

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_

Lat \_\_\_\_\_ Long \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow

Sample ID: <u>1EOGA</u>	Time: <u>1110</u>	Bottom depth (ft): _____	Penetration depth (cm): <u>10</u>
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>
Cobble	Drab olive	None	<u>70% wood</u> → bark upto 1ft long <u>6-8-08 kelp</u>
Gravel	Brown	Slight	
Sand C M F	Brown surface	<u>Moderate</u>	
<u>Silt/clay</u>	Gray	Strong	
Organic matter	Black	Overwhelming	
Woody debris	Other:	<u>H2S</u>	
Shell debris		Petroleum	
<b>Analyses</b>	<b>Sample Containers</b>		
	<i>16 oz jar</i>	<i>1.5 oz jar</i>	<i>Plastic bag</i>
			<i>Lab</i>
			<i>Immediate Analysis</i>
			<i>Archive</i>
			<i>MS/MSD</i>
Dioxin/Furan	1		Axys
Grain size/TOC	1		ARI
SVOCs	1		ARI
Resin / Guai			ARI
Organotin			ARI
Ammonia			ARI
Sulfide		1	ARI
Pesticide	1		TA
PCB			TA
TPH			TA
Metal			TA
Hg			TA
Bioassay			1
			NF

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

PORT ANGELES SEDIMENT INVESTIGATION  
WOOD MATERIAL CHARACTERIZATION FORM

Sample Station Identification:

WOOD MATERIAL DEPTH *throughout*

Surface only  Partially Buried  Entirely Buried:

PERCENT WOOD MATERIAL:

WOOD MATERIAL COLOR

Tan  Reddish  Brown  Olive Green  Gray  Black  Other:

EVIDENCE OF TEREDOS INFESTATION

None  Light  Medium  Heavy

TYPE OF WOOD MATERIAL

Bark Size: Species:

Wood Chips Size: Decomposition State:

Natural Detritus Description:

Logs Description:

Sawdust

Pulp Fibers

*moderate  
degradation*

ADDITIONAL NOTES/COMMENTS:

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/16/08 ✓ ✓

Sample ID: JE07A ✓ ✓

Time: 09:28 ✓ ✓

Area of Concern: Imer Ediz

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Deak - Ten, Pete

Bottom depth (ft): <u>10.1</u> ✓		Penetration depth (cm): <u>17 cm</u> ✓	
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>
Cobble	Drab olive	None	Lots of kelp / eelgrass Fish Amphipods / (algae) Crab Molluscs (on algae)
Gravel	Brown	Slight ✓	
Sand V C C M F V F	Brown surface	Moderate <u>HA S</u>	
<u>Silt</u>	Gray	Strong	
Clay ✓	<u>Black</u> ✓	Overwhelming	
Organic matter	Other:	Sulfur	
<u>Woody debris</u> 95%		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
(A) Dioxin/Furan	1	16 oz Amber ✓			Axys			
(X) Grain size/TOC		1 16 oz Poly ✓			ARI			
(A) SVOCs	1 (2 if arch)	3 16 oz Glass ✓			ARI			
(A) Resin / Guai					ARI			
Organotin					ARI			
(X) Ammonia		10 16 oz Glass ✓			ARI			
(X) Sulfide		2 oz Glass w/ Zn Ac ✓			ARI			
Pesticide	1 (2 if arch)				TA			
(A) PCB		16 oz Glass w/ Metals ✓			TA			
(X) TPH		16 oz Glass w/ Hg ✓			TA			
(A) Metal		16 oz Glass w/ PCB ✓			TA			
(X) Hg		16 oz Glass w/ TPH ✓			TA			
(X) Bioassay		1 Bag ✓	1		NF			

Sampler Signatures  
[Signature] 6/17/08

DB QA 6/17/08 [Signature]

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/13/08 ✓✓

Sample ID: A-05 IE08A ✓✓

Time: 12:15 ✓✓

Area of Concern: Inner Hook

Location Data Harbor-Wide / Bayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow Jen Pote

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 25cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Large piece of bark (1'x1') ✓ No RPT/no surface layer Macoma mesoda Cancer gracilis
Gravel	<u>Brown</u>	Slight ✓	
Sand VC C M F VF	Brown surface	Moderate <u>AS</u>	
<u>Silt</u> ✓	<u>Gray</u>	Strong	
Clay	Black ✓	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<input checked="" type="checkbox"/> Dioxin/Furan	1	16 oz Amber ✓			Axys		X	
<input checked="" type="checkbox"/> Grain size/TOC		1 16 oz Poly ✓			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	16 oz Glass ✓			ARI		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Resin / Guai					ARI		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia		4 oz Glass ✓			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Sulfide		2 oz 1 Glass w/ Zn Ac ✓			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)				TA			
<input checked="" type="checkbox"/> PCB		16 oz Glass w/ metals ✓			TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> TPH		16 oz Glass w/ Hg ✓			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Metal		16 oz Glass w/ PCB ✓			TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Hg		16 oz Glass w/ TPH ✓			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Bioassay				1	NF			

Sampler Signatures  
[Signature] 6/16/08 RDW

DBQA 6/16/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/16/08 ✓

Sample ID: 40<sup>HS</sup> IEO9A ✓

Time: 10:21 ✓

Area of Concern: Inner Edge

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Pete, Jen

Bottom depth (ft): 39.19 ✓ Penetration depth (cm): 34 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	None	1 cm RPD black underneath
Gravel	<u>Brown surface</u>	Slight	
Sand VCC M F VF	Brown surface	Moderate ✓	
<u>Silt</u> ✓	Gray	<u>Strong</u> <u>HS</u>	
Clay	<u>Black</u> ✓	Overwhelming	
Organic matter	Other:	Sulfur	
<del>Woody debris</del> <u>some</u>		Petroleum	
Shell debris		Other:	
Other:			

	Analyses		Sample Containers					
	16 oz glass jar	16 oz poly jar	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
<input checked="" type="checkbox"/> Dioxin/Furan	1		16 oz Amber ✓		Axys		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Grain size/TOC		1	16 oz Poly ✓		ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)		2 16 oz Glass ✓		ARI		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Resin / Guai			1 16 oz Glass ✓		ARI		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia			4 oz Glass ✓		ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Sulfide			2 oz Glass w/ 2.0% Ac ✓		ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)				TA			
<input checked="" type="checkbox"/> PCB			16 oz Glass w/ Metals ✓		TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> TPH			16 oz Glass w/ Hg ✓		TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Metal			16 oz Glass w/ PCB ✓		TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Hg			16 oz Glass w/ TPH ✓		TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Bioassay			1 Bag ✓	1 ✓	NF	<input checked="" type="checkbox"/>		

Sampler Signatures

[Signature] 6/17/08 RDW

[Signature] DB QA 6/17/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: TE09 <sup>FIRST ATTEMPT</sup>  
 Date: 6/13/08  
 Time: \_\_\_\_\_  
 Boat: NWUWC WOLF EEL  
 Core Collection Method: VIBRACORE  
 Sample Team: M LONGTINE C PUNK S PENTNEY

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: INNER HOOK  
 GPS Time: 0830  
 Location (UTM Zone 10, NAD 83 meters): X 465739.8  
Y 5331554.5

RETRACTED TOY ANOMALY

Coring Start Time: 0835  
 Water Depth: 41' 8" <sup>FILED 0831</sup>  
 Core Bottom Depth: 6' 6" Ft.  
 Coring Finish Time: 0837  
 Overall Recovery (%):     

0837 REFUSAL AT 6' 6", RETRIEVE CORE TO INSPECT  
0845 UPON RETRIEVAL OF CORE, OBSERVED WOOD WASTE (PULP) IN CUTTING SLEEVE AND SLEEVE. ALSO SHEEN ON WATER WHERE SEDIMENT DROPPED OUT OF SHOE.

STARBORD STERN

Sample ID:	Depth Interval:	in	to	in
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
<del>Sample ID:</del>	<del>Depth Interval:</del>	<del>in</del>	<del>to</del>	<del>in</del>
<del>Sediment Type (%):</del>	<del>Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:</del>			
<del>Sediment Color:</del>	<del>Drab olive / Brown / Brown surface / Gray / Black / Other:</del>			
<del>Sediment Odor:</del>	<del>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</del>			
<del>Biota:</del>		<del>Immediate Analysis</del>		<del>Archive for Later Analysis</del>
<del>Samples Collected:</del>	<del>16 oz poly jar _____ TOC/Grain size _____</del>			
	<del>16 oz glass jar _____ Dioxins/Furans _____</del>			
	<del>16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____</del>			
	<del>16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____</del>			
	<del>4 oz glass jar _____ Sulfide / Other: _____</del>			
	<del>core _____ Radioisotope Dating _____</del>			
<del>Sample ID:</del>	<del>Depth Interval:</del>	<del>in</del>	<del>to</del>	<del>in</del>
<del>Sediment Type (%):</del>	<del>Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:</del>			
<del>Sediment Color:</del>	<del>Drab olive / Brown / Brown surface / Gray / Black / Other:</del>			
<del>Sediment Odor:</del>	<del>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</del>			
<del>Biota:</del>		<del>Immediate Analysis</del>		<del>Archive for Later Analysis</del>
<del>Samples Collected:</del>	<del>16 oz poly jar _____ TOC/Grain size _____</del>			
	<del>16 oz glass jar _____ Dioxins/Furans _____</del>			
	<del>16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____</del>			
	<del>16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____</del>			
	<del>4 oz glass jar _____ Sulfide / Other: _____</del>			
	<del>core _____ Radioisotope Dating _____</del>			

NOTES:



S1'7

S4 6

2'11 START  
OF 12

# Sediment Core Log

Station ID: IE09 2<sup>nd</sup> ATTEMPT

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide Rayonier  
 Area of Concern: INNER HOOK  
 GPS Time: 1026  
 Location (UTM Zone 10, NAD 83 meters): X 465739  
 Y 5331558

Date: 6/13/08  
 Time: 0855  
 Boat: NWUWC WOLFEE  
 Core Collection Method: VIBRA-CORE  
 Sample Team: M LONGTINE C FUNK S PENTNEY

Coring Start Time: 0855  
 Water Depth: 40.0 Ft. @  
 Core Bottom Depth: 10 Ft.  
 Coring Finish Time: 0856  
 Overall Recovery (%): 77%

0856 CORE ADVANCED 10 FEET VERY EASILY (< 1 MINUTE). RETURN CORE FOR INSPECTION.  
 0910 INSPECTED CORE WHILE STILL IN POLYCARBONATE SLEEVE. RECOVERED 120" - 28" = 92". WOODWASTE (PULP) IS PRESENT IN CUTTING SHOE. WILL NEED TO RE-CORE TO ATTEMPT TO TAG SEDIMENT BELOW WOODWASTE. WILL CAP CORE AND STORE UPRIGHT FOR POSSIBLE LATER USE.

12/9/08

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			

NO SAMPLES ATTEMPT

NOTES:

# Sediment Core Log

Station ID: IE09 3<sup>rd</sup> ATTEMPT

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: INNER HOOK  
 GPS Time: 1025  
 Location (UTM Zone 10, NAD 83 meters): X 465739  
 Y 5331556

Date: 6/13/08  
 Time: 0925  
 Boat: NWUW2 WOLF EEL  
 Core Collection Method: VIBROCORE  
 Sample Team: M LONOTIVE C FUNK  
S PENTNEY

Coring Start Time: 0925 ✓ 0923 FOR THIS (3<sup>rd</sup>) ATTEMPT WILL USE 10 FT SLEEVE IN 12 FT BARREL (AS WITH PREVIOUS ATTEMPTS), BUT WILL DRIVE TO 12 FT DEPTH TO ATTEMPT TO CAPTURE SEDIMENT BELOW WOOD WASTE. LOCATION IS IMMEDIATELY AFT OF CRANE, SAME ANCHOR POSITION AS ATTEMPTS 1 AND 2  
 Water Depth: 40.0 ✓ Ft.  
 Core Bottom Depth: 9'1" Ft.  
 Coring Finish Time: 0927  
 Overall Recovery (%): 100  
0930 REFUSAL AT 9'1" OF PENETRATION,  
0932 WOOD WASTE IN CUTTING SHOE, CORE SLEEVE IS FULL, AND (OVER)

Sample ID: IE09 B ✓ Depth Interval: 36 in to 48 in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: TIME=0925

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	<input checked="" type="checkbox"/>	TOC/Grain size	<input checked="" type="checkbox"/>	16 oz Poly	<input checked="" type="checkbox"/>
16 oz glass jar	<input checked="" type="checkbox"/>	Dioxins/Furans	<input checked="" type="checkbox"/>	16 oz Amber	<input checked="" type="checkbox"/>
16 oz glass jar	<input checked="" type="checkbox"/>	SVOCs / resin / TBT / Ammonia	<input checked="" type="checkbox"/>	16 oz Glass	<input checked="" type="checkbox"/>
16 oz glass jar	<input checked="" type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>	16 oz Glass	<input checked="" type="checkbox"/>
4 oz glass jar	<input checked="" type="checkbox"/>	Sulfide / Other: <u>ACID</u>	<input checked="" type="checkbox"/>	200 glass w/ Zn Ac	<input checked="" type="checkbox"/>
core		Radioisotope Dating			

Sample ID: NO SAMPLE C (NO SUB) Depth Interval: \_\_\_ in to \_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	___	TOC/Grain size	___		___
16 oz glass jar	___	Dioxins/Furans	___		___
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___		___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___		___
4 oz glass jar	___	Sulfide / Other: ___	___		___
core		Radioisotope Dating			

Sample ID: \_\_\_ Depth Interval: \_\_\_ in to \_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	___	TOC/Grain size	___		___
16 oz glass jar	___	Dioxins/Furans	___		___
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___		___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___		___
4 oz glass jar	___	Sulfide / Other: ___	___		___
core		Radioisotope Dating			

Sample ID: \_\_\_ Depth Interval: \_\_\_ in to \_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	___	TOC/Grain size	___		___
16 oz glass jar	___	Dioxins/Furans	___		___
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___		___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___		___
4 oz glass jar	___	Sulfide / Other: ___	___		___
core		Radioisotope Dating			

NOTES:

IE09 3<sup>rd</sup> ATTEMPT (CONT)  
6/13/08 0925

→ AN ESTIMATED 6" OF MATERIAL WAS PRESENT ABOVE TOP OF SLEEVE BEFORE REMOVED SLEEVE FROM TUBE. THIS 6" OF MATERIAL WAS LOST, APPEARED TO BE WOOD WASTE (PULP). PERSON RECOVERED 10+ FEET OF SEDIMENT EVEN THOUGH PENETRATED 9'1" IS THAT DEPTH MEASUREMENT IS DIFFICULT IN LOOSE, UNCONSOLIDATED SOFT SEDIMENT.

WILL PROCESS THIS CORE, COLLECT ANALYTICAL SAMPLE FROM "B" INTERVAL.

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization		
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers		
	1		AS DESCRIBED FOR 36 TO 48" EXCEPT LOWER PROPORTION OF CHIPS, STRANDS, AND BARK.			
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
1	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
2	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					
	32					
	33					
	34					
	35					
3	36					
	37	↑ IE09 B ↓	WOOD WASTE WITH MINOR MIXED PLANT MATTER. MIXED LIGHT BROWNISH GRAY AND TAN IN OVERALL COLOR. WOODY DEBRIS INCLUDES GELATINOUS MATERIAL PREDOMINANTLY WITH WOOD STRIPS/STRANDS AND BARK TO 3" LONG. BARK AND STRANDS SLIGHTLY DECOMPOSED.			
	38					
	39					
	40					
	41					
	42					
	43					
	44					
	45					
	46					
	47					
4	48	↓				
	49					
	50					
	51					
	52					
	53					
	54					
	55					
	56					
	57					
	58					
	59					
5	60		AS DESCRIBED FOR 36" TO 48"			

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	61		AS DESCRIBED FTL 36 TO 48" EXCEPT FOUND INTACT MUSSEL SHELL AT 90"	
	62			
	63			
	64			
	65			
	66			
	67			
	68			
	69			
	70			
	71			
6	72			
	73			
	74			
	75			
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7	84			
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8	96			
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	98			
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	100			
	101			
	102			
	103			
	104			
	105			
	106			
	107			
9	108			
	109			
	110			
	111			
	112			
	113			
	114			
	115			
	116			
	117			
	118			
	119			
10	120			

Missing form. Info verbal from P. Striplin  
 R. Whitcomb 6-12-08 @ 1221 pm (from logbook)

Project: Port Angeles Harbor Sediment

Grab Sediment Sample Log

Characterization Study

Date: 6-8-08 ✓

Sample ID: IE10A ✓

Time: 1804 ✓

Area of Concern: \_\_\_\_\_

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): <u>167 ft</u>		Penetration depth (cm): <u>21 cm</u> ✓		R.P.D. = 1 cm
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>	
Cobble	<u>Drab olive</u> <sup>then</sup>	None	Light br surfacethen ✓ turns to olive drab below R.P.D. at 9cm, turned to black silt w/ < 5% woo debris some clay Bark on surface	
Gravel	<u>Brown</u> <sup>Light</sup>	<u>Slight</u>		
Sand V C C M F V F	<u>Brown surface</u>	Moderate ✓		
<u>Silt</u> ✓	Gray	Strong		
Clay	Black ✓	Overwhelming		
Organic matter	Other:	<u>Sulfur</u>		
Woody debris		Petroleum		
Shell debris		Other:		
Other:				

	Analyses		Sample Containers					
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
⊗ Dioxin/Furan	1		16oz Amber ✓		Axys			
⊗ Grain size/TOC			1 16oz Poly ✓		ARI			
⊗ SVOCs	1 (2 if arch)		16oz glass ✓		ARI			
⊗ Resin / Guai					ARI			
⊗ Organotin					ARI			
⊗ Ammonia			4oz Glass ✓		ARI			
⊗ Sulfide			2oz Glass ✓		ARI	w/2.0 ACN ✓		
Pesticide	1 (2 if arch)				TA			
⊗ PCB					TA			
⊗ TPH					TA			
⊗ Metal					TA			
⊗ Hg			4oz Glass ✓		TA			
Bioassay				1	NF			

\_\_\_\_\_  
 Sampler Signatures

\_\_\_\_\_  
 Sample Custodian Signature

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-9-08 ✓✓

Sample ID: 1E11A ✓

Time: 0937 ✓✓

Area of Concern: INNER EDIZ

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Grab boat

Bottom depth (ft): 5 ✓ Penetration depth (cm): 12 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	None	<u>&gt; 50% wood chips</u> <u>Heavy degraded,</u> <u>teredo infested</u> <u>wood - rot bark</u>
Gravel	Brown	<u>Slight</u>	
Sand V C C M F V F	Brown surface	Moderate ✓	
<u>Silt</u> ✓	<u>Gray</u>	Strong	
Clay	<u>Black</u> ✓	Overwhelming	
Organic matter	Other:	<u>Sulfur</u>	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1			<u>Amber</u> ✓	<u>Axys</u>			
Grain size/TOC		1		<u>Poly</u> ✓	ARI			
SVOCs	1 (2 if arch)	<u>3</u>		<u>16 oz glass</u> ✓	ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia				<u>4 oz glass</u>	ARI			
Sulfide				<u>2 oz glass w/</u> ✓	ARI	<u>Zinc Acetate</u>		
Pesticide	1 (2 if arch)				TA			
PCB				<u>16 oz glass w/ Metals</u> ✓	TA			
TPH					TA			
Metal				<u>16 oz glass w/ PCB</u> ✓	TA			
Hg				<u>4 oz glass</u> ✓	TA			
Bioassay				1	NF			

- (A)
- (X)
- (A)
- (A)
- (X)
- (X)
- (A)
- (A)
- (X)

C. [Signature]

Sampler Signatures

[Signature] 6/9/08 RDW

QA DB 6/9/08 RDW

Sample Custodian Signature



Project: Port Angeles Harbor Sediment  
 Characterization Study  
 Date: 6-9-08 ✓✓

Grab Sediment Sample Log

Sample ID: 1E12A ✓✓  
 Area of Concern: Inner Ediz

Time: 1252 ✓✓

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Grab RPD: 1cm

Bottom depth (ft): 112 ✓ Penetration depth (cm): 24 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	None	Wood chips present bark present bark up to 2' long ✓ in sampler - red in color spionadal tubes, malclanidae
Gravel	Brown	<u>Slight</u> ✓	
Sand VCC M F VF	<u>Brown surface</u>	Moderate	
<u>Silt</u>	<u>Gray</u>	Strong	
<u>Clay</u> ✓	<u>Black</u> ✓	Overwhelming	
Organic matter	Other:	<u>Sulfur</u>	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

	Analyses		Sample Containers				Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab				
<u>(A)</u> Dioxin/Furan	1	<u>16 oz Amber</u> ✓			Axys				
<u>(X)</u> Grain size/TOC		<u>1 16 oz Poly</u> ✓			ARI				
<u>(A)</u> SVOCs	1 (2 if arch)	<u>16 oz glass w/resin</u> ✓			ARI				
<u>(A)</u> Resin / Guai		<u>16 oz glass w/svoc</u> ✓			ARI				
Organotin					ARI				
<u>(X)</u> Ammonia		<u>4 oz Glass</u> ✓			ARI				
<u>(X)</u> Sulfide		<u>2 oz glass w/TA</u> ✓			ARI				
Pesticide	1 (2 if arch)				TA				
<u>(A)</u> PCB		<u>16 oz glass w/PCB</u> ✓			TA				
TPH					TA				
<u>(A)</u> Metal		<u>16 oz glass w/PCB</u> ✓			TA				
<u>(X)</u> Hg		<u>4 oz glass</u> ✓			TA				
Bioassay				1	NF				

Sampler Signatures

[Signature] eldof row

DB CA ROW 16/10/08

Sample Custodian Signature

# Sediment Core Log

Station ID: 1E12 FIRST ATTEMPT  
 Date: 6-20-08  
 Time: 0930  
 Boat: Salvador I - NNUWC  
 Core Collection Method: VIBROCORE  
 Sample Team: M. LORANTIER, C. FUNK

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: INNER EDIZ  
 GPS Time: 0901  
 Location (UTM Zone 10, NAD 83 meters): X 466367.2  
 Y 5331554.3

Coring Start Time: 0930  
 Water Depth: 111' 10" Ft. 0915  
 Core Bottom Depth: 121' 10" Ft.  
 Coring Finish Time: 0935  
 Overall Recovery (%): 46%  
 PENETRATION DEPTH 10.0'

*0940 CORE ASSEMBLY ON DECK, NO SEDIMENT IN CUTTING-SHOE. BEGIN POPPING RIVETS*  
*0950 POLYCARBONATE SLEEVE EXTENDED FROM CORE BARREL (12 FT) FOR INSPECTION. MEASURED DEPTH TO TOP OF SEDIMENT FROM TOP OF 10 FT SLEEVE = 65". RECOVERY = 120" - 65" = 55"*  
*0955 RETAINING THIS CORE, STORED UPRIGHT IN SLEEVE, FOR POSSIBLE LATER USE PENDING OUTCOME OF 2<sup>ND</sup> ATTEMPT.*

120 | 55.0  
 480  
 700  
 600

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: ___				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:			Immediate Analysis	
Archive for Later Analysis				
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: ___	___
	core	___	Radioisotope Dating	___
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: ___				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:			Immediate Analysis	
Archive for Later Analysis				
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: ___	___
	core	___	Radioisotope Dating	___
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___ /Gravel ___ /Sand (VC C M F VF) ___ /Silt ___ /Clay ___ /Organic mtrl ___ /Woody debris ___ /Shell debris ___ /Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: ___				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___				
Biota:			Immediate Analysis	
Archive for Later Analysis				
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___
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	core	___	Radioisotope Dating	___
Sample ID:	Depth Interval:	in.	to	in.
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Biota:			Immediate Analysis	
Archive for Later Analysis				
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___
	16 oz glass jar	___	Dioxins/Furans	___
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	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___
	4 oz glass jar	___	Sulfide / Other: ___	___
	core	___	Radioisotope Dating	___

WORK RESERVED  
 SAMPLES  
 JU

NOTES:

2007

Camp location - N: 5331554, 83 E: 466368.1

2nd ATTEMPT

# Sediment Core Log

Station ID: IE 12

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide D Rayonier  
 Area of Concern: INNER EDGE REEF  
 GPS Time: 2:55 1st  
 Location (UTM Zone 10, NAD 83 meters): X } ATTEMPT  
 Y }

Date: 6/20/08  
 Time: 1028  
 Boat: MUWIC WOLF EEL  
 Core Collection Method: VIBROCORE  
 Sample Team: M LONGMIR  
C FEWK

Coring Start Time: 1028  
 Water Depth: 110' 11" Ft.  
 Core Bottom Depth: 120' 11" Ft.  
 Coring Finish Time: 1031  
 Overall Recovery (%): 100%

10 FT PENETRATION

1050 RETRIEVED CORE SLEEVE FROM BARREL. SILTY SAND OBSERVED IN SIDE AND SEDIMENT OBSERVED AT TOP OF SLEEVE -> 100% RECOVERY APPEARS ACCEPTABLE. PREPARE TO CUT SLEEVE OPEN.

1115 CORE SLEEVE OPEN BEING PREPARED APPEARS ACCEPTABLE.

Sample ID: <u>IE 12 B-V 1031</u>	Depth Interval: <u>12</u> in. to <u>24</u> in.																														
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																															
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Biota: _____																															
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core	Radioisotope Dating																														
Sample ID: <u>IE 12 1031</u>	Depth Interval: <u>107</u> in. to <u>119</u> in.																														
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																															
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core	Radioisotope Dating																														

### NOTES:

*Samples Rec'd.*  
*6/21/08 RDW*      *DB out 6/21/08 RDW*

Sediment Core Log Graphic

Station ID: IE12

Page 1 of - 2

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1		AS DESCRIBED FOR 12" TO 24" INTERVAL EXCEPT DARKER (BLACKISH BROWN) AND MORE SOUPY	Type: Bark (size, species)	Wood chips (size, decomposition state)
	2			Natural detritus	Logs (description)
	3			Sawdust	Pulp Fibers
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
1	12				
	13	INTERVAL	DARK GRAYISH BROWN	BARK (REDDISH BROWN),	
	14		WOOD DEBRIS WITH GELATINOUS	CHIPS AND STRANDS	
	15		MATRIX (PULP, POSSIBLY WITH	AND PULP. CHIPS	
	16		SOME MINERAL SEDIMENT)	AND STRANDS TO	
	17		VERY SOFT. STRONG	1/2", TAN. PARTIALLY	
	18		SULFUR ODDOR.	DECOMPOSED.	
	19				
	20				
	21				
	22				
	23				
2	24				
	25		AS DESCRIBED FOR	SEE COMMENTS	
	26		12" TO 24" INTERVAL		
	27		EXCEPT CHIPS AND		
	28		STRANDS/STRIPS OF		
	29		WOOD UP TO 4" LONG		
	30		(1/2 TO 1" WIDE)		
	31		STRONG SULFUR ODDOR		
	32				
	33				
	34				
	35				
3	36				
	37				
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
4	48				
	49				
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
5	60				

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	61		AS ABOVE	AS ABOVE
	62			
	63			
	64			
	65			
	66			
	67			
	68			
	69			
	70			
	71			
6	72			
	73			
	74			
	75			
	76			
	77			
	78			
	79			
	80			
	81			
	82			
	83			
7	84			
	85			
	86			
	87			
	88			
	89			
	90			
	91			
	92			
	93			
	94			
	95			
8	96			
	97			
	98			
	99			
	100		MIXED WOOD DEBRIS	AS ABOVE
	101		(AS DESCRIBED ABOVE)	
	102		AND SAND/SILT	
	103		AND BIVALVE SHELLS.	
	104			
	105			
	106			
	107			
9	108			
	109		SILTY SAND AND	NO WOOD DEBRIS
	110		SHELL DEBRIS	
	111		(BIVALVES).	
	112		DARK GRAYISH BROWN.	
	113		MODERATE SULFUR	
	114		ODOR. NO CLAY	
	115		OBSERVED. SAND	
	116		VF TO FINE.	
	117			
	118			
	119			
10	120			

IE12

MIXED WOOD DEBRIS  
(AS DESCRIBED ABOVE)  
AND SAND/SILT  
AND BIVALVE SHELLS.

AS ABOVE

NO WOOD DEBRIS

SILTY SAND AND  
SHELL DEBRIS  
(BIVALVES).  
DARK GRAYISH BROWN.  
MODERATE SULFUR  
ODOR. NO CLAY  
OBSERVED. SAND  
VF TO FINE.

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-9-08 ✓✓

Sample ID: 1E13A ✓✓

Time: 1405 ✓✓

Area of Concern: Inner Ediz

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

RPD: 1cm

Bottom depth (ft): <u>80.5</u> ✓		Penetration depth (cm): <u>20</u> ✓				
<b>Sediment type:</b> Cobble Gravel Sand VCC M F VF <u>Silt</u> ✓ Clay Organic matter Woody debris Shell debris Other:	<b>Sediment color:</b> <u>Drab olive</u> Brown Brown surface <u>Gray</u> ✓ <u>Black</u> Other:	<b>Sediment Odor:</b> None <u>Slight</u> <u>Moderate</u> ✓ Strong Overwhelming <u>Sulfur</u> Petroleum Other:	<b>Comments:</b> Red Rock on surface - (coal?) wood debris saw dust present seems to be very degraded Migacrenella columbiana sponadae tubes, nemertea,			
<b>Analyses</b>	<b>Sample Containers</b>			<b>Immediate Analysis</b>	<b>Archive</b>	<b>MS/MSD</b>
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	
<input checked="" type="checkbox"/> Dioxin/Furan	1				Axys	
<input checked="" type="checkbox"/> Grain size/TOC		1			ARI	
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	3 16oz Glass ✓			ARI	
<input checked="" type="checkbox"/> Resin / Guai					ARI	
<input checked="" type="checkbox"/> Organotin					ARI	
<input checked="" type="checkbox"/> Ammonia		4 oz Glass ✓			ARI	
<input checked="" type="checkbox"/> Sulfide		2 oz Glass w/CAAC ✓			ARI	
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)				TA	
<input checked="" type="checkbox"/> PCB		16oz Glass w/Metal ✓			TA	
<input checked="" type="checkbox"/> TPH					TA	
<input checked="" type="checkbox"/> Metal		16oz Glass w/PCB ✓			TA	
<input checked="" type="checkbox"/> Hg		4oz Glass ✓			TA	
<input type="checkbox"/> Bioassay				1	NF	

75% wood material (sawdust)

- A
- X
- A
- A
- X
- X
- A
- A
- X
- X

Sampler Signatures

[Signature] 6/10/08 RPD

DB QA RPDW 6/10/08

Sample Custodian Signature

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6-9-08 ✓✓

**Sample ID:** 1E14A ✓✓

**Time:** 0839 ✓✓

**Area of Concern:** Inner Ediz

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

RPD: 1.5cm

**Boat/Sampling Team:** Grab boat ✓

Bottom depth (ft): 30 ✓ Penetration depth (cm): 29 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Nowood No biological activity ✓
Gravel	Brown	Slight	
Sand VCC M F VF	Brown surface	Moderate	
Silt	Gray	Strong ✓	
Clay ✓	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	

	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
ⓐ Dioxin/Furan	1				Axys ✓			
ⓧ Grain size/TOC		1			ARI ✓			
ⓐ SVOCs	1 (2 if arch) } → 16oz Poly Glass ✓				ARI ✓			
ⓐ Resin / Guai					ARI ✓			
Organotin					ARI ✓			
ⓧ Ammonia			4 oz glass ✓		ARI ✓			
ⓧ Sulfide			2 oz glass w/ Zn Acetate ✓		ARI ✓			
Pesticide	1 (2 if arch)				TA			
ⓐ PCB			16 oz glass w/ Metals ✓		TA ✓			
TPH					TA			
ⓐ Metal			16 oz glass w/ PCB ✓		TA ✓			
ⓧ Hg			4 oz glass ✓		TA ✓			
ⓧ Bioassay			1 Bag ✓	1	NF			

Courtney Funk  
 Sampler Signatures

\_\_\_\_\_  
 Sample Custodian Signature



# Sediment Core Log

Station ID: IE14

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide V Rayonier  
 Area of Concern: Inner Ediz Hook  
 GPS Time: 1400  
 Location (UTM Zone 10, NAD 83 meters): X 466985.24  
 Y 5331593.55

TIME - Date: 1409  
 DATE Time: 6-20-08  
 Boat: SANDACET NWJWC  
 Core Collection Method: VIBROCORE  
 Sample Team: M. Longfellow, C. Funk

Coring Start Time: 1409  
 Water Depth: 128' 8" Ft.  
 Core Bottom Depth: 138' 8" Ft.  
 Coring Finish Time: 1411  
 Overall Recovery (%): 100%

1420 CORE ASSEMBLY ON DECK. DARK GRAYISH BROWN SILT / CLAY MIXTURE IN CUTTING SLOT.  
1440 PARTIALLY OPENED UP CORE SLEEVE (SINGLE CUT). INSPECTED SEDIMENT. APPEARS TO BE WOODY DEBRIS FROM SURFACE TO EST. 8 FT. BELOW 8 FT APPEARS TO BE SILT/CLAY. ACCEPTABLE CORE.

Sample ID: IE14 B 1411 Depth Interval: 62 in. to 74 in.

Sediment Type (%): Cobble \_\_\_ /Gravel \_\_\_ /Sand (VC C M F VF) \_\_\_ /Silt \_\_\_ /Clay \_\_\_ /Organic mtrl \_\_\_ /Woody debris \_\_\_ /Shell debris \_\_\_ /Other: \_\_\_  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_  
 Biota: \_\_\_

Samples Collected:	Immediate Analysis	Archive for Later Analysis
<u>Amber</u> 16 oz poly jar <input checked="" type="checkbox"/>	TOC/Grain size <input checked="" type="checkbox"/>	___
16 oz glass jar <input checked="" type="checkbox"/>	Dioxins/Furans <input checked="" type="checkbox"/>	___
16 oz glass jar <input checked="" type="checkbox"/>	SVOCs / resin / TBT / Ammonia <input checked="" type="checkbox"/>	___
16 oz glass jar <input checked="" type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg <input checked="" type="checkbox"/>	___
4 oz glass jar <input checked="" type="checkbox"/>	Sulfide / Other: ___ <input checked="" type="checkbox"/>	___
core	Radioisotope Dating	___

Sample ID: IE14 C 1411 Depth Interval: 12 in. to 24 in.

Sediment Type (%): Cobble \_\_\_ /Gravel \_\_\_ /Sand (VC C M F VF) \_\_\_ /Silt \_\_\_ /Clay \_\_\_ /Organic mtrl \_\_\_ /Woody debris \_\_\_ /Shell debris \_\_\_ /Other: \_\_\_  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_  
 Biota: \_\_\_

Samples Collected:	Immediate Analysis	Archive for Later Analysis
<u>Amber</u> 16 oz poly jar <input checked="" type="checkbox"/>	TOC/Grain size <input checked="" type="checkbox"/>	___
16 oz glass jar <input checked="" type="checkbox"/>	Dioxins/Furans <input checked="" type="checkbox"/>	___
16 oz glass jar <input checked="" type="checkbox"/>	SVOCs / resin / TBT / Ammonia <input checked="" type="checkbox"/>	___
16 oz glass jar <input checked="" type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg <input checked="" type="checkbox"/>	___
<u>2oz</u> 4 oz glass jar <input checked="" type="checkbox"/>	Sulfide / Other: ___ <input checked="" type="checkbox"/>	___
core	Radioisotope Dating	___

(METALS, Hg) (PCBs) - 16oz Glass  
→ 4oz Glass

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ /Gravel \_\_\_ /Sand (VC C M F VF) \_\_\_ /Silt \_\_\_ /Clay \_\_\_ /Organic mtrl \_\_\_ /Woody debris \_\_\_ /Shell debris \_\_\_ /Other: \_\_\_  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_  
 Biota: \_\_\_

Samples Collected:	Immediate Analysis	Archive for Later Analysis
16 oz poly jar	TOC/Grain size	___
16 oz glass jar	Dioxins/Furans	___
16 oz glass jar	SVOCs / resin / TBT / Ammonia	___
16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	___
4 oz glass jar	Sulfide / Other: ___	___
core	Radioisotope Dating	___

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ /Gravel \_\_\_ /Sand (VC C M F VF) \_\_\_ /Silt \_\_\_ /Clay \_\_\_ /Organic mtrl \_\_\_ /Woody debris \_\_\_ /Shell debris \_\_\_ /Other: \_\_\_  
 Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_  
 Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_  
 Biota: \_\_\_

Samples Collected:	Immediate Analysis	Archive for Later Analysis
16 oz poly jar	TOC/Grain size	___
16 oz glass jar	Dioxins/Furans	___
16 oz glass jar	SVOCs / resin / TBT / Ammonia	___
16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	___
4 oz glass jar	Sulfide / Other: ___	___
core	Radioisotope Dating	___

NOTES:

*Samples Received  
 6/21/08  
 RDU*

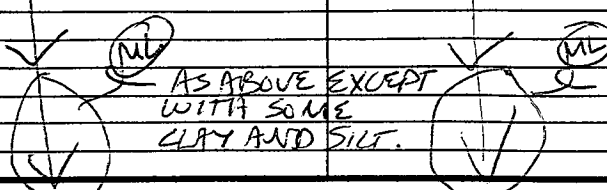
*DB QA 6/21/08 RDU*

N: 5331593.44 E: 466986.31

6/20/08

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1		AS DESCRIBED FOR 12 TO 24" INTERVAL	AS DESCRIBED FOR 12" TO 24" INTERVAL	
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
1	12				
	13		DARK GRAYISH BROWN ORGANIC MUCK (INCL. WOOD PULP) AND WOOD DEBRIS. LITTLE OR NO OBSERVABLE MINERAL SEDIMENT. STRONG SULFUR ODOR. GELTINOUS TEXTURE OVERALL, WITH SOME FIBROUS AND CHUNKY MATERIAL (WOOD STRINGS, CHIPS, BARK).	PULP BARK, REDDISH BROWN TO 2"	
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
2	24				
	25		AS ABOVE	AS ABOVE	
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
3	36				
	37				
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
4	48				
	49				
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
5	60				

IR14



Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	61		AS ABOVE TO 62"	AS ABOVE TO 62"	
	62				
	63		CLAY AND SILT WITH SOME CLAM SHELL DEBRIS - DARK GRAYISH BROWN - VERY SOFT. MILD SULFUR ODOR.	NO WOOD DEBRIS	
	64				
	65				
	66				
	67				
	68				
	69				
	70				
	71				
6	72				
	73		AS ABOVE		
	74				
	75				
	76				
	77				
	78				
	79				
	80				
	81				
	82				
	83				
7	84				
	85				
	86				
	87				
	88				
	89				
	90				
	91				
	92				
	93				
	94				
	95				
8	96				
	97				
	98				
	99				
	100				
	101				
	102				
	103				
	104				
	105				
	106				
	107				
9	108				
	109				
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	115				
	116				
	117				
	118				
	119				
10	120				

IE14C



Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6-9-08 ✓

Sample ID: IEISA ✓

Time: 1043 ✓

Area of Concern: \_\_\_\_\_

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_ RPD: 1cm

Boat/Sampling Team: GRAB

Bottom depth (ft): 80.5 Penetration depth (cm): 23

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	None	bark present Clay from 3cm- bottom, spionadae, capitellidae, maldividae >5% wood, glyceridae, porochelone ceratobranchius (8 inch long)
Gravel	Brown	Slight	
Sand V C C M F VF	<u>Brown surface</u>	Moderate	
<u>Silt</u>	<u>Gray</u>	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jars	Plastic bag	Lab			
Dioxin/Furan	1			<u>16 oz glass</u> ✓	Axys			
Grain size/TOC				<u>1 16 oz Poly</u> ✓	ARI			
SVOCs	1 (2 if arch)			<u>1 16 oz glass</u> ✓	ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia				<u>4 oz glass</u> ✓	ARI			
Sulfide				<u>2 oz glass w/ ZnAc</u> ✓	ARI			
Pesticide	1 (2 if arch)				TA			
PCB				<u>16 oz glass w/ Metals</u> ✓	TA			
TPH					TA			
Metal				<u>16 oz glass w/ PCB</u> ✓	TA			
Hg				<u>4 oz glass</u> ✓	TA			
Bioassay				<u>1 Bag</u> ✓	1 NF			

*Thyrasira flexuosa*, *compsomyxa* ✓  
*subdiaphana*

- (A) ✓
- (X) ✓
- (A) ✓
- (A) ✓
- (X) ✓
- (X) ✓
- (A) ✓
- (A) ✓
- (X) ✓
- (X) ✓

Sampler Signatures

[Signature] 6/10/08 RDW

DB QA RDW 6/8/08

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6-9-08 ✓✓

Sample ID: 1E16A ✓✓

Time: 1145 ✓✓

Area of Concern: Inner Ediz

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 66.5 ✓ Penetration depth (cm): 32 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Saw dust present (see pictures), Saw dust starts 3 cm down and goes to bottom of sampler spionadae tubes, macoma carlottensis ✓
Gravel	Brown	Slight to Moderate	
Sand V C C M F VF	Brown surface	Strong	
Silt ✓	Gray	Overwhelming	
Clay	Black	Sulfur	
Organic matter	Other:	Petroleum	
Woody debris		Other:	
Shell debris			
Other:			

	Analyses		Sample Containers				Immediate Analysis	Archive	MS/MSD
	16 oz jar	16 oz poly	4 oz jar	Plastic bag	Lab				
(A) Dioxin/Furan	1		16 oz Amber ✓		Axys				
(A) Grain size/TOC			1 16 oz Poly ✓		ARI				
(A) SVOCs	1 (2 if arch)		16 oz glass w/ Resin ✓		ARI				
(A) Resin / Guai			16 oz glass w/ SVOCs ✓		ARI				
(A) Organotin					ARI				
(X) Ammonia			4 oz Glass ✓		ARI				
(X) Sulfide			2 oz Glass ✓		ARI				
(A) Pesticide	1 (2 if arch)				TA				
(A) PCB			16 oz Glass w/ Metal ✓		TA				
(A) TPH					TA				
(A) Metal			16 oz Glass w/ PCB ✓		TA				
(X) Hg			4 oz Glass ✓		TA				
(X) Bioassay			1 Bag	1 ✓	NF				

→ Not on Master List - HOLD for now

Sampler Signatures

[Signature] 6/10/08 RDW

DB QA 6/10/08 RDW

Sample Custodian Signature

REJECTED

# Sediment Core Log

Station ID: IE16 ATTEMPT #1

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide Y Rayonier  
 Area of Concern: INNER HOOK  
 GPS Time: 0810  
 Location (UTM Zone 10, NAD 83 meters): X 466290  
Y 5331203

Date: 6/12/08  
 Time: 0830  
 Boat: NWUWC WOLFEL  
 Core Collection Method: VIBRA-CORE  
 Sample Team: M. LONGTINE, S. PENTNEY  
C. FUNK

Coring Start Time: 0830 0820 ON STATION. CORE DEVICE OUTFITTED WITH 10 FT CORE SLEEVE AND  
 Water Depth: 66' 3" Ft. 12-FT ALUMINUM BARREL. WATER DEPTH MEASURED WITH NYLON  
 Core Bottom Depth: 10 FT PENETRATION TAPE WITH WEIGHT, IS 66' 3". BEGIN LOWERING VIBRA-CORE.  
 Coring Finish Time: 0830  
 Overall Recovery (%): ~30% → REJECT 0850 POLYCARBONATE CORE SLEEVE RECOVERED FROM BARREL.  
4" DIAMETER CORE BARREL SILT IN CUTTING SHOE - NO WOOD WASTE. USED STEEL TAPE  
TO MEASURE DEPTH TO SEDIMENT FROM TOP OF TUBE (WATER  
IS MURKY, DARK BROWN. MEASURED 77" TO SEDIMENT.

120" TUBE  
 - 77" TO  
 43"  
 OF SED

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:				
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar	TOC/Grain size		
	16 oz glass jar	Dioxins/Furans		
	16 oz glass jar	SVOCs / resin / TBT / Ammonia		
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar	Sulfide / Other:		
	core	Radioisotope Dating		
<b>REJECTED</b>				
Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:				
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar	TOC/Grain size		
	16 oz glass jar	Dioxins/Furans		
	16 oz glass jar	SVOCs / resin / TBT / Ammonia		
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar	Sulfide / Other:		
	core	Radioisotope Dating		
<b>REJECTED</b>				
Sediment Type (%): Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:				
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar	TOC/Grain size		
	16 oz glass jar	Dioxins/Furans		
	16 oz glass jar	SVOCs / resin / TBT / Ammonia		
	16 oz glass jar	Pest / PCBs / TPH / Metals / Hg		
	4 oz glass jar	Sulfide / Other:		
	core	Radioisotope Dating		

NOTES:

# Sediment Core Log

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: INNER HOOK  
 GPS Time: 0945  
 Location (UTM Zone 10, NAD 83 meters): X 466288.2  
 Y 533197.4

Station ID: IE10 ATTEMPT#2  
 Date: 6/12/08 ✓  
 Time: 0923  
 Boat: NWOWZ WOLF EEL  
 Core Collection Method: VIBRA-CORE  
 Sample Team: M LONGTINE S PENTNEY  
C FUNK

Coring Start Time: 0923  
 Water Depth: 68' 2" Ft. @ 0920  
 Core Bottom Depth: 10.0 FT Ft.  
 Coring Finish Time: 0925  
 Overall Recovery (%): 100

0920 FINISHED SETTING-UP VIBRA-CORE WITH DELONED 10 FT POLY CARBON-  
 NTE SLEEVE. WATER DEPTH (STARBOARD STEER POSITION,  
 ATTEMPT # 1 WAS PORT STEER) IS 68' 2"  
 0935 CORE SLEEVE RECOVERED FROM BARREL. 100% RECOVERY  
 UPON REMOVING SLEEVE, UPPER 10" OF SEDIMENT SLIPPED  
 OUT OF BARREL. CONSISTED OF CLAYEY SILT W/ SOME SAND

Sample ID: IE16 B ✓ 0925-TIME ✓ Depth Interval: 12 in. to 24 in. ✓

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___
Biota:	Immediate Analysis <span style="float:right">Archive for Later Analysis</span>
Samples Collected:	16 oz poly jar <u>✓</u> TOC/Grain size <u>✓</u> <u>16oz Poly</u> ✓ 16 oz glass jar <u>✓</u> Dioxins/Furans <u>✓</u> <u>16oz Amber</u> ✓ 16 oz glass jar <u>✓</u> SVOCs / resin / TBT / Ammonia <u>✓</u> <u>16oz Glass</u> ML ✓ 16 oz glass jar <u>✓</u> Pest / PCBs / TPH / Metals / Hg <u>✓</u> <u>(METALS, Hg)</u> ✓ (PCB) ML ✓ 4 oz glass jar <u>✓</u> Sulfide / Other: ___ <u>✓</u> <u>2oz Glass w/ ZnAc</u> ✓ core Radioisotope Dating ___

ALL IMMEDIATE

Sample ID: IE16 C ✓ 0925-TIME ✓ Depth Interval: 36 in. to 48 in. ✓

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___
Biota:	Immediate Analysis <span style="float:right">Archive for Later Analysis</span>
Samples Collected:	16 oz poly jar <u>✓</u> TOC/Grain size <u>✓</u> <u>16oz Poly</u> ✓ 16 oz glass jar <u>✓</u> Dioxins/Furans <u>✓</u> <u>16oz Glass</u> ✓ 16 oz glass jar <u>✓</u> SVOCs / resin / TBT / Ammonia <u>✓</u> <u>16oz Amber</u> ✓ 16 oz glass jar <u>✓</u> Pest / PCBs / TPH / Metals / Hg <u>✓</u> <u>(METALS, Hg)</u> ✓ (PCB) → 16oz Glass ✓ 4 oz glass jar <u>✓</u> Sulfide / Other: ___ <u>✓</u> <u>2oz Glass w/ NH3</u> ✓ core Radioisotope Dating ___

PCB, Dioxin/Furan etc. Archived.

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___
Biota:	Immediate Analysis <span style="float:right">Archive for Later Analysis</span>
Samples Collected:	16 oz poly jar ___ TOC/Grain size ___ 16 oz glass jar ___ Dioxins/Furans ___ 16 oz glass jar ___ SVOCs / resin / TBT / Ammonia ___ 16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg ___ 4 oz glass jar ___ Sulfide / Other: ___ core Radioisotope Dating ___

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___
Biota:	Immediate Analysis <span style="float:right">Archive for Later Analysis</span>
Samples Collected:	16 oz poly jar ___ TOC/Grain size ___ 16 oz glass jar ___ Dioxins/Furans ___ 16 oz glass jar ___ SVOCs / resin / TBT / Ammonia ___ 16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg ___ 4 oz glass jar ___ Sulfide / Other: ___ core Radioisotope Dating ___

NOTES:



Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1		CLAYEY SILT WITH SOME	NONE	
	2		F OR UF SAND. TRACE		
	3		SHELL FRAGMENTS TO 1/4"		
	4		MILD SULFUR ODOR. GRAYISH		
	5		BROWN, V. SOFT.		
	6				
	7				
	8				
	9				
	10				
	11				
1	12				
	13		CLAYEY SILT W/ MINOR		
	14		V. FINE SAND AND		
	15		MINOR SHELL FRAGMENTS		
	16		TO 1/2", MILD SULFUR		
	17		ODOR. GRAYISH BROWN.		
	18		SOFT. NO WOOD		
	19		WASTE.		
	20				
	21				
	22				
	23				
2	24				
	25		SAME AS 12 TO 24"		
	26		INTERVAL		
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
3	36				
	37		CLAYEY SILT W/ MINOR		
	38		UF OR F SAND AND MINOR		
	39		SHELL FRAGMENTS TO		
	40		3/8". MILD SULFUR		
	41		ODOR. GRAYISH BROWN.		
	42		SOFT.		
	43				
	44				
	45				
	46				
	47				
4	48				
	49		SAME AS 36 TO 48"		
	50		INTERVAL EXCEPT		
	51		SHELL FRAGMENTS UP		
	52		TO 1/2", BIVALVES		
	53		AND SNAILS.		
	54				
	55				
	56				
	57				
	58				
	59				
5	60				

IE16B

IE16C

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	61		SAME AS 48" TO 60" INTERVAL	NO WOOD DEBRIS	
	62				
	63				
	64				
	65				
	66				
	67				
	68				
	69				
	70				
	71				
6	72			↓	
	73		AS ABOVE BUT WITH DECREASING CLAY CONTENT AND INCREASING V% OF SILT SAND CONTENT AND LOCALITY (84" TO 100") HIGHER SILT FRAGMENT (SP) CONTENT		
	74				
	75				
	76				
	77				
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	80				
	81				
	82				
7	84				
	85				
	86				
	87				
	88				
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	113				
	114				
	115				
	116				
	117				
	118				
10	119		↓		
	120				

Project: Port Angeles Harbor Sediment Characterization Study

Tissue Sample Log

Date: 6-21-08

Boat/Sampling Team: LEKT Tse-Whit-Zen

Location Data <u>Harbor-Wide</u> / Rayonier		Area of Concern: <u>Inner Hook</u>	
GPS Date/Time <u>5331726</u>		GPS PDOP <u>2.93</u>	
Sample ID: <u>IE18-TH</u>	Time: <u>1001</u>	Depth from water surface (ft): <u>15'</u>	
<i>Tissue type:</i>	<i>Sample Type/No:</i>	<i>Weight / Length</i>	<i>Comments:</i>
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
<u>Horse Clam</u>	#: <u>1</u> (5 min)	< 1 Lbs <u>6.25"</u> <u>est</u> <u>4.25"</u> in	No other clam in area SVOC, PCB, Dioxin, Metal, Hg
Macroalgae	kelp / eelgrass	Lbs	

Location Data Harbor-Wide / Rayonier		Area of Concern: <u>Inner Hook</u>	
GPS Date/Time <u>1235</u>		GPS PDOP <u>2.15</u>	
Lat <u>5332074</u>		Long <u>417604E</u>	

Sample ID: <u>IE25TM</u>	Time: <u>1304</u>	Depth from water surface (ft): <u>6-8'</u>	
<i>Tissue type:</i>	<i>Sample Type/No:</i>	<i>Weight / Length</i>	<i>Comments:</i>
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
Horse Clam	#: (5 min)	Lbs in	
<u>Macroalgae</u>	<u>kelp</u> / eelgrass	<u>5</u> Lbs	SVOC, PCB, Dioxin, Metal, Hg

[Signature]  
 Sampler Signatures

[Signature] DB QA 6/23/08 RDW  
 Sample Custodian Signature

Project: Port Angeles Harbor Sediment Characterization Study

Tissue Sample Log

Date: 6-21-08

Boat/Sampling Team: LEKT Tse-Whit-zen

E.W  
L.D  
J.T.B  
R.B  
G.A

Location Data Harbor-Wide / Rayonier Area of Concern: Inner Hook (near Fish Rec)

GPS Date/Time 1332 \* 533028N \* 467980E GPS PDOP 1.64

Sample ID:	Time:	Depth from water surface (ft):	
IE20TH	1358	6-8'	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
Horse Clam	#: 5 (5 min)	< 5 Lbs in	6" x 4" 5 1/2" x 3 3/4" 5 1/2" x 3 1/2" 4 1/4" x 3 1/4" 4 1/2" x 3 1/4"
Macroalgae	kelp / eelgrass	Lbs	SVOC, PCB, Dioxin, Metal, Hg

Location Data Harbor-Wide / Rayonier Area of Concern:

GPS Date/Time \_\_\_\_\_ Lat \_\_\_\_\_ Long \_\_\_\_\_ GPS PDOP \_\_\_\_\_

~~Sample ID: LEKT Time: \_\_\_\_\_ Depth from water surface (ft): 28' 201~~

~~Tissue type: Sample Type/No: Weight / Length Comments:~~

Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
Horse Clam	#: (5 min)	Lbs in	
Macroalgae	kelp / eelgrass	Lbs	

Siu M...  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

DB Q4 6/23/08 RDW

Project: Port Angeles Harbor Sediment Characterization Study

Tissue Sample Log

Grant Ask  
Eric White

Date: 6-14-08

Boat/Sampling Team: LEKT Coastal Craft

Location Data <u>Harbor-Wide</u> Rayonier		Area of Concern: <u>Inner Hook</u>	
GPS Date/Time <u>6-14-08 1330</u> X <u>468194</u> <sup>EW</sup> Y <u>5332037</u> <sup>EW</sup>		GPS PDOP <u>2.71</u> <sup>EW</sup> <u>7-3</u>	
Sample ID: <u>IE21TL</u>	Time: <u>1218</u>	Depth from water surface (ft): <u>55-60</u>	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
<u>Lingcod</u>	<u>Whole / Filet</u>	<u>4 Lbs / 27 in</u>	<u>Apx 1,800 grams</u> <u>Apx 690mm</u>
Geoduck	#: (5 min)	Lbs in	
Horse Clam	#: (5 min)	Lbs in	
Macroalgae	kelp / eelgrass	Lbs	
Location Data <u>Harbor-Wide</u> Rayonier		Area of Concern: <u>Inner Hook</u>	
GPS Date/Time <u>SAME</u> Lat _____ Long _____		GPS PDOP _____	
Sample ID: <u>IE22TL</u>	Time: <u>1225</u>	Depth from water surface (ft): <u>75-80</u>	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
<u>Lingcod</u>	<u>Whole / Filet</u>	<u>3 Lbs / 23 in</u>	<u>Apx 1,400 grams</u> <u>Apx 580mm</u>
Geoduck	#: (5 min)	Lbs in	
Horse Clam	#: (5 min)	Lbs in	
Macroalgae	kelp / eelgrass	Lbs	

[Signature]  
Sampler Signatures

[Signature] 6/14/08 RDW  
Sample Custodian Signature

DB RDW 6/16/08

IE Tissue = SVOCs  
 PCB  
 Dioxin/Furan  
 Metals  
 Hg

Project: Port Angeles Harbor Sediment Characterization Study

Tissue Sample Log Grant Ausk  
 Eric White

Date: 6-14-08

Boat/Sampling Team: LEIK Coastal Craft

Location Data <u>Harbor-Wide</u> Rayonier		Area of Concern: <u>Inner Hook</u>	
GPS Date/Time <u>Same as IE21, 22</u>		GPS PDOP _____	
Sample ID: <u>IE23TL</u>	Time: <u>1232</u>	Depth from water surface (ft): <u>65'</u>	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
<u>Lingcod</u> ✓	<u>Whole</u> / Filet	<u>3</u> Lbs / <u>25</u> in	Apx 1,400 grams Apx 640 mm
Geoduck	#: (5 min)	Lbs in	Family Hexagrammidae Genus Ophiodon Species elongatus
Horse Clam	#: (5 min)	Lbs in	
Macroalgae	kelp / eelgrass	Lbs	
Location Data <u>Harbor-Wide</u> Rayonier		Area of Concern: <u>Inner Hook</u>	
GPS Date/Time <u>124</u> <u>same</u> Lat _____ Long _____		GPS PDOP _____	
Sample ID: <u>IE24TL</u>	Time: <u>1249</u>	Depth from water surface (ft): <u>50-55'</u>	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
<u>Lingcod</u> ✓	<u>Whole</u> / Filet	<u>20</u> Lbs / <u>36</u> in	Apx 9,000 grams Apx 910 mm
Geoduck	#: (5 min)	Lbs in	
Horse Clam	#: (5 min)	Lbs in	
Macroalgae	kelp / eelgrass	Lbs	

G. M. B.  
 Sampler Signatures

[Signature] 6/14/08 RDW  
 Sample Custodian Signature

DB 6/16/08 RDW

EI Tissue: SVOC  
 Pest  
 PCB  
 Dioxin/Furan  
 Metal  
 H<sub>2</sub>

Project: Port Angeles Harbor Sediment Characterization Study

Tissue Sample Log

Joe Tarr  
 Ron Bolstrom  
 Eric White

Date: 6-14-08

Boat/Sampling Team: LEKT Coastal Craft

Location Data (Harbor-Wide) Rayonier Area of Concern: Eastern Intertidal  
 GPS Date/Time 6-14-08, 0924 X 470899 Y 5329427 GPS PDOP 2.75  
 Sample ID: EI08TH ✓ Time: 1116 ✓ Depth from water surface (ft): 30(4)15(1) ✓

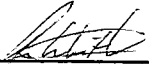
Tissue type:	Sample Type/No:	Weight / Length	Comments:
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
Horse Clam ✓	#: 5 (5 min)	5 Lbs ✓ in	4 1/2" x 3 1/4", 6" x 4", 4 1/2" x 3 1/4", 5" x 4", 5" x 3 1/2" Apt 2, 300 grams Avg Apt 100 mm
Macroalgae	kelp / eelgrass	Lbs	Family Hiatellidae Genus Triesus Sp. NOT ID!

Location Data (Harbor-Wide) Rayonier Area of Concern: Inner Hook  
 GPS Date/Time 6-14-08 Lat X 468194 Long Y 5332037 GPS PDOP 2.71

Sample ID: FE26TM ✓ Time: 1352 ✓ Depth from water surface (ft): 15-20 ✓  
 Tissue type: Sample Type/No: Weight / Length Comments:

Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
Horse Clam	#: (5 min)	Lbs in	
Macroalgae ✓	kelp / eelgrass	10 Lbs ✓	Apt 4,500 grams Not ID.

Sampler Signatures

  
 Sample Custodian Signature

DB 6/16/08 RDW

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/16/08 ✓✓

Sample ID: IHO1A ✓✓

Time: 11:07 ✓✓

Area of Concern: Inner Harbor

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Kate, Jen

Bottom depth (ft): <u>29.0</u> ✓		Penetration depth (cm): <u>26 cm</u> ✓						
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>					
Cobble ✓	Drab olive	None	1.5cm RPD Very decomposed					
Gravel ✓	Brown <i>surface</i>	Slight						
Scattered Sand ✓ V C M F V F	Brown surface	Moderate ✓						
Silt <i>thin layer → 3cm</i>	Gray	Strong						
Clay	Black ✓	Overwhelming						
Organic matter	Other: <i>yellowish</i>	Sulfur						
Woody debris <i>3%</i>	<i>Sawdust below 3m</i>	Petroleum						
Shell debris		Other:						
Other: <i>sawdust?</i>								
<b>Analyses</b>	<b>Sample Containers</b>							
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
(A) Dioxin/Furan	1	16 oz Amber ✓			Axys		(X)	
(X) Grain size/TOC		1 16 oz Poly ✓			ARI	(X)		
(A) SVOCs	1 (2 if arch)	16 oz Amber ✓			ARI		(X)	
(A) Resin / Guai		16 oz Amber ✓			ARI		(X)	
Organotin					ARI			
(X) Ammonia		4 oz Glass ✓			ARI	(X)		
(X) Sulfide		2 oz Glass w/ Zn Ac ✓			ARI	(X)		
Pesticide	1 (2 if arch)				TA			
(A) PCB		16 oz Glass w/ Metals ✓			TA		(X)	
(X) TPH		16 oz Glass w/ H <sub>2</sub> O ✓			TA	(X)		
(A) Metal		16 oz Glass w/ H <sub>2</sub> O ✓			TA		(X)	
(X) Hg		16 oz Glass w/ H <sub>2</sub> O ✓			TA	(X)		
(X) Bioassay		1 Bag	1 ✓		NF	(X)		

Sampler Signatures

[Signature] 6/17/08 RDW

DB QA 6/17/08 RDW

Sample Custodian Signature



Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6/16/08

Sample ID: IHD2A

Time: 12:23

Area of Concern: Inner Harbor

Location Data (Harbor-Wide) Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Pete, Tex

Bottom depth (ft): 388 Penetration depth (cm): 10

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	<u>NEMEX tea</u> <u>&lt;20% wood frag</u> <u>paraprionospio pinnite</u>
Gravel	<u>Brown</u>	<u>Slight</u>	
Sand V C C M F V F	<u>Brown surface</u>	Moderate ✓	
<u>Silt</u> ✓	<u>Gray</u> ✓	Strong	
Clay	<u>Black</u>	<u>Overwhelming</u>	
Organic matter	Other:	<u>Sulfur</u>	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<u>(A)</u> Dioxin/Furan	1	<u>16 oz jar</u>			<u>AXYS</u>		<u>(X)</u>	
<u>(X)</u> Grain size/TOC		<u>1 16 oz jar</u>			<u>ARI</u>	<u>(X)</u>		
<u>(A)</u> SVOCs	1 (2 if arch)	<u>2 16 oz glass</u>			<u>ARI</u>		<u>(X)</u>	
<u>(A)</u> Resin / Guai					<u>ARI</u>		<u>(X)</u>	
Organotin					<u>ARI</u>			
<u>(X)</u> Ammonia		<u>4 oz glass</u>			<u>ARI</u>	<u>(X)</u>		
<u>(X)</u> Sulfide		<u>200 Glass w/7ml</u>			<u>ARI</u>	<u>(X)</u>		
Pesticide	1 (2 if arch)				<u>TA</u>			
<u>(A)</u> PCB		<u>16 oz glass w/ Metals</u>			<u>TA</u>		<u>(X)</u>	
<u>(A)</u> TPH		<u>16 oz Glass w/ Hg</u>			<u>TA</u>	<u>(X)</u>		
<u>(A)</u> Metal		<u>16 oz Glass w/ PCB</u>			<u>TA</u>		<u>(X)</u>	
<u>(X)</u> Hg		<u>16 oz Glass w/ TPH</u>			<u>TA</u>	<u>(X)</u>		
<u>(X)</u> Bioassay		<u>1 Bag</u>	1		<u>NF</u>	<u>(X)</u>		

Sampler Signatures

[Signature] 6/17/08 RDW

DB QA 6/17/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/16/08

Sample ID: 1H02A

Time: 12:36 (2nd grab)

Area of Concern: Inner Harbor

Location Data Harbor-Wide Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

RPD: 1 cm

Boat/Sampling Team: Caselyn Dew - Pate, Jen

Bottom depth (ft): 38 SA Penetration depth (cm): 29 cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	None	<u>spiochetopteraous tubes</u> <u>10% wood debris</u> <u>- bark</u>
Gravel	<u>Brown</u> <u>light</u>	<u>Slight</u>	
Sand V C C M F V F	<u>Brown surface</u>	<u>Moderate</u>	
<u>Silt</u>	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	<u>Sulfur</u>	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys		X	
Grain size/TOC		1			ARI	X		
SVOCs	1 (2 if arch)				ARI		X	
Resin / Guai					ARI		X	
Organotin						ARI		
Ammonia					ARI	X		
Sulfide			1		ARI	X		
Pesticide	1 (2 if arch)				TA			
PCB					TA		X	
TPH						TA	X	
Metal						TA		X
Hg					TA	X		
Bioassay				1	NF	X		

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

# Sediment Core Log

Station ID: IHO2 1<sup>ST</sup> ATTEMPT

Project: Port Angeles Harbor Sediment Characterization Study

Date: 6/12/08

Location Data: Harbor-wide Rayonier

Time: 1219

Area of Concern: INNER HARBOR

Boat: NINUVIC WOLF EEL

GPS Time: 1213

Core Collection Method: VIBRACORE

Location (UTM Zone 10, NAD 83 meters): X 465753.0  
Y 5331186.3

Sample Team: M LONGTINE SPENTNEY  
C FUNK

REJECT

Coring Start Time: 1219  
Water Depth: 39' 8" Ft @ 1210  
Core Bottom Depth: 10.0 Ft  
Coring Finish Time: 1221  
Overall Recovery (%): 60% REJECT

1235 UPON REMOVAL OF CORE SLEEVE, THERE WAS 73" OF SEDIMENT RECOVERED. INSUFFICIENT RECOVERY (60%). DID NOT OPEN SLEEVE TO INSPECT FULL CORE, BUT APPEARED TO BE MOSTLY SILT WITH MINIMAL WOOD DEBRIS. REJECT CORE. ATTEMPT AGAIN.

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (V C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (V C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (V C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (V C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			

NO SAMPLES - CORE REJECTED

NOTES:

# Sediment Core Log

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: INNER HARBOR  
 GPS Time: 1213 (SAME POSITION MEASUREMENT AS 1st ATTEMPT)  
 Location (UTM Zone 10, NAD 83 meters): X AS 1st ATTEMPT  
Y

Station ID: IHO2 2nd ATTEMPT  
 Date: 6/12/08  
 Time: 1257  
 Boat: NWUWC WOLFEEEL  
 Core Collection Method: VIBROCORE  
 Sample Team: M LONGTINE S PENTNEY

Coring Start Time: 1257 1259 DROVE 10.5', EASY PENETRATION. BEGIN RECOVERING  
 Water Depth: 39' 8" Ft CORE ASSEMBLY  
 Core Bottom Depth: 10.3 Ft  
 Coring Finish Time: 1259 1310 CORE REMOVED. 9' 6" OF SEDIMENT IN  
 Overall Recovery (%): 95% 10 FT SLEEVE. CORE ACCEPTABLE.

Sample ID:	Depth Interval:	in.	to	in.
<u>IHO2 B 1259</u>	<u>12</u>	<u>in.</u>	<u>to</u>	<u>24</u>
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___			
Biota:	Immediate Analysis		Archive for Later Analysis	
Samples Collected:	16 oz poly jar <input checked="" type="checkbox"/>	TOC/Grain size <input checked="" type="checkbox"/>	16 oz poly <input checked="" type="checkbox"/>	___
	16 oz glass jar <input checked="" type="checkbox"/>	Dioxins/Furans <input checked="" type="checkbox"/>	16 oz Amber <input checked="" type="checkbox"/>	___
	16 oz glass jar <input checked="" type="checkbox"/>	SVOCs / resin / TBT / Ammonia <input checked="" type="checkbox"/>	16 oz Glass <input checked="" type="checkbox"/>	___
	16 oz glass jar <input checked="" type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg <input checked="" type="checkbox"/>	16 oz Glass <input checked="" type="checkbox"/>	___
	4 oz glass jar <input checked="" type="checkbox"/>	Sulfide / Other: <u>TKID</u> <input checked="" type="checkbox"/>	2oz Gl <input checked="" type="checkbox"/>	___
	core	Radioisotope Dating	___	___
<u>IHO2 C 1259</u>	<u>70</u>	<u>in.</u>	<u>to</u>	<u>82</u>
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___			
Biota:	Immediate Analysis		Archive for Later Analysis	
Samples Collected:	16 oz poly jar <input checked="" type="checkbox"/>	TOC/Grain size <input checked="" type="checkbox"/>	16 oz poly <input checked="" type="checkbox"/>	___
	16 oz glass jar <input checked="" type="checkbox"/>	Dioxins/Furans <input checked="" type="checkbox"/>	16 oz Amber <input checked="" type="checkbox"/>	___
	16 oz glass jar <input checked="" type="checkbox"/>	SVOCs / resin / TBT / Ammonia <input checked="" type="checkbox"/>	16 oz Glass <input checked="" type="checkbox"/>	___
	16 oz glass jar <input checked="" type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg / <u>TKID</u> <input checked="" type="checkbox"/>	16 oz Glass <input checked="" type="checkbox"/>	___
	4 oz glass jar <input checked="" type="checkbox"/>	Sulfide / Other: <u>TKID</u> <input checked="" type="checkbox"/>	2oz Glass <input checked="" type="checkbox"/>	___
	core	Radioisotope Dating	___	___
<del>Sample ID:</del>	<del>Depth Interval:</del>	<del>in.</del>	<del>to</del>	<del>in.</del>
<del>Sediment Type (%):</del>	<del>Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___</del>			
<del>Sediment Color:</del>	<del>Drab olive / Brown / Brown surface / Gray / Black / Other: ___</del>			
<del>Sediment Odor:</del>	<del>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___</del>			
<del>Biota:</del>	<del>Immediate Analysis</del>		<del>Archive for Later Analysis</del>	
<del>Samples Collected:</del>	<del>16 oz poly jar</del>	<del>TOC/Grain size</del>	<del>___</del>	<del>___</del>
	<del>16 oz glass jar</del>	<del>Dioxins/Furans</del>	<del>___</del>	<del>___</del>
	<del>16 oz glass jar</del>	<del>SVOCs / resin / TBT / Ammonia</del>	<del>___</del>	<del>___</del>
	<del>16 oz glass jar</del>	<del>Pest / PCBs / TPH / Metals / Hg</del>	<del>___</del>	<del>___</del>
	<del>4 oz glass jar</del>	<del>Sulfide / Other: ___</del>	<del>___</del>	<del>___</del>
	<del>core</del>	<del>Radioisotope Dating</del>	<del>___</del>	<del>___</del>
<del>Sample ID:</del>	<del>Depth Interval:</del>	<del>in.</del>	<del>to</del>	<del>in.</del>
<del>Sediment Type (%):</del>	<del>Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___</del>			
<del>Sediment Color:</del>	<del>Drab olive / Brown / Brown surface / Gray / Black / Other: ___</del>			
<del>Sediment Odor:</del>	<del>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___</del>			
<del>Biota:</del>	<del>Immediate Analysis</del>		<del>Archive for Later Analysis</del>	
<del>Samples Collected:</del>	<del>16 oz poly jar</del>	<del>TOC/Grain size</del>	<del>___</del>	<del>___</del>
	<del>16 oz glass jar</del>	<del>Dioxins/Furans</del>	<del>___</del>	<del>___</del>
	<del>16 oz glass jar</del>	<del>SVOCs / resin / TBT / Ammonia</del>	<del>___</del>	<del>___</del>
	<del>16 oz glass jar</del>	<del>Pest / PCBs / TPH / Metals / Hg</del>	<del>___</del>	<del>___</del>
	<del>4 oz glass jar</del>	<del>Sulfide / Other: ___</del>	<del>___</del>	<del>___</del>
	<del>core</del>	<del>Radioisotope Dating</del>	<del>___</del>	<del>___</del>

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization		
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy	
	1		AS DESCRIBED IN INTERVAL 12 TO 24"			
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
1	12					
	13	IHO2 5D	MIXED WOOD DEBRIS AND GELATINOUS MATERIAL (DECOMPOSED WOOD MATERIAL OR PULP?). GREENISH-CRAYSTH BROWN. STRONG SULFUR ODOR. NO EASILY DISCERNABLE MINERAL SEDIMENT.	WOOD CHIPS (TAN AND BROWN), STRANDS, AND BARK TO 2" SLIGHTLY DECOMPOSED.		
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
2	24					
	25		AS ABOVE, INCLUDING IN DECOMPOSITION STATE DOWNWARD.	AS ABOVE, WITH SIZE OF WOOD CHIPS AND STRANDS GENERALLY DECREASING		
	26					
	27					
	28					
	29					
	30					
	31					
	32					
	33					
	34					
	35					
3	36					
	37					
	38					
	39					
	40					
	41					
	42					
	43					
	44					
	45					
	46					
	47					
4	48					
	49					
	50					
	51					
	52					
	53					
	54					
	55					
	56					
	57					
	58					
	59					
5	60					

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	61		AS ABOVE	AS ABOVE	
	62				
	63				
	64				
	65				
	66				
	67				
	68				
	69				
	70		CLAY AND SILT, DARK	NO WOOD WASTE	
	71		GRAYISH BROWN,		
	72		SULFUR ODOR, MILD.		
6	72		MINOR MICA FLAKES		
	73		TO 2 mm.		
	74				
	75				
	76				
	77				
	78				
	79				
	80				
	81				
	82				
	83				
7	84		AS ABOVE, WITH	AS ABOVE	
	85		SILT PROPORTION		
	86		GENERALLY INCREASING		
	87		DOWNWARD		
	88				
	89				
	90				
	91				
	92				
	93				
	94				
	95				
8	96				
	97				
	98				
	99				
	100				
	101				
	102				
	103				
	104				
	105				
	106				
	107				
9	108				
	109				
	110				
	111				
	112				
	113				
	114				
	115				
	116				
	117				
	118				
	119				
10	120				

IH02C

AS ABOVE

AS ABOVE

CLAY AND SILT, DARK  
GRAYISH BROWN,  
SULFUR ODOR, MILD.  
MINOR MICA FLAKES  
TO 2 mm.

NO WOOD WASTE

AS ABOVE, WITH  
SILT PROPORTION

AS ABOVE

GENERALLY INCREASING  
DOWNWARD

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

1 of 2

Date: 6/16/08

Sample ID: IHO3A

Time: 13:23

Area of Concern: Inner Harbor

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow Peter, Jen

Bottom depth (ft): 240 ft Penetration depth (cm): 22

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	None	Wood chips, U/ba ↳ wood debris → 90% amphipods
Gravel	Brown	Slight	
Sand V C C M F V F	Brown surface	Moderate	
<u>Silt</u>	Gray	Strong	
Clay	<u>Black</u>	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

	Analyses		Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab					
<u>(A)</u> Dioxin/Furan	1	<u>16oz Amber</u>	<u>Amber</u>	<input checked="" type="checkbox"/>	Axys		<input checked="" type="checkbox"/>			
<u>(X)</u> Grain size/TOC		<u>1 1/2 oz Poly</u>	<u>Poly</u>	<input checked="" type="checkbox"/>	ARI		<input checked="" type="checkbox"/>			
<u>(A)</u> SVOCs	1 (2 if arch)	<u>16oz Glass</u>	<u>Glass</u>	<input checked="" type="checkbox"/>	ARI		<input checked="" type="checkbox"/>			
<u>(A)</u> Resin / Guai						ARI		<input checked="" type="checkbox"/>		
Organotin					ARI					
<u>(X)</u> Ammonia		<u>4oz Glass</u>	<u>Glass</u>	<input checked="" type="checkbox"/>	ARI		<input checked="" type="checkbox"/>			
<u>(X)</u> Sulfide		<u>2oz Glass w/ Zn Ac</u>	<u>Glass</u>	<input checked="" type="checkbox"/>	ARI		<input checked="" type="checkbox"/>			
Pesticide	1 (2 if arch)				TA					
<u>(A)</u> PCB		<u>16oz Glass w/ Metals</u>	<u>Glass</u>	<input checked="" type="checkbox"/>	TA		<input checked="" type="checkbox"/>			
<u>(X)</u> TPH		<u>16oz Glass w/ Hg</u>	<u>Glass</u>	<input checked="" type="checkbox"/>	TA		<input checked="" type="checkbox"/>			
<u>(A)</u> Metal		<u>16oz Glass w/ PCB</u>	<u>Glass</u>	<input checked="" type="checkbox"/>	TA		<input checked="" type="checkbox"/>			
<u>(X)</u> Hg		<u>16oz Glass w/ Hg</u>	<u>Glass</u>	<input checked="" type="checkbox"/>	TA		<input checked="" type="checkbox"/>			
Bioassay				1	NF		<input checked="" type="checkbox"/>			

Sampler Signatures

[Signature] 6/17/08 RDW

DB QA 6/17/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

2 of 2

Date: 6/16/08

Sample ID: 1H03A ✓

Time: 13:42 (2nd grab)

Area of Concern: Inner Harbor

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Pete, Jen

RPD: 6mm  
3mm

Bottom depth (ft): 23.6 ft Penetration depth (cm): 25

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	None	<u>Wood pulp on surface - 80% wood in sampler</u>
Gravel	Brown	Slight	
Sand V C C M F V F	Brown surface	Moderate	
<u>Silt</u>	Gray	<u>Strong to</u>	
Clay	<u>Black</u>	Overwhelming	
Organic matter	Other:	<u>Sulfur</u>	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<del>Dioxin/Furan</del>	1	<del>None</del>	<del>Amber</del>		Axys		<del>X</del>	
Grain size/TOC		1			ARI	✓		
SVOCs	1 (2 if arch)				ARI		✓	
Resin / Guai					ARI		✓	
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI	✓		
Pesticide	1 (2 if arch)				TA			
PCB					TA		✓	
TPH					TA	✓		
Metal					TA		✓	
Hg					TA	✓		
Bioassay				1	NF	✓		

Sampler Signatures

[Signature] 6/17/08 RDW

DB QA 6/17/08 RDW

Sample Custodian Signature



Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/16/08 ✓✓

Sample ID: 1H04A ✓✓

Time: 14:21 ✓✓

Area of Concern: Inner Harbor

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Peter, Ted

Bottom depth (ft): 19.2 ✓ Penetration depth (cm): 10 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	No RPD amphipods, crabs, nauplius sp wood chips bark wood = 70% ✓
Gravel	Brown	<u>Slight</u>	
Sand VCC M F VF	Brown surface	Moderate	
<u>Silt</u> ✓	Gray	Strong	
Clay	<u>Black</u> ✓	Overwhelming	
Organic matter	Other:	<u>Sulfur</u> ✓	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16oz Amber ✓			Axys		✓	
Grain size/TOC		1 16oz Poly ✓			ARI	✓		
SVOCs	1 (2 if arch)	2 16oz Glass ✓			ARI	✓	✓	
Resin / Guai		5 16oz Glass ✓			ARI		✓	
Organotin					ARI			
Ammonia		4oz Glass ✓			ARI	✓		
Sulfide		2oz Glass ✓			ARI	✓		
Pesticide	1 (2 if arch)				TA			
PCB		16oz Glass w/ Metals ✓			TA		✓	
TPH		16oz Glass w/ Hg ✓			TA	✓		
Metal		16oz Glass w/ PCB ✓			TA		✓	
Hg		16oz Glass w/ TPH ✓			TA	✓		
Bioassay				1	NF	✓		

Sampler Signatures

[Signature] 6/17/08 RDW

DBQA 6/17/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/16/08

Sample ID: 1H09A

Time: 14:34

Area of Concern: Inner Harbor

Location Data (Harbor-Wide / Rayonier) GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Daw - Bete, Jen

RPD: 1-2 mm.  
color changes  
to black/grey

Bottom depth (ft): <u>8 19 20.3</u>		Penetration depth (cm): <u>17</u>	
<b>Sediment type:</b> Cobble Gravel Sand VCC M F VF <u>Silt</u> <u>Clay</u> Organic matter Woody debris Shell debris Other:	<b>Sediment color:</b> <u>Drab olive</u> Brown <u>Brown surface</u> Gray Black Other:	<b>Sediment Odor:</b> None <u>Slight</u> Moderate Strong Overwhelming <u>Sulfur</u> Petroleum Other:	<b>Comments:</b> Wood debris → 30% Crangong spp.

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys		X	
Grain size/TOC		1			ARI	X		
SVOCs	1 (2 if arch)				ARI		X	
Resin / Guai					ARI		X	
Organotin					ARI			
Ammonia					ARI	X		
Sulfide			1		ARI	X		
Pesticide	1 (2 if arch)				TA			
PCB					TA		X	
TPH					TA	X		
Metal					TA		X	
Hg					TA	X		
Bioassay		1 Bag		1	NF	X		

X → Need to discard - not supposed to be collected per tables.  
RDW 6/17/08

Sampler Signatures

[Signature] 6/17/08 RDW  
Sample Custodian Signature

DB QA 6/17/08 RDW

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/16/08 ✓

Sample ID: 1H05A ✓

Time: 15:50 ✓

Area of Concern: Inner Harbor

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Pete, Jen

RPD: 1.5 cm

Bottom depth (ft): ~~20.3~~ 16.7 ✓ Penetration depth (cm): 21 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand VCCMFVF <input checked="" type="checkbox"/> Silt <input checked="" type="checkbox"/> Clay <input type="checkbox"/> Organic matter <input type="checkbox"/> Woody debris <input type="checkbox"/> Shell debris <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> Drab olive <input type="checkbox"/> Brown <input checked="" type="checkbox"/> Brown surface <input type="checkbox"/> Gray <input type="checkbox"/> Black <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> None <input checked="" type="checkbox"/> Slight <input type="checkbox"/> Moderate ✓ <input type="checkbox"/> Strong <input type="checkbox"/> Overwhelming <input checked="" type="checkbox"/> Sulfur <input type="checkbox"/> Petroleum <input type="checkbox"/> Other:	lumbinexis sp nephtys, ulva, macoma fragments

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly jar	4 oz jar	Plastic bag	Lab			
<input checked="" type="checkbox"/> Dioxin/Furan	1	16oz Amber	✓		Axys		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Grain size/TOC		1/16oz Poly	✓		ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	16oz Glass			ARI		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Resin / Guai					ARI		<input checked="" type="checkbox"/>	
<input type="checkbox"/> Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia		4oz Glass	✓		ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Sulfide		2oz Glass	✓	1/2oz Ac	ARI	<input checked="" type="checkbox"/>		
<input type="checkbox"/> Pesticide	1 (2 if arch)				TA			
<input checked="" type="checkbox"/> PCB		16oz glass (w/ metals)			TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> TPH		16oz glass (w/ Hg)	✓		TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Metal		16oz glass (w/ PCB)	✓		TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Hg		16oz glass w/ TSP	✓		TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Bioassay		1 Bag	1		NF	<input checked="" type="checkbox"/>		

Sampler Signatures

[Signature] 6/17/08 RDW

DBQA 6/17/08 RDW

Sample Custodian Signature

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/16/08 ✓✓

**Sample ID:** 1H06A ✓✓

**Time:** 16:27 ✓✓

**Area of Concern:** Inner Harbor

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_ RPD: ?

**Boat/Sampling Team:** Carolyn Dow, Pete, Jen

**Bottom depth (ft):** 21.2 ft ✓ **Penetration depth (cm):** 22.2 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand VCC M F VF <input checked="" type="checkbox"/> Silt ✓ <input type="checkbox"/> Clay <input type="checkbox"/> Organic matter <input type="checkbox"/> Woody debris <input type="checkbox"/> Shell debris <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> Drab olive ✓ <input type="checkbox"/> Brown <input checked="" type="checkbox"/> Brown surface ✓ <input type="checkbox"/> Gray <input checked="" type="checkbox"/> Black ✓ <input type="checkbox"/> Other:	<input type="checkbox"/> None <input type="checkbox"/> Slight <input checked="" type="checkbox"/> Moderate ✓ <input checked="" type="checkbox"/> Strong ✓ <input type="checkbox"/> Overwhelming <input type="checkbox"/> Sulfur <input type="checkbox"/> Petroleum <input type="checkbox"/> Other:	large amount of ulva, amphipods, eel pouts/gunners? crangon, neblea

	Analyses		Sample Containers				Immediate Analysis	Archive	MS/MSD
			16 oz glass jar	16 oz poly	4 oz jar	Plastic bag			
<input checked="" type="checkbox"/> A	Dioxin/Furan	1		16oz Amber ✓			Axys		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> X	Grain size/TOC			1/16oz poly ✓			ARI	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> A	SVOCs	1 (2 if arch)		1/16oz Amber ✓			ARI		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> A	Resin / Guai			1/16oz Amber ✓			ARI		<input checked="" type="checkbox"/>
	Organotin						ARI		
<input checked="" type="checkbox"/> X	Ammonia			4oz Glass ✓			ARI	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> X	Sulfide			200 Glass ✓			ARI	<input checked="" type="checkbox"/>	
	Pesticide	1 (2 if arch)					TA		
<input checked="" type="checkbox"/> A	PCB			16oz glass w/ Petal's ✓			TA		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> X	TPH			16oz glass w/ 1/16oz ✓			TA	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> A	Metal			16oz Glass w/ PCB ✓			TA		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> X	Hg			16oz Glass w/ 1/16oz ✓			TA	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> X	Bioassay			1 Bag ✓	1		NF	<input checked="" type="checkbox"/>	

**Sampler Signatures**

[Signature] 6/17/08 RDW

DB QA 6/17/08 RDW

**Sample Custodian Signature**

# Sediment Core Log

Station ID: IH06 ATTEMPT NO.1

Project: Port Angeles Harbor Sediment Characterization Study

Date: 6/10/08

Location Data: Harbor-wide / Rayonier

Time: \_\_\_\_\_

Area of Concern: INNER HARBOR

Boat: NWUWC WOLF EEL

GPS Time: 1431

Core Collection Method: VIBROCORE

Location (UTM Zone 10, NAD 83 meters): X 466022  
Y 5330722

Sample Team: M LONGTINE J SCHWITZ  
S PENNEY B WHITE

- FAILED ATTEMPT  
- SEE LOG FOR  
- 2nd ATTEMPT

Coring Start Time: 1443  
Water Depth: 20' 10" Ft.  
Core Bottom Depth: 10' 2" Ft.  
Coring Finish Time: 1450  
Overall Recovery (%): 35

ATTEMPT #1  
1448 AT 28 FT (8 FT OF PENETRATION) BECOMING MORE DIFFICULT TO PENETRATE. CORE CABLE WAS ~10" OFF PLUMB, STARTING AT ~6 OR 7 FT PENETRATION  
1502 CORE SLEEVE IS PULLED OUT OF BARREL TO INSPECT IT. CAN SEE THROUGH POLYCARBONATE SLEEVE THAT SEDIMENT IS SETTLING IN WATER COLUMN, WHICH IS DARK GRAY, OPAQUE.  
1505 USE MEASURING TAPE TO SOUND TOP OF SOLID SEDIMENT IN SLEEVE = 77" FROM TOP OF 120" SLEEVE → 43" SEDIMENT

120 / 43.8  
36.8

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____	_____
	16 oz glass jar _____	Dioxins/Furans	_____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____	_____
	core	Radioisotope Dating	_____	_____
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____	_____
	16 oz glass jar _____	Dioxins/Furans	_____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____	_____
	core	Radioisotope Dating	_____	_____
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____	_____
	16 oz glass jar _____	Dioxins/Furans	_____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____	_____
	core	Radioisotope Dating	_____	_____
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____	_____
	16 oz glass jar _____	Dioxins/Furans	_____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____	_____
	core	Radioisotope Dating	_____	_____

NOTES:

WILL RELOCATE TO SLIGHTLY DIFFERENT POSITION TO TRY  
ATTEMPT #2.

# Sediment Core Log

Station ID: IHO6 ATTEMPT No.2

Project: Port Angeles Harbor Sediment Characterization Study

Date: 6/10/08

Location Data: Harbor-wide Rayonier

Time: 1524

Area of Concern: INNER HARBOR

Boat: NWJWC WOLF EEL

GPS Time:

Core Collection Method: VIBROCORE

Location (UTM Zone 10, NAD 83 meters): X 466020

Sample Team: M LORRAINE JSCHMITZ

Y 5330736

S PENTNEY E WHITE

ATTEMPT No. 2  
RETRY  
WIND DOWN  
90/72.0

Coring Start Time: 1524 1526 REFUSAL AT TOTAL DEPTH OF 29'11" FROM WATER LEVEL →  
Water Depth: 22' 5" Ft. PENETRATION = 7' 6"  
Core Bottom Depth: 29' 4" Ft. 7' 6" 1537 MEASURED TOP OF SOLID SEDIMENT IN LINER AT 48"  
Coring Finish Time: 1526 FROM TOP OF UPRIGHT TUBE → 6.0' OF SEDIMENT IN  
Overall Recovery (%): 70% ML CORE TUBE = 72" SEDIMENT OUT OF 90" PENETRATION  
80% ML 1540 DRILL HOSE AT TOP OF SEDIMENT TO DRAIN WATER COLUMN.  
1545 SAW OFF UPPER 48" OF CORE TUBE. CAP SEDIMENT OVER

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble	/Gravel	/Sand (VC C M F VF)	/Silt /Clay /Organic mtrl /Woody debris /Shell debris /Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:			Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____
	16 oz glass jar	_____	Dioxins/Furans	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	_____	Sulfide / Other:	_____
	core	_____	Radioisotope Dating	_____
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble	/Gravel	/Sand (VC C M F VF)	/Silt /Clay /Organic mtrl /Woody debris /Shell debris /Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:			Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____
	16 oz glass jar	_____	Dioxins/Furans	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	_____	Sulfide / Other:	_____
	core	_____	Radioisotope Dating	_____
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble	/Gravel	/Sand (VC C M F VF)	/Silt /Clay /Organic mtrl /Woody debris /Shell debris /Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:			Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____
	16 oz glass jar	_____	Dioxins/Furans	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	_____	Sulfide / Other:	_____
	core	_____	Radioisotope Dating	_____
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble	/Gravel	/Sand (VC C M F VF)	/Silt /Clay /Organic mtrl /Woody debris /Shell debris /Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:			Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar	_____	TOC/Grain size	_____
	16 oz glass jar	_____	Dioxins/Furans	_____
	16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar	_____	Sulfide / Other:	_____
	core	_____	Radioisotope Dating	_____

NOTES:

IHO6

→ ATTEMPT No 2 (CONT) 6/10/08

1555 UPON REMOVAL OF CORE LINER FROM BARREL, APPEARED TO BE SOME WOOD DEBRIS IN CUTTING SHOE. AFTER LAID CORE SLEEVE ON TABLE AND REMOVED HEAD, CONFIRMED THAT THERE IS SIGNIFICANT WOOD DEBRIS IN CUTTING SHOE. WOOD CONSISTED OF REDDISH BROWN CHIPS AND TAN CHIPS AND STRANDS TO 3" MINIMALLY TO MODERATELY DECOMPOSED. CLEARLY THERE IS WOOD WASTE AT THIS LOCATION.

DECIDE TO RE-POSITION ONE MORE TIME FURTHER FROM PIER TO ATTEMPT 3rd TIME, SEE IHO6 3rd ATTEMPT CORE LOG.



# Sediment Core Log

Station ID: IHO6 ATTEMPT No. 3

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: INNER HARBOR  
 GPS Time: 1618  
 Location (UTM Zone 10, NAD 83 meters): X 466021  
 Y 5330698

Date: 6/10/08  
 Time: 1621  
 Boat: NWUWC WOLF EEL  
 Core Collection Method: VIBRA CORE  
 Sample Team: M LONGTINE J SCHMITZ  
S PENTNEY E WHITZ

Coring Start Time: 1621 1627 FINISH DRIVING CORE. PULL TO SURFACE  
 Water Depth: 17' 4" / Ft.  
 Core Bottom Depth: 27' (10 FT PENETRATION) 1640 FINISHED REMOVING SLEEVE FROM ALUMINUM CORE TUBE. 100% RECOVERY. CORE SLEEVE IS FULL AND SMALL AMOUNT OF SOUPY MATERIAL FELL OUT FROM TOP WHEN REMOVED CORE SLEEVE. NO WOOD DEBRIS NOTED IN CUTTING SIDE. APPEARS CORE MAY BE ACCEPTABLE. PREPARE TO LIFT CORE ON TABLE AND CUT OPEN.  
 Coring Finish Time: 1627  
 Overall Recovery (%): 100%  
 1715 CORE OPEN FOR INSPECTION. ACCEPTABLE. BEGN PROCESSING.

Sample ID: <u>IHO6 B</u>	Depth Interval: <u>12 in. to 24 in.</u>
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___	
Sediment Color: <u>Drab olive / Brown / Brown surface / Gray / Black / Other:</u>	<u>TIME = 1715</u>
Sediment Odor: <u>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</u>	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar <u>✓</u> TOC/Grain size <u>✓</u>	<u>✓</u> 16oz Poly
16 oz glass jar <u>✓</u> Dioxins/Furans <u>✓</u>	<u>✓</u> 16oz Amber
16 oz glass jar <u>✓</u> SVOCs / resin / TBT / Ammonia <u>✓</u>	<u>✓</u> 16oz Glass
16 oz glass jar <u>✓</u> Pest / PCBs / TPH / Metals / Hg <u>✓</u>	<u>✓</u> 16oz Glass
2 4 oz glass jar <u>✓</u> Sulfide / Other: _____ <u>✓</u>	<u>✓</u> 2oz Glass 2.1 Ac
core _____	Radioisotope Dating _____

Sample ID: <u>IHO6 C</u>	Depth Interval: <u>98 in. to 100 in.</u>
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___	
Sediment Color: <u>Drab olive / Brown / Brown surface / Gray / Black / Other:</u>	<u>TIME = 1715</u>
Sediment Odor: <u>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</u>	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar <u>✓</u> TOC/Grain size <u>✓</u>	<u>✓</u> 16oz Poly
16 oz glass jar <u>✓</u> Dioxins/Furans <u>✓</u>	<u>✓</u> 16oz Amber
16 oz glass jar <u>✓</u> SVOCs / resin / TBT / Ammonia <u>✓</u>	<u>✓</u> 16oz Glass
16 oz glass jar <u>✓</u> Pest / PCBs / TPH / Metals / Hg <u>✓</u>	<u>✓</u> 16oz Glass
2 4 oz glass jar <u>✓</u> Sulfide / Other: _____ <u>✓</u>	<u>✓</u> 2.1 Ac 2oz Glass
core _____	Radioisotope Dating _____

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___	
Sediment Color: <u>Drab olive / Brown / Brown surface / Gray / Black / Other:</u>	
Sediment Odor: <u>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</u>	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	_____
16 oz glass jar _____ Dioxins/Furans _____	_____
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____
4 oz glass jar _____ Sulfide / Other: _____	_____
core _____	Radioisotope Dating _____

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___	
Sediment Color: <u>Drab olive / Brown / Brown surface / Gray / Black / Other:</u>	
Sediment Odor: <u>None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:</u>	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	_____
16 oz glass jar _____ Dioxins/Furans _____	_____
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____
4 oz glass jar _____ Sulfide / Other: _____	_____
core _____	Radioisotope Dating _____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1		DARK GRAYISH BROWN	REDDISH BROWN CHIPS TO 1/2"	
	2		ORGANIC MUCK WITH	AND SOME STRANDS.	
	3		SILT AND SOME FINE SAND.		
	4		STRONG SULFUR ODOR,		
	5		SOME WOOD DEBRIS.		
	6		MINOR SILT DEBRIS.		
	7		SOOPY.		
	8				
	9				
	10				
	11				
1	12				
	13	IHO6 C	SILT, ORGANIC MUCK		
	14		AND WOOD DEBRIS WITH		
	15		MINOR FINE SAND.		
	16		DARK GRAYISH BROWN.		
	17		STRONG SULFUR ODOR.		
	18		WOOD DEBRIS IN THIS		
	19		INTERVAL EST 20%.		
	20		WOOD DEBRIS CONSISTS OF		
	21		HEAVILY DECOMPOSED		
	22		FIBERS.		
	23				
2	24				
	25		MIXED WOOD DEBRIS,	SEE COMMENTS	
	26		SILT, SAND, AND		
	27		MUCK. WOOD DEBRIS		
	28		RANGES UP TO 75%.		
	29		CONSISTING OF CHIPS TO		
	30		2", SOME BARK, AND		
	31		STRANDS. STRANDS		
	32		MOSTLY TAN. CHIPS		
	33		TAN AND REDDISH BROWN.		
	34		4-6" SLIGHTLY TO HEAVILY		
	35		DECOMPOSED. STRONG-		
3	36		SULFUR ODOR		
	37				
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
4	48				
	49				
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
5	60				

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	61			
	62			
	63			
	64			
	65			
	66			
	67			
	68			
	69			
	70			
	71		↓	
6	72		MIXED SAND, SILT, AND WOOD DEBRIS.	
	73		WOOD DEBRIS TO 40-50% CHIPS AND STRIPS AND	
	74		BARK. SL TO HEAVILY DECOMPOSED.	
	75			
	76			
	77			
	78			
	79			
	80			
	81			
	82			
	83			
7	84			
	85			
	86			
	87			
	88			
	89			
	90			
	91			
	92			
	93			
	94			
	95			
8	96			
	97			
	98			
	99		↓	
	100		SILTY SAND, SAND	NO WOOD WASTE
	101		V. FINE TO FINE. SOME	
	102		CLAY. GRAYISH BROWN.	
	103		MODERATE SULFUR ODCR.	
	104		SHELL FRAGMENTS (BIVALVE)	
	105		TO 2"	
	106			
	107			
9	108			
	109			
	110			
	111		SILTY SAND AS ABOVE	
	112			
	113			
	114			
	115			
	116			
	117			
	118			
	119			
10	120			

↑  
 IH06  
 ↓

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/17/08 ✓

Sample ID: KPO1A ✓

Time: 0905 ✓

Area of Concern: K-Phy

Location Data Harbor-Wide Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 29.78 ✓ Penetration depth (cm): 27cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive surface</u>	None	<u>Tenaidae</u> <u>2cm RPD</u> <u>Prionospira sp.</u> <u>Cerabrochilis</u>
Gravel	<u>Brown</u>	<u>Slight</u> ✓	
Sand VCC M F VF	<u>Brown surface</u>	Moderate	
<u>Silt</u> ✓	<u>Gray green below surface</u>	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	<u>Sulfur</u>	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<input checked="" type="checkbox"/> Dioxin/Furan	1	16 oz	Amber ✓		Axys			
<input checked="" type="checkbox"/> Grain size/TOC		1 16 oz	Poly ✓		ARI			
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	16 oz glass			ARI			
<input checked="" type="checkbox"/> Resin / Guai					ARI			
<input checked="" type="checkbox"/> Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia		4 oz glass			ARI			
<input checked="" type="checkbox"/> Sulfide		20 oz glass w/ ZnAc			ARI			
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)	16 oz glass w/ metals			TA			
<input checked="" type="checkbox"/> PCB					TA			
<input checked="" type="checkbox"/> TPH		16 oz glass w/ Hg			TA			
<input checked="" type="checkbox"/> Metal		16 oz glass w/ Res, PCB			TA			
<input checked="" type="checkbox"/> Hg		16 oz glass w/ TPH			TA			
<input checked="" type="checkbox"/> Bioassay		1 Bag			NF			

2X VOLUME

Sampler Signatures

[Signature] 6/19/08 RDW

DB QA 6/19/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/12/08 ✓

Sample ID: KPO2A ✓

Time: 0947 ✓

Area of Concern: K-Phy

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 29.7 ✓ Penetration depth (cm): 27cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	2 cm RPD Calinacidae Woody debris is large chunks Few polychaetes
Gravel	Brown	Slight <sup>very</sup>	
Sand V C C M F V F	Brown surface	Moderate	
Silt	Gray/green below surface	Strong	
Clay	Black	Overwhelming	
Organic matter <sup>also</sup>	Other:	Sulfur	
Woody debris <sup>light</sup>		Petroleum	
Shell debris <sup>shells</sup>		Other:	

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<input checked="" type="checkbox"/> Dioxin/Furan	1	16oz Amber			Axys		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Grain size/TOC		1 16oz			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	2 16oz glass			ARI		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Resin / Guai					ARI		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Organotin		4oz glass Jar			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Ammonia					ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Sulfide		2oz glass w/ ZnAc			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)	16oz glass w/ Metals			TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> PCB					TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> TPH		16oz glass w/ Hg			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Metal		16oz Glass w/ Pb, PCB			TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Hg		16oz glass w/ TBA			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Bioassay		1 Bag			NF	<input checked="" type="checkbox"/>		

Sampler Signatures

[Signature] 6/19/08 RTW

DB QA 6/19/08 RTW

Sample Custodian Signature

# Sediment Core Log

Station ID: KP02

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: K-PLY  
 GPS Time: 1120  
 Location (UTM Zone 10, NAD 83 meters): X 467345  
 Y 5330150

Date: 6/10/08 ✓  
 Time: 1140  
 Boat: NWUWC WOLF EEL  
 Core Collection Method: VIBRA-CORE  
 Sample Team: M. LONGTINE, J. SCHMITZ  
S. PEITNEY, E. WHITE

Coring Start Time: 1140  
 Water Depth: 34' 2" Ft. 35' 2" 34' 2" ✓ 1144 AT DEPTH 39' 2" BEGINNING TO HIT HARDER MATERIAL.  
 Core Bottom Depth: 42' 7" Ft. 1147 REUSAL AT 42' 7", RETRIEVE CORE.  
 Coring Finish Time: 1147  
 Overall Recovery (%): 100%

Sample ID: <u>KP02 B</u> ✓		Depth Interval: <u>12</u> in. to <u>24</u> in. ✓	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: ___			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: <u>TIME = 12:47</u> ✓			
Biota: ___		Immediate Analysis	Archive for Later Analysis
Samples Collected:		TOC/Grain size	___
16 oz poly jar		✓ <u>TOC/Grain size</u>	✓ <u>16oz Poly</u>
16 oz glass jar		✓ <u>Dioxins/Furans</u>	✓ <u>16oz Amber</u>
16 oz glass jar		✓ <u>SVOCs / resin / TBT / Ammonia</u>	✓ <u>16oz Amber</u>
16 oz glass jar		✓ <u>Pest / PCBs / TPH / Metals / Hg</u>	✓ <u>16oz Amber</u>
4 oz glass jar		Sulfide / Other: ___	___
core		Radioisotope Dating	___
Sample ID: <u>KP02 C</u> ✓		Depth Interval: <u>54</u> in. to <u>66</u> in. ✓	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: ___			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: <u>TIME = 12:47</u> ✓			
Biota: ___		Immediate Analysis	Archive for Later Analysis
Samples Collected:		TOC/Grain size	___
16 oz poly jar		✓ <u>TOC/Grain size</u>	✓ <u>16oz Poly</u>
16 oz glass jar		✓ <u>Dioxins/Furans</u>	✓ <u>16oz Amber</u>
16 oz glass jar		✓ <u>SVOCs / resin / TBT / Ammonia</u>	✓ <u>16oz Glass</u>
16 oz glass jar		✓ <u>Pest / PCBs / TPH / Metals / Hg</u>	✓ <u>16oz Glass</u>
4 oz glass jar		Sulfide / Other: ___	___
core		Radioisotope Dating	___
Sample ID: ___		Depth Interval: ___ in. to ___ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: ___			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___			
Biota: ___		Immediate Analysis	Archive for Later Analysis
Samples Collected:		TOC/Grain size	___
16 oz poly jar		___	___
16 oz glass jar		___	___
16 oz glass jar		___	___
16 oz glass jar		___	___
4 oz glass jar		___	___
core		___	___
Sample ID: ___		Depth Interval: ___ in. to ___ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: ___			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___			
Biota: ___		Immediate Analysis	Archive for Later Analysis
Samples Collected:		TOC/Grain size	___
16 oz poly jar		___	___
16 oz glass jar		___	___
16 oz glass jar		___	___
16 oz glass jar		___	___
4 oz glass jar		___	___
core		___	___

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1		WOOD DEBRIS, FINES, AND ORGANIC MUCK (SEE 12 TO 24" INTERVAL FOR DESCRIPTION)		
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
1	12				
	13	KP02	MIXED WOOD DEBRIS AND FINES, INCL. ORGANIC MUCK. OVERALL COLOR DARK IRONISH BROWN. STRONG SULFUR SMELL. WOOD DEBRIS UP TO 40%. MINOR FINE SAND.	REDDISH BROWN BARK AND CHIPS / CHUNKS TO 4", MOSTLY LESS THAN 2", AND STRANDS OF FIBER, CHIPS AND FIBER TAN COLORED. MODERATELY TO HEAVILY DECOMPOSED.	
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
2	24				
	25		SANDY SILT, BROWN. SILTY SAND (BROWN). SAND F TO 2. NET, LOOSE.		
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
3	36				
	37		SILT AND ORGANIC MUCK WITH PEBBLES TO 1 1/2", SUBROUNDED, AND SOME WOOD DEBRIS & STRANDS OF FIBER. MINOR SHELL DEBRIS. MINOR FINE SAND. SULFUR SMELL, MODERATE.		
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
4	48				
	49		AT 54", SEE LOWEST OCCURRENCE OF SIGNIFICANT WOOD DEBRIS		
	50				
	51				
	52				
	53				
	54				
	55	KP02	SANDY SILT WITH SOME CLAY. SOME ORGANIC MATERIAL (ROOTS). GREENISH-GRAYISH BROWN. NO DISCERNABLE ODOR. CLAY NODULES. SUBROUNDED PEBBLES TO 3/4".		
	56				
	57				
	58				
	59				
5	60				

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	61	KP02 (cont.)		
	62			
	63			
	64			
	65			
	66			
	67		SANDY, CLAYEY, SILT,	
	68		GRAYISH, BROWNISH TAN.	
	69		SAND FINE. MINOR	
	70		ORGANIC MATTER.	
	71		(TWIGS).	
6	72			
	73			
	74			
	75			
	76			
	77			
	78			
	79			
	80			
	81			
	82			
	83			
7	84			
	85			
	86			
	87			
	88			
	89			
	90			
	91			
	92			
	93			
	94			
	95			
8	96			
	97			
	98			
	99			
	100			
	101			
	102			
	103			
	104			
	105			
	106			
	107			
9	108			
	109		SAND, GRAVEL, COBBLES	
	110		(TO 3") AND FINES.	
	111		BROWNISH TAN.	
	112		COBBLES AND PEBBLES	
	113		SUB-RND TO ROUNDED	
	114			
	115			
	116			
	117			
	118			
	119			
10	120			



Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6/19/08

Sample ID: KP03A

Time: 1019

Area of Concern: K-Ply

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 17.9 Penetration depth (cm): 22cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	- Bivalves
Gravel	Brown	Slight	- Calcinacid
Sand VCC M(F) VF	Brown surface	Moderate	- Opheliidae
Silt some	Gray	Strong	- Egg sac?
Clay	Black	Overwhelming	- Phrosopio sp
Organic matter	Other:	Sulfur	- Amphipods
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Mallemidale  
Borrowing Crabs sp?  
Amphidabea sp  
Lumbeneris sp  
Telina modesta

Analyses Sample Containers

	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab.	Immediate Analysis	Archive	MS/MSD
<input checked="" type="checkbox"/> Dioxin/Furan	1	16oz	Amber	✓	Axys			
<input checked="" type="checkbox"/> Grain size/TOC		1	16oz	Red	ARI			
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	}	16oz	glass w/whit	ARI			
<input checked="" type="checkbox"/> Resin / Guai					ARI			
<input checked="" type="checkbox"/> Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia			16oz	glass w/SVOC Res	ARI			
<input checked="" type="checkbox"/> Sulfide			2oz	1/2 glass w/2A/C	ARI			
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)	}			TA			
<input checked="" type="checkbox"/> PCB					TA			
<input checked="" type="checkbox"/> TPH			16oz	glass	✓	TA		
<input checked="" type="checkbox"/> Metal					TA			
<input checked="" type="checkbox"/> Hg					TA			
<input checked="" type="checkbox"/> Bioassay			1 Bag	✓	1	NF		(2x VOL)

Sampler Signatures

[Signature] 6/19/08 RDW

DB QA 6/19/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: KPO3

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide Rayonier  
 Area of Concern: K-PLY  
 GPS Time: 1047  
 Location (UTM Zone 10, NAD 83 meters): X 467453  
 Y 5330107

Date: 6/7/08  
 Time: 1007  
 Boat: NWUWC  
 Core Collection Method: VIBRACORE  
 Sample Team: M. LONGANE, J. SCHMITZ  
S. PENTNEY

Coring Start Time: 1007  
 Water Depth: 18 Ft.  
 Core Bottom Depth: 6.0 Ft.  
 Coring Finish Time: 1009  
 Overall Recovery (%): 97

NOTE: THIS STATION WAS DESIGNATED 4-FT CORE. 6 FT CORE WAS COLLECTED. ENTIRE 6 FT CORE CONTAINED WOOD DEBRIS. NEED TO RE-COLLECT CORE TO 12 FT. THIS CORE EXAMINED FOR LITHOLOGY AND ARCHAEOLOGY ONLY. NO ANALYTICAL SAMPLES COLLECTED.

Sample ID:	Depth Interval: _____ in. to _____ in.	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota:	Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____
	16 oz glass jar _____ Dioxins/Furans _____	_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____ Sulfide / Other: _____	_____
	core _____ Radioisotope Dating _____	_____
Sample ID:	Depth Interval: _____ in. to _____ in.	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota:	Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____
	16 oz glass jar _____ Dioxins/Furans _____	_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____ Sulfide / Other: _____	_____
	core _____ Radioisotope Dating _____	_____
Sample ID:	Depth Interval: _____ in. to _____ in.	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota:	Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____
	16 oz glass jar _____ Dioxins/Furans _____	_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____ Sulfide / Other: _____	_____
	core _____ Radioisotope Dating _____	_____
Sample ID:	Depth Interval: _____ in. to _____ in.	
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota:	Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____
	16 oz glass jar _____ Dioxins/Furans _____	_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____ Sulfide / Other: _____	_____
	core _____ Radioisotope Dating _____	_____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: (tan / reddish / brown / olive green / gray / black / other) Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	1	JS KP03T	mixed sand/silt, sand = 40% very fine → medium. Dark some localized clay. DARK BROWNISH GRAY.	Reddish Chunks. Mostly
	2			Moderately decayed wood
	3			clumps of bark + thin
	4			fibers 1/2 to 2"
	5			Moderate
	6			sulfurous odors
	7			some bivalve shells
	8			at 1 ft and 2ft intervals.
	9			
	10			
	11			
1	12			
	13			
	14			
	15			
	16			
	17			
	18			
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2	24			
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	35			
3	36			
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	38			
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	40			
	41			
	42			
	43			
	44			
	45			
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	47			
4	48			
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	58			
	59			
5	60			

# Sediment Core Log

Station ID: KP03 (2<sup>nd</sup> ATTEMPT)

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: K-PLY  
 GPS Time: 0740  
 Location (UTM Zone 10, NAD 83 meters): X 467459  
Y 5330108

Date: 6/10/08  
 Time: 0817  
 Boat: NWUWC WOLF REEL  
 Core Collection Method: VIBRACORE  
 Sample Team: M LONGTINE, J. SCHMITZ  
S. PENTNEY

Coring Start Time: 0740 <sup>ML</sup> 0814 0740 SETTING UP FOR 2<sup>nd</sup> ATTEMPT AT THIS CORE LOCATION. THIS LOCATION WAS ORIGINALLY DESIGNATED FOR 4 FT CORE. PREVIOUS ATTEMPT TO CORE THIS LOCATION ON 6/7/08 RESULTED IN 100% OF CORE SLEEVE FILLED WITH WOOD DEBRIS; THEREFORE IT WAS DECIDED TO RE-CORE WITH LONGER CORE SETTING UP TODAY WITH 12 FT CORE BARREL WITH 10-FT SLEEVE.  
 Water Depth: 21'11" @ 0809 Ft.  
 Core Bottom Depth: 100 <sup>ML</sup> Ft. 9.5'  
 Coring Finish Time: 0817  
 Overall Recovery (%): 100%

Sample ID: KP03 B ✓ Depth Interval: 24 in. to 36 in. ✓

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: TIME = 0903 ✓

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_

Samples Collected:

16 oz poly jar	<input checked="" type="checkbox"/>	TOC/Grain size	<input checked="" type="checkbox"/>	Immediate Analysis	Archive for Later Analysis
16 oz glass jar	<input checked="" type="checkbox"/>	Dioxins/Furans	<input checked="" type="checkbox"/>	<u>16oz Poly</u>	_____
16 oz glass jar	<input checked="" type="checkbox"/>	SVOCs / resin / TBT / Ammonia	<input checked="" type="checkbox"/>	<u>16oz Amber</u>	_____
16 oz glass jar	<input checked="" type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>	<u>16oz Glass</u>	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____	<u>16oz Glass (Pest, PCB, Metals)</u>	_____
core	_____	Radioisotope Dating	_____	_____	_____

*16oz glass jar* (circled) TPH, Hg IMMEDIATE ANALYSIS

Sample ID: KP03 C ✓ Depth Interval: 78 in. to 90 in. ✓

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: TIME = 0903 ✓

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_

Samples Collected:

16 oz poly jar	<input checked="" type="checkbox"/>	TOC/Grain size	<input checked="" type="checkbox"/>	Immediate Analysis	Archive for Later Analysis
16 oz glass jar	<input checked="" type="checkbox"/>	Dioxins/Furans	<input checked="" type="checkbox"/>	<u>16oz Poly</u>	_____
16 oz glass jar	<input checked="" type="checkbox"/>	SVOCs / resin / TBT / Ammonia	<input checked="" type="checkbox"/>	<u>16oz Glass</u>	<u>16oz Amber</u>
16 oz glass jar	<input checked="" type="checkbox"/>	Pest / PCBs / TPH / Metals / Hg	<input checked="" type="checkbox"/>	<u>16oz Glass (TPH, METALS, MERCURY)</u>	<u>16oz Glass (Pest/PCB)</u>
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____	_____
core	_____	Radioisotope Dating	_____	_____	_____

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_

Samples Collected:

16 oz poly jar	_____	TOC/Grain size	_____	Immediate Analysis	Archive for Later Analysis
16 oz glass jar	_____	Dioxins/Furans	_____	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____	_____
core	_____	Radioisotope Dating	_____	_____	_____

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_\_\_

Biota: \_\_\_\_\_

Samples Collected:

16 oz poly jar	_____	TOC/Grain size	_____	Immediate Analysis	Archive for Later Analysis
16 oz glass jar	_____	Dioxins/Furans	_____	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____	_____	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____	_____	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____	_____	_____
core	_____	Radioisotope Dating	_____	_____	_____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1		MIXED WOOD DEBRIS, FINES, AND SAND AND ORGANIC MUCK. WOOD DEBRIS TO 40% IN STATE OF DECOMPOSITION FROM MODERATE TO HEAVY.	WOOD FIBERS IN THIN STRANDS TO 2"	
	2				
	3				
	4				
	5				
	6				
	7		SAND F TO C, EST 20%.		
	8		DARK GRAYISH BROWN.		
	9		MODERATE SULFUR ODOR.		
	10				
	11				
1	12				
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
2	24				
	25		MIXED SAND, FINES, AND WOOD DEBRIS. OVERALL DARK GRAYISH BROWN.	SEE COMMENTS FOR WOOD DEBRIS DESCRIPTION.	
	26		SAND V. FINE TO MEDIUM.		
	27		EST. 20% FINES INCLUDE CLAY AND SILT AND ORGANIC MUCK. WOOD WASTE MC DEBRIS CONSISTS OF HIGHLY DECOMPOSED THIN FIBERS TO 2 INCHES LONG.		
	28		WOOD WASTE EST. 30% REMAINING SEDIMENT (50%) IS FINES, INCL. ORGANIC MUCK. MILD SULFUR ODOR.		
	29				
	30		MIXED SAND, FINES, AND WOOD DEBRIS. DARK GRAYISH BROWN. SAND F TO C TO 20%. MODERATE SULFUR ODOR. FINES SILT AND CLAY TO 30%.	WOOD WASTE CONSISTS OF CHIPS AND STRANDS TO 2" LONG. CHIPS REDDISH BROWN. MODERATE TO HEAVILY DECOMPOSED.	
	31				
	32				
	33				
	34				
	35				
3	36				
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4	48				
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	59				
5	60				

K P 0 3

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	61		AS ABOVE	AS ABOVE
	62			
	63			
	64			
	65			
	66			
	67			
	68			
	69			
	70			
	71			
6	72			
	73			
	74			
	75			
	76			
	77			
	78			
	79		PREDOMINANTLY SILT AND	OCCASIONAL PIECE OF WOOD
	80		CLAY WITH MINOR FINE	DEBRIS IN INTERVAL BELOW
	81		SAND, FINES CONSIST OF	78", MINOR PERCENTAGE
	82		CLAY AND SILT. SOFT, WET.	OF INTERNAL VOLUME (1%).
	83		GRAYISH BROWN. MILD	
7	84		SULFUR ODOR. MINOR	
	85		SHELL DEBRIS. CLAY EST.	
	86		70%. THREE WOOD DEBRIS	
	87		CONSISTING OF STRIP OF	
	88		FIBER, EST. 1" LONG.	
	89			
	90			
	91		AS ABOVE	
	92			
	93			
	94			
	95			
8	96			
	97			
	98			
	99			
	100			
	101			
	102			
	103			
	104			
	105			
	106			
	107			
9	108			
	109			
	110			
	111			
	112			
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	118			
	119			
10	120			

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6/19/08 ✓

Sample ID: KP04A ✓

Time: 1058 ✓

Area of Concern: K-Ply

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow, Pete, Jen

Bottom depth (ft): 7.59 ✓ Penetration depth (cm): 18cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand V C C M F V F <input checked="" type="checkbox"/> Silt <i>mostly</i> <input checked="" type="checkbox"/> Clay <input type="checkbox"/> Organic matter <input type="checkbox"/> Woody debris <input type="checkbox"/> Shell debris <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> Drab olive <input type="checkbox"/> Brown <input type="checkbox"/> Brown surface <input checked="" type="checkbox"/> Gray <i>lined</i> <input type="checkbox"/> Black <input type="checkbox"/> Other:	<input checked="" type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Strong <input type="checkbox"/> Overwhelming <input type="checkbox"/> Sulfur <input type="checkbox"/> Petroleum <input type="checkbox"/> Other:	Lots of Shrimp (Pandalids) Covered w/ <del>laminar</del> <i>Laminae</i> - 2.5cm RPD - Spionidae (animals) - Capitellidae

Analyses	Sample Containers				Lab	Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag				
<input checked="" type="checkbox"/> Dioxin/Furan	1	16oz poly	4oz jar	Plastic bag ✓	Axys	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Grain size/TOC		1 16oz poly	4oz jar	Plastic bag ✓	ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	16oz glass		Plastic bag ✓	ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Resin / Guai				Plastic bag ✓	ARI	<input checked="" type="checkbox"/>		
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)	16oz glass w/ Metal, etc ✓			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> PCB		16oz glass ✓			TA		<input checked="" type="checkbox"/>	
TPH					TA			
<input checked="" type="checkbox"/> Metal		16oz glass w/ Pest ✓			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Hg					TA	<input checked="" type="checkbox"/>		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/19/08 RDW

Sample Custodian Signature

DB QA 6/20/08 RDW

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 4/12/06 ✓

**Sample ID:** KP05A ✓

**Time:** 14:59 ✓

**Area of Concern:** K-Ply

**Location Data** Harbor-Wide Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** Carolyn Daw

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 17cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	Maldanidae Lumbreridae Spionidae Tubes Few shells Some bark Perapionospio pinnata Mitrella
Gravel	<u>Brown</u>	<u>Slight</u>	
<u>Sand</u> VCCMF (VF)	<u>Brown surface</u>	<u>Moderate</u>	
<u>Silt</u>	<u>Gray</u>	<u>Strong</u>	
Clay	<u>Black</u> below surface	<u>Overwhelming</u>	
Organic matter	Other: _____	<u>Sulfur</u>	
Woody debris		<u>Petroleum</u>	
Shell debris		Other: _____	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<input checked="" type="checkbox"/> Dioxin/Furan	1	16oz Amber ✓			Axys			
<input checked="" type="checkbox"/> Grain size/TOC		1 16oz Poly ✓			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	1 16oz Glass ✓			ARI		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Resin / Guai		1 16oz Glass ✓			ARI		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Organotin		1 16oz Glass ✓			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Ammonia		1 16oz Glass ✓			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Sulfide		2oz Glass w/ ZnAc ✓			ARI	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)	1 16oz Glass w/ Metals ✓			TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> PCB					TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> TPH					TA			
<input checked="" type="checkbox"/> Metal		1 16oz Glass w/ PCB, Pest ✓			TA		<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Hg		4oz Glass ✓			TA	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Bioassay		1 BAC ✓	1		NF	<input checked="" type="checkbox"/>		

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature



Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6-11-08 ✓

Sample ID: KPO6A ✓

Time: 1615 ✓

Area of Concern: K-PN

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

RPD: 1.5cm

Bottom depth (ft): 79.1 ✓ Penetration depth (cm): 21 ✓  
w trace sand

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	Silt grading into silt w) trace clay (D.O trans-grey black- into dark grey black) terebellidae, sporionidae tubes? lumbrinerae, macoma shell fragments
Gravel	<u>Brown</u>	<u>Slight</u>	
Sand V C C M F V F	<u>Brown surface</u>	<u>Moderate</u>	
<u>Silt</u> ✓	<u>Gray</u>	<u>Strong</u>	
Clay	<u>Black</u> ✓	<u>Overwhelming</u>	
Organic matter	Other:	<u>Sulfur</u>	
Woody debris		<u>Petroleum</u>	
Shell debris		Other:	
Other:			

Analyses	Sample Containers							
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1	16oz Amber	✓		Axys			
Grain size/TOC		1 16oz Poly	✓		ARI			
SVOCs	1 (2 if arch)	16oz Glass	✓		ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia		4oz Glass	✓		ARI			
Sulfide		2oz Glass	✓		ARI			
Pesticide	1 (2 if arch)	16oz Glass	✓	1 Meda/✓	TA			
PCB					TA			
TPH						TA		
Metal		16oz Glass w/ Resin PCB	✓		TA			
Hg		4oz Glass	✓		TA			
Bioassay		1 Bag	✓	1	NF			

- (A)
- (X)
- (A)
- (A)
- (X)
- (X)
- (A)
- (A)
- (A)
- (X)
- (X)

Sampler Signatures \_\_\_\_\_

Sample Custodian Signature \_\_\_\_\_

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6-11-08 ✓

**Sample ID:** KPO7A ✓

**Time:** 1250 ✓

**Area of Concern:** K-PH Area

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** GRAB BOAT RPD: 1 cm

**Bottom depth (ft):** 106 ✓ **Penetration depth (cm):** 24 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	fecal materials Silt grading into Silt Clay (D.O. trans- Gray/black) fragments
Gravel	Brown	Slight ✓	
Sand V C C M F V F	Brown surface	Moderate	
Silt ✓	Gray	Strong	
Clay	Black ✓	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16oz Amber	✓		Axys			
Grain size/TOC		1 16oz Poly	✓		ARI			
SVOCs	1 (2 if arch)	16oz Glass	✓		ARI			
Resin / Guai				ARI				
Organotin				ARI				
Ammonia				ARI				
Sulfide					1		ARI	
Pesticide	1 (2 if arch)	16oz G w/ Rest, PCB, Metals	✓		TA, Hg ✓			
PCB				TA, Hg ✓				
TPH - No				TA				
Metal				TA ✓				
Hg				TA ✓				
Bioassay			1		NF			

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

1 Jar {  
X  
X  
X  
X  
X  
X  
X  
X

# Sediment Core Log

Station ID: KP07

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: K PLY  
 GPS Time: 1003  
 Location (UTM Zone 10, NAD 83 meters): X 468 065.9  
Y 533 1213.5

Date: 6/21/08  
 Time: 1013  
 Boat: NWUC SALTWATER  
 Core Collection Method: VIBROCORE  
 Sample Team: M LONGTINE C FUNK  
S PENTNEY

Coring Start Time: 1013  
 Water Depth: 102' 2" V.Ft. @ 1005  
 Core Bottom Depth: 107' 2" Ft.  
 Coring Finish Time: 1015  
 Overall Recovery (%): > 100%  
 penetration: 60"  
 recovery: 92"

1030 Core sleeve retrieved from barrel shows more recovery than penetration (32") and does not show sediment in cutting shoe. Will slice open core and determine next move based on observations  
 1045 CORE LAY DOWN AND SLEEVE OPENED FOR INSPECTION. ENTIRE RECOVERED SEDIMENT COLUMN

Sample ID: KP07 B ✓ ✓ 1015 ✓ ✓ Depth Interval: 12 in. to 24 in. ✓

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___
Biota:	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	16 oz poly jar <u>✓</u> TOC/Grain size <u>✓</u> 16 oz glass jar <u>✓</u> Dioxins/Furans <u>✓</u> 16 oz glass jar <u>✓</u> SVOCs / resin / TBT / Ammonia <u>✓</u> 16 oz glass jar <u>✓</u> Pest / PCBs / TPH / Metals / Hg <u>✓</u> 4 oz glass jar _____ Sulfide / Other: _____ core _____ Radioisotope Dating _____

Sample ID: KP07 C ✓ ✓ 1015 ✓ ✓ Depth Interval: 36 in. to 48 in. ✓

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___
Biota:	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	16 oz poly jar <u>✓</u> TOC/Grain size <u>✓</u> 16 oz glass jar <u>✓</u> Dioxins/Furans <u>✓</u> 16 oz glass jar <u>✓</u> SVOCs / resin / TBT / Ammonia <u>✓</u> 16 oz glass jar <u>✓</u> Pest / PCBs / TPH / Metals / Hg <u>✓</u> 4 oz glass jar _____ Sulfide / Other: _____ core _____ Radioisotope Dating _____

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___
Biota:	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____ 16 oz glass jar _____ Dioxins/Furans _____ 16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____ 16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____ 4 oz glass jar _____ Sulfide / Other: _____ core _____ Radioisotope Dating _____

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___
Biota:	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____ 16 oz glass jar _____ Dioxins/Furans _____ 16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____ 16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____ 4 oz glass jar _____ Sulfide / Other: _____ core _____ Radioisotope Dating _____

NOTES:

Samples Recd.  
 6/22/08  
 RDW

DB QA 6/22/08 RDW

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1		CLAYEY SILT, DARK GRAYISH BROWN, SOFT, SHELL (BIVALVE) DEBRIS AND INTACT SHELLS, MINOR V FINE SAND. NO OBVIOUS ODOM	NO WOOD DEBRIS	
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
1	12				
	13		AS DESCRIBED FOR 0 TO 12" INTERVAL		
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
2	24				
	25		AS ABOVE		
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
3	36				
	37				
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
4	48				
	49				
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
5	60				CLAYEY SANDY SILT, DARK GRAYISH BROWN, ABUNDANT BROKEN AND WHOLE BIVALVE SHELLS TO 3". NO OBVIOUS ODOM.

(CONT)

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers	
	61		SAND INCREASING IN GRAIN SIZE AND ABUNDANCE DOWNWARD. VERY FINE TO FINE.	NO WOOD DEBRIS	
	62				
	63				
	64				
	65				
	66				
	67				
	68				
	69				
	70				
	71				
6	72				
	73				
	74				
	75				
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	80				
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	82				
	83				
	7	84			
	85				
	86				
	87				
	88				
	89				
	90				
	91				
	92				
		93		BOTTOM OF CORE	
		94			
		95			
		96			
8	97				
	98				
	99				
	100				
	101				
	102				
	103				
	104				
	105				
	106				
	107				
	9	108			
	109				
	110				
	111				
	112				
	113				
	114				
	115				
	116				
	117				
	118				
	119				
10	120				

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/12/08 ✓✓

Sample ID: KP08A ✓✓

Time: 15:58 ✓✓

Area of Concern: K-Ply

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 11

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<u>Cobble</u>	Drab olive	<u>Nons</u>	Lots of bark ✓ Some woody debris Spiroidae tubes Spio chaetopterus NO RPD Perapironosio pinnata Maldanidae
<u>Gravel</u>	Brown	Slight ✓	
<u>Sand</u> VCC M F VE	<u>Brown surface</u> <sup>black</sup>	Moderate	
<u>Silt</u> <sup>underneath</sup>	Gray	Strong	
<u>Clay</u> <sup>surface of rocks</sup>	Black	Overwhelming	
Organic matter	Other:	Sulfur	
<u>Woody debris</u>		Petroleum	
<u>Shell debris</u> Lots		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<u>Dioxin/Furan</u>	1	16oz Amber ✓	4oz Amber ✓		Axys		<u>X</u>	
<u>Grain size/TOC</u>		1 16oz Poly ✓			ARI	<u>X</u>	<u>X</u>	
<u>SVOCs</u>	1 (2 if arch)	2 16oz Glass ✓			ARI		<u>X</u>	
<u>Resin / Guai</u>		2 16oz Glass ✓			ARI		<u>X</u>	
<u>Organotin</u>		4oz Glass ✓			ARI	<u>X</u>		
<u>Ammonia</u>					ARI			
<u>Sulfide</u>			1		ARI			
<u>Pesticide</u>	1 (2 if arch)	16oz Glass ✓ / Metals			TA		<u>X</u>	
<u>PCB</u>		4oz Glass ✓			TA	<u>X</u>		
<u>TPH</u>					TA			
<u>Metal</u>		16oz Glass ✓ w/ PCB			TA		<u>X</u>	
<u>Hg</u>		4oz Glass ✓			TA	<u>X</u>		
<u>Bioassay</u>				1	NF			

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

# Sediment Core Log

Station ID: KPO8

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: K-PLY  
 GPS Time: 0830  
 Location (UTM Zone 10, NAD 83 meters): X 467395  
 Y 5330384

Date: 6/8/08 ✓  
 Time: 0809  
 Boat: NWUWC  
 Core Collection Method: M LONGTINE, J SCHMITZ  
 Sample Team: S BENTNEY  
VIBRACORE

PULLED BACK UP BEFORE ATTEMPT VIBRACORING TO THAWEN 3-POINT ANCHOR.

Coring Start Time: 0930, 0938 (2<sup>nd</sup> ATTEMPT) 100" = CORE SLEEVE PLUS CUTTING SHOE (4" EST).  
 Water Depth: 50 M Ft. 49 → SLOW PENETRATION. REFUSAL AT 6'7" DEPTH.  
 Core Bottom Depth: 6'7" Ft.  
 Coring Finish Time: 0948  
 Overall Recovery (%): 66% =  
 - IMMEDIATELY UPON RETRIEVAL, MUCH OF THE SURFACE SEDIMENT WAS SUSPENDED. MEASURED DEPTH TO TOP OF SOLID SEDIMENT WAS 48". 5 MINUTES LATER 23" OVER →

Sample ID: KPO8B Depth Interval: 36 in. to 48 in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: Time = 0948

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	<u>1</u> ✓	TOC/Grain size	<u>X</u> ✓	
16 oz glass jar	<u>1</u> ✓	Dioxins/Furans <u>Amber</u>	<u>X</u> ✓	
16 oz glass jar	<u>1</u> ✓	SVOCs / resin / TBT / Ammonia	<u>X</u> ✓	
16 oz glass jar	<u>1</u> ✓	Pest / PCBs / TPH / Metals / Hg	<u>X</u> ✓	
2 4 oz glass jar core	<u>2</u> ✓	Sulfide / Other: <u>Hg</u>		<u>2 oz for Sulfide, 4 oz for Hg. Both Imm. Analysis</u>
		Radioisotope Dating		

Sample ID: KPO8C Depth Interval: 48 in. to 60 in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: Time = 0948

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	<u>1</u> ✓	TOC/Grain size	<u>X</u> ✓	
16 oz glass jar	<u>1</u> ✓	Dioxins/Furans	<u>X</u> ✓	
16 oz glass jar	<u>1</u> ✓	SVOCs / resin / TBT / Ammonia	<u>X</u> ✓	
16 oz glass jar	<u>2</u> ✓	Pest / PCBs / TPH / Metals / Hg	<u>X</u> ✓	<u>ANALYZED</u>
2 4 oz glass jar core	<u>1</u> ✓	Sulfide / Other:		<u>4oz Jar</u>
		Radioisotope Dating		

6 JARS Total

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	___	TOC/Grain size	___	
16 oz glass jar	___	Dioxins/Furans	___	
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	
4 oz glass jar	___	Sulfide / Other:	___	
core	___	Radioisotope Dating	___	

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other:

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:

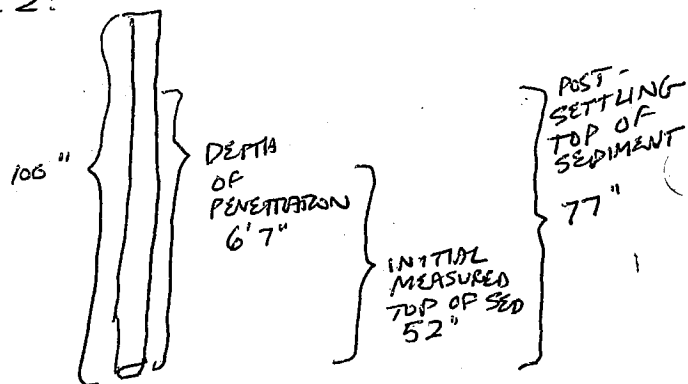
Biota: Immediate Analysis Archive for Later Analysis

Samples Collected:

16 oz poly jar	___	TOC/Grain size	___	
16 oz glass jar	___	Dioxins/Furans	___	
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	
4 oz glass jar	___	Sulfide / Other:	___	
core	___	Radioisotope Dating	___	

NOTES: 2 samples  
RDW 6/9/08  
QA DB 6/9/08 RDW

CORE 2:



1030

→ REJECT THIS CORE DUE TO DISTURBANCE OF UPPER ESTIMATED 2 FT OF SEDIMENT. WILL STORE THIS CORE IN SLEEVE IN UPRIGHT POSITION WHILE COLLECTING A SHORTER CORE AT THIS LOCATION. IF SHORTER CORE, UPON RETRIEVAL IS NOT DISTURBED IN UPPER PORTION, WILL USE IT.

ATTEMPT 3

1055 HAVE OUTFITTED CORER WITH 5-FT SLEEVE + 4" CUTTING SHOE INSIDE 8.5 FT BARREL. WILL ATTEMPT TO DRIVE UNTIL PENETRATION SLOWS, THEN RETRIEVE.

NEW WATER DEPTH 47.5'

1100 FINISH DRIVING ATTEMPT NO. 3. PENETRATION DEPTH 4.0 FT (MEASURED BY ROPE ON VIBRATOR).

1113 PULLED CORE NO. 3. MEASURED RECOVERED SEDIMENT. 16" OF SOLID SEDIMENT. INSUFFICIENT RECOVERY (16" OUT OF 48"). REJECT CORE. DECIDE NOT TO ATTEMPT <sup>CORING</sup> AGAIN BECAUSE EXPECT SAME RESULTS = DISTURBANCE OF UPPER SEDIMENTS. WILL OPEN UP CORE 2 ON PROCESSING TABLE TO REGRD OBSERVATIONS AND, IF APPROPRIATE, COLLECT ANALYTICAL SAMPLES FROM UNDISTURBED LOWER INTERVAL.



Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
1	11			
1	12			
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	59			
5	60			

DISTURBED - MIX OF SILT, SAND, AND AMP ORGANIC MATERIALS INCLUDING WOOD DEBRIS (RED WOOD CHIPS, MODERATELY DECOMPOSED) OVERALL COLOR MED BROWN.

SANDY SILT, UNDISTURBED, MED GRAYISH BROWN, V. MOIST  
 SANDY SILT AND CLAY, V. MOIST, NO DISTINCT LAYERING, V. LOOSE.

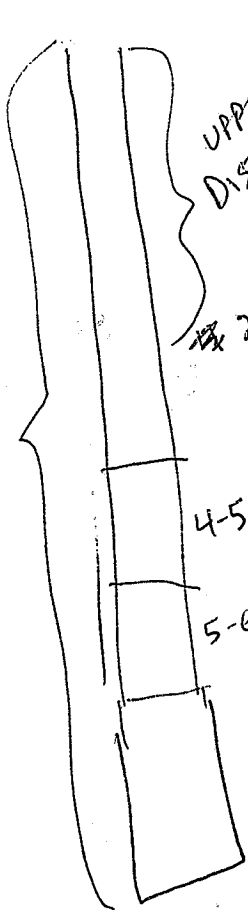
KP08B

KP08C

SAND SILT GRAVEL, (SHALL BE DREDGED) PACKETS OF CLAY GRAYISH BROWN. CLAY IS REDDISH BROWN. Thin layers: Gravel to 1" GRAVEL SUB. GRAVEL TO SUB. ROUNDED. NOV odor. Very moist except moist clay intervals. Shell frags are white, MINOR.



72"  
AFTER  
CUT OFF  
AT TOP  
OF SOLID  
SEDIMENT



UPPER 28"  
DISTURBED WOOD DEBRIS

28" SANDY SILT, UNDISTURBED  
BROWN, MOIST

6-7 - SAND, GRAVEL, FINES, SHELLS,  
WHITE BIVALVES TO 3" AND FRAGMENTS,  
GRAVEL SUBROUNDED. SAND FIBERS C.  
CLUMPS OF REDDISH BRN CLAY

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 7/23/08

**Sample ID:** LA01A

**Time:** 11:32

**Area of Concern:** Lagoon

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X 465053.30 Y 5331203.00

**Boat/Sampling Team:** Schwartz, Longene, Parker, Muth

Bottom depth (ft): 2.54 Penetration depth (cm): 25

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None <sup>8/23</sup>	slight green amphipods shell frags / live clams whole clams (butter/horse) worms / polychaetes sand crabs (green) No RPD * Same location of grab
Gravel	Brown	Slight <sup>H<sub>2</sub>S</sup>	
Sand <sup>trace</sup> VCC M(F)VF	Brown surface	Moderate	
Silt	Gray	Strong	
Clay	Black coloring	Overwhelming	
Organic matter <sup>help</sup>	Other: in bands	Sulfur	
Woody debris <sup>mostly</sup>		Petroleum	
Shell debris <sup>(70%)</sup>		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys	X		
Grain size/TOC		1			ARI	X		
SVOCs	1 (2 if arch)				ARI	X		
Resin / Guai					ARI	X		
Organotin					ARI	X		
Ammonia					ARI	X		
Sulfide			1		ARI	X		
Pesticide	1 (2 if arch)				TA	X		
PCB					TA	X		
TPH					TA	X		
Metal					TA	X		
Hg					TA	X		
Bioassay				1	NF			

\_\_\_\_\_  
 Sampler Signatures

\_\_\_\_\_  
 Sample Custodian Signature



**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 7/23/08

**Sample ID:** LA02A

**Time:** 1046

**Area of Concern:** Lagoon

**Location Data:** Harbor-Wide/Rayonier GPS Date/Time                      GPS PDOP                     

Location (UTM Zone 10, NAD83, meters) X 465097.20 Y 5331097.30

**Boat/Sampling Team:** Schnitzer Longline, Parker Muth

Bottom depth (ft): 3.5 Penetration depth (cm): 25

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive <u>surface</u>	None	- Amphipods - <u>Gastropod sp. (bubble snail)</u> - Shells/fragments (horse clams) - No RPD visible - grayish brown consistently throughout
Gravel	Brown	Slight <u>HS</u>	
<u>fine</u> Sand V C C M (E) V F	Brown surface	Moderate	
Silt	Gray <u>surface/bottom</u>	Strong	
Clay	Black <u>surface</u>	Overwhelming	
Organic matter <u>kelp</u>	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys		X	
Grain size/TOC		1			ARI	X		
SVOCs	1 (2 if arch)				ARI		X	
Resin / Guai					ARI		X	
Organotin						ARI		
Ammonia					ARI	X		
Sulfide			1		ARI	X		
Pesticide	1 (2 if arch)				TA		X	
PCB					TA		X	
TPH						TA	X	
Metal						TA		X
Hg					TA	X		
Bioassay				1	NF	X		

\_\_\_\_\_  
 Sampler Signatures

\_\_\_\_\_  
 Sample Custodian Signature

# Sediment Core Log

Station ID: LA02

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/23/08

Location Data: Harbor-wide / Rayonier

Time: 1402

Area of Concern: Lagoon, NIPPON

Boat: RSS Carolyn Dow

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRACORE

Location (UTM Zone 10, NAD 83 meters): X 765097.20  
Y 5331047.60

Sample Team: LONOTAS  
Schmitt

Coring Start Time: 1402

Water Depth: 3.3 Ft.

Core Bottom Depth: 6.5 Ft.

Coring Finish Time: 1403

Overall Recovery (%): 70.4%

*Core is considered acceptable.*

Sample ID: LA02B Depth Interval: 24 in. to 36 in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																																				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____																																				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____																																				
Biota:	_____																																				
Samples Collected:	<table border="0"> <tr> <td>16 oz poly jar</td> <td><u>1</u></td> <td>TOC/Grain size</td> <td><u>X</u></td> <td>Immediate Analysis</td> <td>Archive for Later Analysis</td> </tr> <tr> <td>16 oz glass jar</td> <td><u>1</u></td> <td>Dioxins/Furans</td> <td><u>X</u></td> <td></td> <td></td> </tr> <tr> <td>16 oz glass jar</td> <td><u>1</u></td> <td>SVOCs / resin / TBT / Ammonia</td> <td><u>X</u></td> <td></td> <td></td> </tr> <tr> <td>16 oz glass jar</td> <td><u>1</u></td> <td>Pest / PCBs / TPH / Metals / Hg</td> <td><u>X</u></td> <td></td> <td></td> </tr> <tr> <td>4 oz glass jar</td> <td><u>1</u></td> <td>Sulfide / Other: _____</td> <td><u>X</u></td> <td></td> <td></td> </tr> <tr> <td>core</td> <td></td> <td>Radioisotope Dating</td> <td></td> <td></td> <td></td> </tr> </table>	16 oz poly jar	<u>1</u>	TOC/Grain size	<u>X</u>	Immediate Analysis	Archive for Later Analysis	16 oz glass jar	<u>1</u>	Dioxins/Furans	<u>X</u>			16 oz glass jar	<u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>			16 oz glass jar	<u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>			4 oz glass jar	<u>1</u>	Sulfide / Other: _____	<u>X</u>			core		Radioisotope Dating			
16 oz poly jar	<u>1</u>	TOC/Grain size	<u>X</u>	Immediate Analysis	Archive for Later Analysis																																
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4 oz glass jar	<u>1</u>	Sulfide / Other: _____	<u>X</u>																																		
core		Radioisotope Dating																																			

Sample ID: LA02C Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																																				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____																																				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____																																				
Biota:	_____																																				
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4 oz glass jar	<u>1</u>	Sulfide / Other: _____	<u>X</u>																																		
core		Radioisotope Dating																																			

*ABANDONED*

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																																				
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Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____																																				
Biota:	_____																																				
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core		Radioisotope Dating	___																																		

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																																				
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4 oz glass jar	___	Sulfide / Other: _____	___																																		
core		Radioisotope Dating	___																																		

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0"	1	(0"-6") No sample	(0"-6") - Dark brown silt with kelp, trace wood waste, very slight H <sub>2</sub> S odor, no organic detritus, NO natural detritus	Small (1/2"-1") brown wood chips, very slight H <sub>2</sub> S odor
	2			
	3			
	4			
	5			
	6			
6"	7	(6"-12") No sample	(6"-12") - Dark brown silt, some kelp, wood material, moderate H <sub>2</sub> S odor, no natural detritus, no organic detritus	Wood chips (between 2 1/2"-3") red and brown in color and <del>some bark</del> (some bark) (more than the 12"-24" interval)
	8			
	9			
	10			
	11			
12"	12	No sample	(12"-24") Dark brown silty sand, some gravel (rounded + subrounded) wood material, moderate H <sub>2</sub> S odor, no natural or organic detritus	degraded wood chips (cm in size) wood chips (between 2 1/2"-3") red and brown in color - some bark, brown in color, some degraded wood chips
	13			
	14			
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
24"	24	LA02/5	(24"-36") Dark brown silty sand, some subrounded gravel, wood material, moderate H <sub>2</sub> S odor, no natural or organic detritus	Wood chips (between 2 1/2"-13") red and brown in color, some bark, brown in color, some degraded wood - brown in color (more wood in this interval than 12"-24" interval)
	25			
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
36"	35	No sample	(36"-48") Dark brown silty sand, some gravel, some subrounded + rounded wood material, through entire foot interval, slight H <sub>2</sub> S odor	Wood chips (2 1/2"-3") red and brown in color, some bark (1-2"), some tan long wood fibers (~3") - very light in color - different from other wood chips found
	36			
	37			
36"	38	No sample	(36"-48") Dark brown silty sand, some gravel, some subrounded + rounded wood material, through entire foot interval, slight H <sub>2</sub> S odor	Wood chips (2 1/2"-3") red and brown in color, some bark (1-2"), some tan long wood fibers (~3") - very light in color - different from other wood chips found
	39			
	40			
	41			
	42			
	43			
	44			
	45			
	46			
	47			
	48			
	48"			
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				

(some bark)   
 (more than the 12"-24" interval)   
 brown in color   
 (more wood in this interval than 12"-24" interval)

@

**Project:** Port Angeles Harbor Sediment  
Characterization Study

**Grab Sediment Sample Log**

**Date:** 7/23/08

**Sample ID:** LA034

**Time:** 1010

**Area of Concern:** Lagoon

**Location Data:** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_  
Location (UTM Zone 10, NAD83, meters) X 46515960 Y 533118210

**Boat/Sampling Team:** Schmitz, Longino, Parren Math

Bottom depth (ft): 3.0 Penetration depth (cm): 25

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive <u>surface</u>	None	Mottled black parts throughout Snails (works?) Shell frags / live clams poly chaetes No RPD visible
Gravel <u>Very trace!</u>	Brown	Slight	
Sand <u>VCC M FVF</u>	Brown surface	Moderate <u>H<sub>2</sub>S</u>	
Silt	Gray	Strong	
Clay	Black <u>surface</u>	Overwhelming	
Organic matter <u>Feelgrass</u>	Other:	Sulfur	
Woody debris <u>Kelp</u>		Petroleum	
Shell debris <u>large pieces bark/chips</u>		Other:	
Other:			
Other:			

*trace*  
*Brown green algae*

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys		X	
Grain size/TOC		1			ARI	X		
SVOCs	1 (2 if arch)				ARI		X	
Resin / Guai					ARI		X	
Organotin						ARI		
Ammonia					ARI	X		
Sulfide			1		ARI	X		
Pesticide	1 (2 if arch)				TA		X	
PCB					TA		X	
TPH						TA	X	
Metal						TA		X
Hg						TA	X	
Bioassay				1	NF			

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

# Sediment Core Log

ATTEMPTED

111000000 (1-2)

Station ID: LP01  
 Date: 7/19/08  
 Time: \_\_\_\_\_  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: LOG POND  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X  
Y

ATTEMPT ①

Coring Start Time: <u>1542</u>	② <u>1552</u>	③ <u>1617</u>
Water Depth: <u>17.5</u> Ft.	<u>17.5</u>	<u>18.5</u>
Core Bottom Depth: <u>0</u> Ft.	<u>EST 2.5</u>	<u>0</u>
Coring Finish Time: <u>1543</u>	<u>1553</u>	<u>1618</u>
Overall Recovery (%): <u>NO PENETRATION</u> <u>NO RECOVERY</u>	<u>EST. 2.5 FT PENETRATION</u> <u>RECOVERED 20" GRAVEL, COBBLES,</u> <u>AND SAND, INCLUDING SITES.</u>	<u>NO PENETRATION</u> <u>NO RECOVERY</u>

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size	___		___
	16 oz glass jar ___ Dioxins/Furans	___		___
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia	___		___
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg	___		___
	4 oz glass jar ___ Sulfide / Other: ___	___		___
	core Radioisotope Dating	___		___
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size	___		___
	16 oz glass jar ___ Dioxins/Furans	___		___
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia	___		___
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg	___		___
	4 oz glass jar ___ Sulfide / Other: ___	___		___
	core Radioisotope Dating	___		___
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size	___		___
	16 oz glass jar ___ Dioxins/Furans	___		___
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia	___		___
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg	___		___
	4 oz glass jar ___ Sulfide / Other: ___	___		___
	core Radioisotope Dating	___		___
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size	___		___
	16 oz glass jar ___ Dioxins/Furans	___		___
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia	___		___
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg	___		___
	4 oz glass jar ___ Sulfide / Other: ___	___		___
	core Radioisotope Dating	___		___

NO SAMPLES  
 ANY RECOVERY  
 INADEQUATE RECOVERY  
 ON ATTEMPT 2

NOTES:

X	ATTEMPT ① 469065.8	Y	5329525.9
	② 469064.4		5329527.0
	③ 469064.0		5329526.6



Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/22/08 ✓

Sample ID: LPOIA ✓

Time: 1236 ✓

Area of Concern: Log Pond

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carlynn Dow - Peter, Ten

Bottom depth (ft): 5.4 ft ✓ Penetration depth (cm): 12cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input checked="" type="checkbox"/> Cobble ✓	<input checked="" type="checkbox"/> Drab olive <u>surface</u>	<input checked="" type="checkbox"/> None ✓	abalone Polychaetes Opheliidae
<input checked="" type="checkbox"/> Gravel	<input checked="" type="checkbox"/> Brown	<input checked="" type="checkbox"/> Slight ✓	
<input checked="" type="checkbox"/> Sand V C O M F V F	<input checked="" type="checkbox"/> Brown surface	<input checked="" type="checkbox"/> Moderate	
<input type="checkbox"/> Silt	<input checked="" type="checkbox"/> Gray <u>below surface</u>	<input checked="" type="checkbox"/> Strong	
<input type="checkbox"/> Clay	<input checked="" type="checkbox"/> Black <u>surface</u>	<input checked="" type="checkbox"/> Overwhelming	
<input type="checkbox"/> Organic matter	Other:	<input type="checkbox"/> Sulfur	
<input type="checkbox"/> Woody debris		<input type="checkbox"/> Petroleum	
<input checked="" type="checkbox"/> Shell debris		<input type="checkbox"/> Other:	
<input type="checkbox"/> Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓				Axys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Grain size/TOC		1 ✓			ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SVOCs	1 (2 if arch)				ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Resin / Guai		2 16oz glass ✓			ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Organotin					ARI			
Ammonia					ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Sulfide		2oz	1 Glass ✓		ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	w/ Entic
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal		2 16oz glass ✓			TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Hg					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/22/08 RDW

[Signature] DJB QA 6/22/08 RDW

Sample Custodian Signature

# Sediment Core Log

ADDITIONAL ATTEMPT  
THREE ATTEMPTS

11-13

Station ID: LPO2

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/19/08

Location Data: Harbor-wide / Rayonier

Time: SEE BELOW

Area of Concern: LOG POND

Boat: RSS ARALYN DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRATOR

Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_

Sample Team: LONGTWR

Y SEE BELOW

ATTEMPT  
①

Coring Start Time: <u>1414</u>	② <u>1417</u>	③ <u>1420</u>
Water Depth: <u>12.4</u> Ft.	<u>12.5</u>	<u>12.4</u>
Core Bottom Depth: <u>0</u> Ft.	<u>0</u>	<u>0</u>
Coring Finish Time: <u>1415</u>	<u>1418</u>	<u>1421</u>
Overall Recovery (%): <u>0</u>	<u>0</u>	<u>0</u>

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____		_____
	16 oz glass jar _____ Dioxins/Furans _____	_____		_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____		_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____		_____
	4 oz glass jar _____ Sulfide / Other: _____	_____		_____
	core _____ Radioisotope Dating _____	_____		_____
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____		_____
	16 oz glass jar _____ Dioxins/Furans _____	_____		_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____		_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____		_____
	4 oz glass jar _____ Sulfide / Other: _____	_____		_____
	core _____ Radioisotope Dating _____	_____		_____
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____		_____
	16 oz glass jar _____ Dioxins/Furans _____	_____		_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____		_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____		_____
	4 oz glass jar _____ Sulfide / Other: _____	_____		_____
	core _____ Radioisotope Dating _____	_____		_____
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____		_____
	16 oz glass jar _____ Dioxins/Furans _____	_____		_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____		_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____		_____
	4 oz glass jar _____ Sulfide / Other: _____	_____		_____
	core _____ Radioisotope Dating _____	_____		_____

NO ADDITIONAL SAMPLE  
NO RECOVERY  
NO ATTEMPTS

NOTES:

ATTEMPT	①	X	4691476	Y	5329467.6
	②		4691489		5329470.8
	③		4691500		5329467.1

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

*Abandoned*

**Date:** 6/22/08

**Sample ID:** LPO2A

**Time:** \_\_\_\_\_

**Area of Concern:** Log Pond

**Location Data** Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

Bottom depth (ft): _____		Penetration depth (cm): _____						
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>			<b>Comments:</b>			
Cobble	Drab olive	None						
Gravel	Brown	Slight						
Sand V C C M F VF	Brown surface	Moderate						
Silt	Gray	Strong						
Clay	Black	Overwhelming						
Organic matter	Other:	Sulfur						
Woody debris		Petroleum						
Shell debris		Other:						
Other:								
<b>Analyses</b>	<b>Sample Containers</b>							
	<i>16 oz glass jar</i>	<i>16 oz poly</i>	<i>4 oz jar</i>	<i>Plastic bag</i>	<i>Lab</i>	<i>Immediate Analysis</i>	<i>Archive</i>	<i>MS/MSD</i>
Dioxin/Furan	1				Axys	X		
Grain size/TOC		1			ARI	X		
SVOCs	1 (2 if arch)				ARI	X		
Resin / Guai					ARI	X		
Organotin					ARI			
Ammonia					ARI	X		
Sulfide			1		ARI	X		
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal					TA		X	
Hg					TA		X	
Bioassay				1	NF			

**Sampler Signatures**

No Samples - RDW 6/22/08

**Sample Custodian Signature**

# Sediment Core Log

Station ID: LPO3

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide (Rayonier)  
 Area of Concern: LOG POND  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y see below

Date: 7/19/08  
 Time: SEE BELOW  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRACORE  
 Sample Team: LONGTINE

ATTEMPT ①

Coring Start Time: <u>1341</u>	②	<u>1346</u>	③	<u>1351</u>
Water Depth: <u>12.8</u> Ft.		<u>13.0</u>		<u>12.8</u>
Core Bottom Depth: <u>0</u> Ft.		<u>0</u>		<u>0</u>
Coring Finish Time: <u>1342</u>		<u>1347</u>		<u>1352</u>
Overall Recovery (%): <u>NA</u>		<u>NA</u>		<u>NA</u>

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____
	16 oz glass jar _____ Dioxins/Furans _____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____
	4 oz glass jar _____ Sulfide / Other: _____
	core _____ Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____
	16 oz glass jar _____ Dioxins/Furans _____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____
	4 oz glass jar _____ Sulfide / Other: _____
	core _____ Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____
	16 oz glass jar _____ Dioxins/Furans _____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____
	4 oz glass jar _____ Sulfide / Other: _____
	core _____ Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____
	16 oz glass jar _____ Dioxins/Furans _____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____
	4 oz glass jar _____ Sulfide / Other: _____
	core _____ Radioisotope Dating _____

ABANDONED SAMPLE  
 NO RECOVERY  
 ATTEMPTS 1-3

NOTES:

X Y

ATTEMPT ① 469237.6 5329513.3  
 ② 469239.6 5329513.5  
 ③ 469240.2 5329511.5

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/22/08

Sample ID: LP03A

Time: 1107

Area of Concern: Log Pond

Location Data Harbor-Wide (Rayonier) GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow, Jen, Pete

Bottom depth (ft): 10.2 g Penetration depth (cm): 15cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
<input checked="" type="checkbox"/> Cobble	Drab olive	<input checked="" type="checkbox"/> None	Lots of kelp Some bivalves (lots) Polychaetes Oweniidae
<input checked="" type="checkbox"/> Gravel	Brown	<input checked="" type="checkbox"/> Slight	
<input checked="" type="checkbox"/> Sand VOC M F VF	Brown surface	Moderate	
Silt	<input checked="" type="checkbox"/> Gray	Strong	
Clay	<input checked="" type="checkbox"/> Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris 30%		Petroleum	
Shell debris		Other:	
Other:			
Small fibers			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 ✓ Amber				Axys	<input checked="" type="checkbox"/>		
Grain size/TOC		1 ✓			ARI	<input checked="" type="checkbox"/>		
SVOCs	1 (2 if arch)	2			ARI	<input checked="" type="checkbox"/>		
Resin / Guai					ARI	<input checked="" type="checkbox"/>		
Organotin		16 oz glass ✓			ARI	<input checked="" type="checkbox"/>		
Ammonia					ARI	<input checked="" type="checkbox"/>		
Sulfide		2oz	1 glass ✓		ARI	<input checked="" type="checkbox"/>		
Pesticide	1 (2 if arch)				TA			
PCB					TA	JS		
TPH					TA	JS		
Metal		7 16oz glass			TA	<input checked="" type="checkbox"/>		
Hg		5	1		TA	<input checked="" type="checkbox"/>		
Bioassay				1	NF			

Sampler Signatures

[Signature] RDW 6/22/08      [Signature] DB QA 6/22/08 RDW

Sample Custodian Signature

**Sediment Core Log**

Station ID: LP04

Project: Port Angeles Harbor Sediment Characterization Study

Date: 7/19/08

Location Data: Harbor-wide / (Rayonier)

Time: SEE BELOW

Area of Concern: LOG POND

Boat: RSS CAROLYN POW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBRACORE

Location (UTM Zone 10, NAD 83 meters): X

Sample Team: LONGVIEW

Y SEE BELOW

ATTEMPT  
①

Coring Start Time: <u>1207</u>	② <u>1212</u>	③ <u>1225</u>	④ <u>1233</u>
Water Depth: <u>11.7</u> Ft.	<u>11.5</u>	<u>12.0</u>	<u>12.2</u>
Core Bottom Depth: <u>0.5</u> Ft.	<u>2.2</u>	<u>0.2</u>	<u>0.0</u>
Coring Finish Time: <u>1208</u>	<u>1213</u>	<u>1226</u>	<u>1234</u>
Overall Recovery (%): <u>0</u>	<u>46</u>	<u>0</u>	<u>0</u>

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis _____ Archive for Later Analysis _____
Samples Collected: 16 oz poly jar _____ TOC/Grain size _____	
16 oz glass jar _____ Dioxins/Furans _____	
16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____ Sulfide / Other: _____	
core _____ Radioisotope Dating _____	

APPROPRIATE LOCATION  
 INSTRUCTIONS ARE  
 RECOMMENDED

NOTES:

- ATTEMPT ① 469291.6 5329 538.3
- ② 469293.2 5329 538.3
- ③ 469293.0 5329 536.1
- ④ 469292.6 5329 540.8

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/22/08 ✓✓

**Sample ID:** LPO4A ✓✓

**Time:** 0901-1007 ✓✓

**Area of Concern:** Log Pond

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

Bottom depth (ft): 12.99 ✓ Penetration depth (cm): 11 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Callianacids Lumbreridae Opheliidae Amphipods (on kelp) Lots of green kelp
Gravel	Brown	Slight ✓	
Sand VC C M F V F	Brown surface	Moderate	
Silt 10% ✓	Gray	Strong	
Clay ✓	Black ✓	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris 40% ✓		Petroleum	
Shell debris		Other:	
Other:			

Chips of wood, very little bark

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓				Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)				ARI	✓		
Resin / Guai					ARI	✓		
<del>Organotin</del>		2 16 oz glass ✓			ARI			
Ammonia					ARI	✓		
Sulfide		2 oz	1 glass ✓		ARI	✓	✓	✓
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal		2 16 oz glass ✓			TA	✓		
Hg					TA	✓		
Bioassay				1	NF			

Sampler Signatures

[Signature]

DB QA 6/22/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: 2P05

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: LOG POND  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469385.4  
 Y 5329492.9

Date: 7/19/08  
 Time: 0840  
 Boat: RSS (AROLYN DOW)  
 Core Collection Method: VIBRACORE  
 Sample Team: LONGTINE

Coring Start Time: 0840  
 Water Depth: 9.4 Ft.  
 Core Bottom Depth: 5.3 Ft.  
 Coring Finish Time: 0841  
 Overall Recovery (%): 55

2.9' RECOVERY. MATERIAL CONSISTS OF MIXED WOOD DEBRIS AND SEDIMENT IN UPPER PORTION BASED ON VISUAL INSPECTION THROUGH CORE LINER, AND GRAVEL TO 1 1/2" WITH SAND IN SHOES.  
 1030 FOLLOWING COLLECTION OF THIRD ATTEMPT LAPS, DECIDED TO DISCARD THIS CORE AND USE THIRD ATTEMPT FOR SAMPLES.

Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: _____	___	___
	core	___	Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: _____	___	___
	core	___	Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: _____	___	___
	core	___	Radioisotope Dating	___	___
Sample ID:	Depth Interval:		in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota:			Immediate Analysis	Archive for Later Analysis	
Samples Collected:	16 oz poly jar	___	TOC/Grain size	___	___
	16 oz glass jar	___	Dioxins/Furans	___	___
	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
	4 oz glass jar	___	Sulfide / Other: _____	___	___
	core	___	Radioisotope Dating	___	___

NO CORE DATA RECOVERY

NOTES:



# Sediment Core Log

Station ID: LP05

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide (Rayonier)  
 Area of Concern: LOG POND  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469585.1  
 Y 5329491.4

Date: 7/19/08  
 Time: 0930  
 Boat: RSS CAROLYN Dow  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 0930  
 Water Depth: 8.7 Ft.  
 Core Bottom Depth: 2.6 Ft.  
 Coring Finish Time: 0931  
 Overall Recovery (%): —

INADEQUATE PENETRATION (2.6'). EMPTY CORE TUBE, RINSE WITH SITE WATER, AND REPOSITION VESSEL SLIGHTLY TO ATTEMPT AGAIN.

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____			
	16 oz glass jar _____ Dioxins/Furans _____			
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____			
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____			
	4 oz glass jar _____ Sulfide / Other: _____			
	core _____ Radioisotope Dating _____			

NO SAMPLE IN ADEQUATE PENETRATION

NOTES:

Project: Port Angeles Harbor Sediment  
 Characterization Study

Grab Sediment Sample Log

Date: 6/22/08 ✓✓

Sample ID: LP05A ✓✓

Time: 0901 ✓✓

Area of Concern: Log Pond

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow Pete, Ten

Bottom depth (ft): 11.8 ft ✓ Penetration depth (cm): 22 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Shake pickback Lots of green kelp on top No apparent biota Nereidae
Gravel	Brown ✓	Slight ✓	
Sand V C C M F V F	Brown surface	<del>Moderate</del> ✓	
<del>Silt</del> ✓	Gray	<del>Strong</del> ✓	
Clay	<del>Black</del> ✓	Overwhelming	
Organic matter	Other:	Sulfur	
<del>Woody debris</del> 50%		Petroleum	
Shell debris		Other:	
Other:			

(Bank)

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓				Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)				ARI	✓		
Resin / Guai		2 16 oz glass ✓			ARI	✓		
Organotin					ARI			
Ammonia					ARI	✓		
Sulfide		2 oz	1 glass ✓		ARI	✓		
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal		2 16 oz glass ✓			TA	✓		
Hg					TA	✓		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/22/08 RDW

DB QA 6/22/08 RDW

Sample Custodian Signature

Sediment Core Log

Station ID: LPO5

Date: 7/9/09  
 Time: 1002  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: LOG POND  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469388.5  
 Y 5329500.1

Coring Start Time: 1002  
 Water Depth: 8.2 Ft.  
 Core Bottom Depth: 3.0 Ft.  
 Coring Finish Time: 1003  
 Overall Recovery (%): 79

RECOVERED 2.3 FEET OF MATERIAL THAT APPEARS TO  
 BE MOSTLY WOOD WASTE. NO MINERAL SEDIMENT  
 RECOVERED. REFUSAL LIKELY IN GRAVEL/COBBLES AS  
 SEEN IN SNOE AT ATTEMPT #1. CORE ACCEPTABLE  
 FOR PROCESSING.

Sample ID:	Depth Interval:		
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt <input checked="" type="checkbox"/> / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Biota:	None / <u>Kelp</u>	Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar <u>1</u> TOC/Grain size <u>X</u>		
	16 oz glass jar ___ Dioxins/Furans ___		
	16 oz glass jar <u>1</u> SVOCs / resin / TBT / Ammonia <u>X</u>		
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg ___		
	4 oz glass jar <u>1</u> Sulfide / Other: ___ <u>X</u>		
	core Radioisotope Dating ___		
Sample ID: _____	Depth Interval: _____ in. to _____ in.		
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Biota:	None	Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size ___		
	16 oz glass jar ___ Dioxins/Furans ___		
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia ___		
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg ___		
	4 oz glass jar ___ Sulfide / Other: ___		
	core Radioisotope Dating ___		
Sample ID: _____	Depth Interval: _____ in. to _____ in.		
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Biota:	None	Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size ___		
	16 oz glass jar ___ Dioxins/Furans ___		
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia ___		
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg ___		
	4 oz glass jar ___ Sulfide / Other: ___		
	core Radioisotope Dating ___		
Sample ID: _____	Depth Interval: _____ in. to _____ in.		
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:		
Biota:	None	Immediate Analysis	Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size ___		
	16 oz glass jar ___ Dioxins/Furans ___		
	16 oz glass jar ___ SVOCs / resin / TBT / Ammonia ___		
	16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg ___		
	4 oz glass jar ___ Sulfide / Other: ___		
	core Radioisotope Dating ___		

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
0 6"	1	No sample	(0"-6") - Dark brown sand, completely saturated silt		
	2		with wood material, shell on water, kelp, sulfide odor		wood chips (cm) and natural detritus
	3				
	4				
	5				
	6				
6 12"	7	LPO5B	(6"-12") Dark brown wood material, some silt but mostly wood material, sulfide odor, some kelp, petroleum odor, petroleum shell		Wood chips (cm - 2 inches) and natural detritus
	8				
	9				
	10				
	11				
1 21"	12	No sample	(12"-21") same as above		
	13				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
2	23				
	24				
	25				
	26				
	27				
	28				
	29				
	30				
	31				
	32				
3	33				
	34				
	35				
	36				
	37				
	38				
	39				
	40				
4	41				
	42				
	43				
	44				
	45				
	46				
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	48				
5	49				
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	58				
	59				
	60				

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/17/08 ✓

**Sample ID:** MADIA ✓

**Time:** 1527 ✓

**Area of Concern:** Marina

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** Carolyn Durr - Pete, Jen

**Bottom depth (ft):** 21.8 ft ✓ **Penetration depth (cm):** ~~15~~ 20 cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Compact silty/sand No apparent biota
Gravel	Brown	Slight	
Sand V C C M (F) V F	Brown surface	Moderate	
Silt	Gray surface	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
(A) Dioxin/Furan	1	16 oz Amber			Axys		(X)	
(X) Grain size/TOC		1 16 oz Amber			ARI	(X)	(X)	
(A) SVOCs	1 (2 if arch)	16 oz Amber			ARI		(X)	
(A) Resin / Guai		16 oz Amber			ARI		(X)	
(X) Organotin		16 oz glass			ARI	(X)		
(X) Ammonia					ARI	(X)		
(X) Sulfide		2 oz Glass w/ Zn Ac			ARI	(X)		
Pesticide	1 (2 if arch)				TA			
(A) PCB		16 oz glass w/ metals			TA		(X)	
TPH					TA			
(A) Metal		16 oz glass w/ metals			TA		(X)	
(X) Hg		4 oz Glass			TA	(X)		
(X) Bioassay		1 Bag	1		NF	(X)		

**Sampler Signatures**

[Signature] 6/19/08 RDW

DB QA 6/20/08 RDW

**Sample Custodian Signature**

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

2 grabfuls

Date: 6/13/08

Sample ID: MAD2A

MAD2A

Time: 10:50/2:41:50

Area of Concern: Manna

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Catalpa Dow - Jen, Pete 1st and

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 16/16

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Some shell frags Sheen
Gravel	<u>light brown surface</u>	Slight	
Sand V C C M F V F	Brown surface	<u>Moderate</u>	
<u>Silt</u>	Gray	<u>Strong</u> H <sub>2</sub> S	
Clay	<u>Black</u> 1mm below surface	Overwhelming	
Organic matter	Other: <u>Greenish tint</u>	Sulfur	
<u>Woody debris</u> 80%		Petroleum	
Shell debris		Other:	

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16oz Amber			Axys			
Grain size/TOC		1 16oz Poly			ARI			
SVOCs	1 (2 if arch)	16oz Glass			ARI			
Resin / Guai					ARI			
Organotin		16oz Glass			ARI	X		
Ammonia					ARI	X		
Sulfide		2oz Glass w/ ZnAc			ARI	X		
Pesticide	1 (2 if arch)				TA			
PCB		16oz Glass w/ Metals			TA			
TPH		16oz Glass w/ Hg			TA			
Metal		16oz Glass w/ PCB			TA			
Hg		16oz Glass w/ TPH			TA			
Bioassay		1 Bag		1	NF			

- (A)
- (X)
- (A)
- (A)
- (X)
- (X)
- (X)
- (A)
- (X)
- (A)
- (X)
- (X)

Bioassay only logged in 6/13/08

Sampler Signatures

[Signature] 6/16/08 RDW

DB QA 6/16/08

Sample Custodian Signature

# Sediment Core Log

Station ID: MA 02

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: Marina Area  
 GPS Time: 1312  
 Location (UTM Zone 10, NAD 83 meters): X 466506  
 Y 5330537

Date: 6-11-08 ✓  
 Time: 1321  
 Boat: NWACC Wolf Eel  
 Core Collection Method: Vibracore  
 Sample Team: E. White, J. Schmitz, S. Pathy

Coring Start Time: 1321  
 Water Depth: 43.5 Ft.  
 Core Bottom Depth: 6 Ft.  
 Coring Finish Time: 1330  
 Overall Recovery (%): 100%

Note: had to reposition further east. Target near marina boat channel; could not put anchor in channel, so relocated position. Refusal encountered at 6' sediment depth due to clay.

Sample ID: MA02B ✓ Depth Interval: 6 in. to 12 in. ✓

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / <u>Brown</u> / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / <u>Strong</u> / Overwhelming / Sulfur / Petroleum / Other: <u>TIME = 1359</u>
Biota:	Immediate Analysis Archive for Later Analysis
Samples Collected:	16 oz poly jar <u>✓</u> TOC/Grain size <u>✓</u> <u>16oz Poly</u> 16 oz glass jar <u>✓</u> Dioxins/Furans <u>✓</u> <u>16oz Amber</u> 16 oz glass jar <u>✓</u> SVOCs / resin / TBT / Ammonia <u>✓</u> <u>16oz Glass</u> 16 oz glass jar <u>✓</u> Pest / PCBs / TPH / Metals / Hg <u>✓</u> <u>16oz Glass</u> 4 oz glass jar ___ Sulfide / Other: ___ core Radioisotope Dating ___

Sample ID: MA02C ✓ Depth Interval: 12 in. to 24 in. ✓

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / <u>Brown</u> / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / <u>Moderate</u> / Strong / Overwhelming / Sulfur / Petroleum / Other: <u>TIME = 1359</u>
Biota:	Immediate Analysis Archive for Later Analysis
Samples Collected:	16 oz poly jar <u>✓</u> TOC/Grain size <u>✓</u> <u>16oz Amber Poly</u> 16 oz glass jar <u>✓</u> Dioxins/Furans <u>✓</u> <u>16oz Amber</u> 16 oz glass jar <u>✓</u> SVOCs / resin / TBT / Ammonia <u>✓</u> <u>16oz Glass</u> 16 oz glass jar <u>✓</u> Pest / PCBs / TPH / Metals / Hg <u>✓</u> <u>16oz Glass</u> 4 oz glass jar ___ Sulfide / Other: ___ core Radioisotope Dating ___

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___
Biota:	Immediate Analysis Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size ___ 16 oz glass jar ___ Dioxins/Furans ___ 16 oz glass jar ___ SVOCs / resin / TBT / Ammonia ___ 16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg ___ 4 oz glass jar ___ Sulfide / Other: ___ core Radioisotope Dating ___

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (V C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: ___
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: ___
Biota:	Immediate Analysis Archive for Later Analysis
Samples Collected:	16 oz poly jar ___ TOC/Grain size ___ 16 oz glass jar ___ Dioxins/Furans ___ 16 oz glass jar ___ SVOCs / resin / TBT / Ammonia ___ 16 oz glass jar ___ Pest / PCBs / TPH / Metals / Hg ___ 4 oz glass jar ___ Sulfide / Other: ___ core Radioisotope Dating ___

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other <u>yellow</u> Teredos infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
	1		Strong sulfur odor <del>Dark</del> Greyish brown silt	40-70% wood - black bark, yellow & brown chips, light to heavy degradation, up to 1 1/2" length Red bark also present no teredos
	2			
	3			
	4			
	5			
	6	MA-02-B		
	7			
	8			
	9			
	10			
	11			
1	12			
	13		Clayey silt Greyish brown in colour	less than 10% wood content, no teredos
	14			
	15			
	16			
	17	MA-02C		
	18			
	19			
	20			
	21			
	22			
	23			
2	24			
	25		Greyish brown silt Not consolidated in core (spread to 4 ft of core length apparently during core process Small amounts of shell fragments No smell	very limited amounts of natural-looking wood debris, no teredos
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
3	36			
	37			
	38			
	39			
	40			
	41			
	42			
	43			
	44			
	45			
	46			
	47			
4	48			
	49		Clay with some silt with shell fragments Shell is variable in size to 3 inches in length. Dark greyish brown. No odour Clay content increases with depth. Gravel up to 3/4 inch - subrounded decreasing shell & wood with depth.	Natural appearing wood in small amounts - dark brown to light brown - moderately high degradation no teredos
	50			
	51			
	52			
	53			
	54			
	55			
	56			
	57			
	58			
	59			
5	60			



Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
6	61			
	62			
	63			
	64			
	65			
	66			
	67			
	68			
	69			
	70			
	71			
7	72			
	73			
	74			
	75			
	76			
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	81			
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9	94			
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	10	104		
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120				

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/13/08

Sample ID: MA03A

Time: 10:01

Area of Concern: Marina

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y +55

Boat/Sampling Team: Coclyn Dow

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 26cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive surface</u>	None	3mm RPD Spio chaetopterus Pandora phelosa Spionidae tubes Perapriospio penicillata
Gravel	Brown	Slight <u>None?</u>	
Sand V C M F VF	Brown surface	Moderate	
<u>Silt</u>	<u>Gray</u>	Strong	
Clay	<u>Black</u> beneath surface	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16 oz Amber			Axys		<input checked="" type="checkbox"/>	
Grain size/TOC		1 16 oz Poly			ARI	<input checked="" type="checkbox"/>		
SVOCs	1 (2 if arch)	16 oz Glass			ARI		<input checked="" type="checkbox"/>	
Resin / Guai					ARI		<input checked="" type="checkbox"/>	
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA			
PCB		16 oz Glass w/ Metals			TA		<input checked="" type="checkbox"/>	
TPH					TA			
Metal		16 oz Glass w/ RB			TA		<input checked="" type="checkbox"/>	
Hg		2 oz Glass			TA	<input checked="" type="checkbox"/>		
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/15/08 RDW

RDW-DB QA 6/15/08

Sample Custodian Signature

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6/12/08

Sample ID: MA04A

Time: 16:47

Area of Concern: Manna

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Captlyn Dow

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 2 ft

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Lots of wood ✓
Gravel	Brown	Slight	
Sand V C C M F V F	Brown surface	Moderate	
<u>Silt</u> ✓	Gray	<u>Strong</u> ✓	
Clay	<u>Black</u> ✓	Overwhelming	
Organic matter	Other:	Sulfur	
<u>Woody debris</u> 90% ✓		Petroleum	
Shell debris		Other:	
Other:			

	Analyses					Sample Containers		
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
<u>A</u> Dioxin/Furan	1	16oz Amber ✓			Axys		<u>X</u>	
<u>X</u> Grain size/TOC		1/16oz Poly ✓			ARI	<u>X</u>		
<u>A</u> SVOCs	1 (2 if arch)	2 16oz Glass ✓			ARI		<u>X</u>	
<u>A</u> Resin / Guai					ARI		<u>X</u>	
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA			
<u>A</u> PCB		16oz Glass w/ Metals ✓			TA		<u>X</u>	
TPH					TA			
<u>A</u> Metal		16oz Glass w/ PCBs ✓			TA		<u>X</u>	
<u>X</u> Hg		4oz Glass ✓			TA	<u>X</u>		
Bioassay				1	NF			

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/13/08 ✓✓

Sample ID: MA05A ✓✓

Time: 09:08 ✓✓

Area of Concern: Martha

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Caslyn Dow - Jen/Pete

Bottom depth (ft): _____		Penetration depth (cm): <u>26cm</u> ✓	
<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>
Cobble	<u>Drab olive surface</u>	<u>None</u> <del>B</del>	3mm RFD Spionidae tubes Mitrella * <u>NO</u> obvious worms in sediment!
Gravel	<u>Brown</u> ✓	<u>Slight</u> ✓	
Sand V C C M F V F	<u>Brown surface</u>	Moderate	
<u>Silt</u> ✓	<u>Gray</u>	Strong	
Clay	<u>Black</u> <u>under surface</u>	Overwhelming	
Organic matter	<u>Other:</u>	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:		<u>Type?</u>	

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	<u>16 oz Amber</u> ✓			Axys		<input checked="" type="checkbox"/>	
Grain size/TOC		<u>1 16 oz Poly</u> ✓			ARI	<input checked="" type="checkbox"/>		
SVOCs	1 (2 if arch)	<u>16 oz Glass</u> ✓			ARI		<input checked="" type="checkbox"/>	
Resin / Guai					ARI		<input checked="" type="checkbox"/>	
Organotin					ARI			
Ammonia		<u>4 oz Glass</u> ✓			ARI	<input checked="" type="checkbox"/>		
Sulfide		<u>2 oz Glass w/ ZnAc</u> ✓			ARI	<input checked="" type="checkbox"/>		
Pesticide	1 (2 if arch)				TA			
PCB		<u>16 oz Glass w/ Metals</u> ✓			TA		<input checked="" type="checkbox"/>	
TPH					TA			
Metal		<u>16 oz Glass w/ PCB</u> ✓			TA		<input checked="" type="checkbox"/>	
Hg		<u>2 oz Glass</u> ✓			TA	<input checked="" type="checkbox"/>		
Bioassay		<u>1 Bag</u> ✓	1		NF	<input checked="" type="checkbox"/>		

- A
- X
- A
- A
- X
- X
- A
- X
- X

Bioassay only - logged in 6/13/08 RDW

Sampler Signatures  
[Signature] RDW 6/15/08  
Sample Custodian Signature

DB QA 6/15/08 RDW

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6-11-08 ✓

**Sample ID:** MA06A ✓

**Time:** 1324 1356 ✓

**Area of Concern:** Marina Area

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

RPD: 1cm

**Boat/Sampling Team:** \_\_\_\_\_

Bottom depth (ft): 74.4		Penetration depth (cm): 23					
<b>Sediment type:</b>		<b>Sediment color:</b>					
Cobble		Drab olive					
Gravel		Brown					
Sand V C C M F V F		Brown surface					
Silt		Gray					
Clay		Black					
Organic matter		Other:					
Woody debris							
Shell debris							
Other:							
<b>Sediment Odor:</b>		<b>Comments:</b>					
None		D.O trans dark grey @ 10cm, degraded wood frag present					
Slight		mittellasp., maldanidae					
Moderate		spionidae tubes?, bark present (4" long) + (3")					
Strong		wood is 5% of sample					
Overwhelming							
Sulfur							
Petroleum							
Other:							
<b>Analyses</b>		<b>Sample Containers</b>					
	16 oz glass jar	16 oz poly	4 oz jar				
			Plastic bag				
			Lab				
			Immediate Analysis				
			Archive				
			MS/MSD				
A ⊗	Dioxin/Furan	1	16 oz Amber jar ✓	Axys			
A ⊗	Grain size/TOC		1 16 oz Poly jar ✓	ARI			
A ⊗	SVOCs	1 (2 if arch)	2 16 oz Glass jars ✓	ARI			
⊗	Resin / Guai			ARI			
⊗	Organotin			ARI			
⊗	Ammonia		16 oz Glass w/ SVOC Res	ARI			
⊗	Sulfide		4 oz ✓	ARI			
A! X	Pesticide	1 (2 if arch)		TA			
	PCB		16 oz glass w/ Metal, Hg	TA			
	TPH			TA			
A! X	Metal		2 16 oz Glass w/ PCB	TA			
⊗	Hg			TA			
⊗	Bioassay		1 Bag	1	NF		

*Corey Fink*  
 Sampler Signatures

Sample Custodian Signature

TIME = 1356

# Sediment Core Log

Station ID: MA06

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: MARINA  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X  
Y

Date: 7/25/08  
 Time: 1505  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: DIVER PISTON CORE  
 Sample Team: LONGTINE, PARKER

Coring Start Time: 1505  
 Water Depth: 77 Ft.  
 Core Bottom Depth: \_\_\_\_\_ Ft.  
 Coring Finish Time: 1520  
 Overall Recovery (%): \_\_\_\_\_

34" PENETRATION. 31" RECOVERY. UPON RETRIEVAL CORE APPEARS IN GOOD SHAPE. DIVER (PARKER) REPORTED THAT PENETRATION BECAME MORE DIFFICULT WITH DEPTH, BUT DID NOT MEET REFUSAL.

Sample ID: <u>MAD01</u>	Depth Interval: <u>0</u> in. to <u>25</u> in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt <input checked="" type="checkbox"/> / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___	
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: <u>1 worm</u>	Immediate Analysis                      Archive for Later Analysis
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating <input checked="" type="checkbox"/>
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis                      Archive for Later Analysis
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis                      Archive for Later Analysis
Samples Collected:	
16 oz poly jar _____	TOC/Grain size _____
16 oz glass jar _____	Dioxins/Furans _____
16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____
16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____
4 oz glass jar _____	Sulfide / Other: _____
core _____	Radioisotope Dating _____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
1	0"	MA06 Radioisotope Sample @ (100%) 2 (cont.)	(0"-6") Brown silt, some organic detritus, some shell fragments, trace	No odor	No wood material
	1				
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
2	12		black material definitely appears to be of organic origin		
	13		(6"-12") Brown silt, trace shell fragments, pocket of black material (organic?)		
	14		No odor, No wood material		
	15		No signs of anthropogenic influence		
	16		black material		
	17				
	18		(18"-25") Brown silt, many shell fragments (was difficult to cut through due to shells)		
	19		No odor, No wood fragments		
	20				
	21				
	22				
	23				
3	24				
	25				
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
4	36				
	37				
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
5	48				
	49				
	50				
	51				
	52				
	53				
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	57				
	58				
	59				
60					

# Sediment Core Log

Station ID: MD01

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: MILL DOCK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469583.4  
 Y 5329597.1

Date: 7/17/08  
 Time: 1130  
 Boat: RSS OROLYN DOW  
 Core Collection Method: VIBRA-CORE  
 Sample Team: LONGTINE

Coring Start Time: 1130  
 Water Depth: 20.3 Ft.  
 Core Bottom Depth: \_\_\_\_\_ Ft.  
 Coring Finish Time: 1131  
 Overall Recovery (%): \_\_\_\_\_

UPON RETRIEVAL OF VIBRA-CORE, OBSERVED THAT BARREL AND SHOE ARE COMPLETELY EMPTY. APPARENTLY CORE ASSEMBLY LAYED OVER ON SIDE. SUSPECT DUE TO COARSE MATERIAL (GRAVEL). ATTEMPT AGAIN.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NO SAMPLES NO RECOVERY

NOTES:



# Sediment Core Log

Station ID: ML 71704  
MDO2 MDO1  
 Date: 7/17/09  
 Time: 1145  
 Boat: RSS CAROLYN DOW  
 Core Collection Method: VIBRACORE  
 Sample Team: LONGTINE

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide K Rayonier  
 Area of Concern: MILL DECK  
 GPS Time: 1145  
 Location (UTM Zone 10, NAD 83 meters): X 469581.4  
 Y 5329498.1

Coring Start Time: 1145  
 Water Depth: 20.3 Ft.  
 Core Bottom Depth:      Ft.  
 Coring Finish Time: 1146  
 Overall Recovery (%):     

*CORE LAYED OVER AGAIN (SEE ATTEMPT 1) APPARENTLY, BASED ON OBSERVATIONS OF WINCH LINE DURING LOWERING, AND ON LACK OF RECOVERY (MINOR AMOUNT OF ROCK WITH SAND AND FINES ROCK TO 3" IN SHOE). GRAVELLY/COBBLY CONDITIONS. MAKE A 2ND ATTEMPT AFTER REPOSITION BOAT*

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis	Archive for Later Analysis
Samples Collected:			
16 oz poly jar	_____	TOC/Grain size	_____
16 oz glass jar	_____	Dioxins/Furans	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____

*NO SAMPLES  
CORE RETRIEVED*

NOTES:

Project: Port Angeles Harbor Sediment

Grab Sediment Sample Log

Characterization Study

Date: 6/22/08 ✓✓

Sample ID: MDOLA ✓✓

Time: 1542 ✓✓

Area of Concern: MILL DOCK

Location Data Harbor-Wide/Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow, Pete, Jan

Bottom depth (ft): 22.5 ft ✓ Penetration depth (cm): 23 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	1 cm RAD Macoma sp. Lumbricidae Poreaus sp. Callianacids
Gravel	Brown	Slight	
<u>Sand</u> V C C M F V F	<u>Brown surface</u>	Moderate	
<u>Silt</u>	<u>Gray</u>	Strong	
Clay	<u>Black</u> below surface	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

80%

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓				Axys	(X) ✓		
Grain size/TOC		1 ✓			ARI	(X) ✓		
SVOCs	1 (2 if arch)				ARI	(X) ✓		
Resin / Guai					ARI	(X) ✓		
<del>Organotin</del>					ARI			
Ammonia					ARI	(X) ✓		
Sulfide		2 oz	1 glass ✓		ARI	(X) ✓	6/21/08	
Pesticide	1 (2 if arch)				TA			
PCB					TA	(X) ✓		
TPH					TA	(X) ✓		
Metal					TA	(X) ✓		
Hg					TA	(X) ✓		
Bioassay				1 ✓	NF	(X) ✓		

Sampler Signatures

[Signature] 6/22/08 RDW

DB QA 6/22/08 RDW

Sample Custodian Signature

# Sediment Core Log

ATTEMPT No 3

Station ID: MDO2 MDO1<sup>MC</sup> 7/17/08

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide Rayonier  
 Area of Concern: MILL DOCK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 469578.1  
 Y 5329604.1

Date: 7/17/08  
 Time: 1200  
 Boat: KSS CAROLYN DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 1200  
 Water Depth: 21.0 Ft.  
 Core Bottom Depth: 3.0 Ft.  
 Coring Finish Time: 1201  
 Overall Recovery (%): 86%

30.5" RECOVERY. FORTHIS ATTEMPT ADVANCED  
 EVEN MORE SLOWLY THAN ON PREVIOUS TWO ATTEMPTS.  
 REFUSAL AT 3.0 FT BELOW MUDLINE TO ATTEMPT  
 TO WORK CORE INTO GRAVEL.  
 CORE ACCEPTABLE BASED ON INSPECTION IN LINER.

Sample ID: <u>MDO1B</u>		Depth Interval: <u>6 in. to 12 in.</u>	
Sediment Type (%): Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand (V C M F VF) <input checked="" type="checkbox"/> Silt <input checked="" type="checkbox"/> Clay <input type="checkbox"/> Organic mtrl <input type="checkbox"/> Woody debris <input type="checkbox"/> Shell debris <input type="checkbox"/> Other: _____			
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: <u>Kelp</u>		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar <u>1</u>	TOC/Grain size	<u>X</u>
	16 oz glass jar <u>1</u>	Dioxins/Furans	<u>X</u>
	16 oz glass jar <u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>
	16 oz glass jar <u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>
	4 oz glass jar <u>1</u>	Sulfide / Other: _____	<u>X</u>
	core	Radioisotope Dating	_____
Sample ID: <u>MDO1C</u>		Depth Interval: <u>12 in. to 24 in.</u>	
Sediment Type (%): Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand (V C M F VF) <input checked="" type="checkbox"/> Silt <input checked="" type="checkbox"/> Clay <input type="checkbox"/> Organic mtrl <input type="checkbox"/> Woody debris <input type="checkbox"/> Shell debris <input type="checkbox"/> Other: _____			
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / <u>Gray</u> / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar <u>1</u>	TOC/Grain size	<u>X</u>
	16 oz glass jar <u>1</u>	Dioxins/Furans	<u>X</u>
	16 oz glass jar <u>1</u>	SVOCs / resin / TBT / Ammonia	<u>X</u>
	16 oz glass jar <u>1</u>	Pest / PCBs / TPH / Metals / Hg	<u>X</u>
	4 oz glass jar <u>1</u>	Sulfide / Other: _____	<u>X</u>
	core	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand (V C M F VF) <input type="checkbox"/> Silt <input type="checkbox"/> Clay <input type="checkbox"/> Organic mtrl <input type="checkbox"/> Woody debris <input type="checkbox"/> Shell debris <input type="checkbox"/> Other: _____			
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand (V C M F VF) <input type="checkbox"/> Silt <input type="checkbox"/> Clay <input type="checkbox"/> Organic mtrl <input type="checkbox"/> Woody debris <input type="checkbox"/> Shell debris <input type="checkbox"/> Other: _____			
Sediment Color: <u>Drab olive / Brown</u> / Brown surface / Gray / Black / Other: _____			
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota:		Immediate Analysis	
Archive for Later Analysis			
Samples Collected:	16 oz poly jar _____	TOC/Grain size	_____
	16 oz glass jar _____	Dioxins/Furans	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core	Radioisotope Dating	_____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0" - 6"	1	No sample	(0"-6") Dark brown silt with some sand,	Trace natural detritus ↓
	2			
	3	(0"-6")	trace natural detritus,	
	4		some small and large gravel, no odor	
	5			
	6			
6" - 12"	7	MDO1B	(6"-12") Dark brown sandy silt with large and small gravel, large and small cobbles	No wood material ↓
	8	(6"-12")		
	9			
	10			
	11			
	12			
12" - 24"	13	MDO1C	(12"-24") Grey silty sand with large and small gravel and large and small cobble	No wood material ↓
	14	(12"-24")		
	15			
	16			
	17			
	18			
	19			
	20			
	21			
	22			
	23			
	24			
24" - 26"	25	No sample	Same as above	No wood material
	26			
	27			
	28			
	29	(24"-26")		
	30			
	31			
	32			
	33			
	34			
35				
3 4 5	36			
	37			
	38			
	39			
	40			
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	59			
	60			

# Sediment Core Log

Station ID: MDO2

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: MIX DUCK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X 460970  
 Y 5329870.6

Date: 7/17/08  
 Time: 0840  
 Boat: ESS OREGON DOW  
 Core Collection Method: VIBROCORE  
 Sample Team: LONGTINE

Coring Start Time: 0840  
 Water Depth: 22.6 Ft.  
 Core Bottom Depth: 4.8 Ft.  
 Coring Finish Time: 0841  
 Overall Recovery (%): < 25%

RECOVERED EST. 15" OF MIXED WOOD WASTE (CHIPS, STRANDS, PULP) AND SILT AND SAND. GRAYISH BROWN. SULFUR ODOR. INSUFFICIENT RECOVERY. REJECT CORE, ATTEMPT AGAIN.

Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____			
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____			
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____			
Biota: _____		Immediate Analysis _____	
Archive for Later Analysis _____			
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NO SAMPLES RECOVERED

NOTES:

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/21/08 ✓

Sample ID: MD02A ✓

Time: 1714 ✓

Area of Concern: Mill Dock

Location Data Harbor-Wide (Rayonier) GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Pete, Ten

Bottom depth (ft): 30.9 ft ✓ Penetration depth (cm): 30 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	no visible RPD amphipods (on kelp) Gunnel
Gravel	Brown ✓	Slight ✓	
Sand V C C M F V F	Brown surface	Moderate ✓	
<u>Silt</u> ✓	Gray surface	Strong	
Clay	Black underneath	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber ✓				Axys	(X) ✓		
Grain size/TOC		1 ✓			ARI	(X) ✓		
SVOCs	1 (2 if arch)				ARI	(X) ✓		
Resin / Guai					ARI	(X) ✓		
Organotin			16 oz glass ✓			ARI		
Ammonia					ARI	(X) ✓		
Sulfide		2 oz	1 glass ✓		ARI	(X) ✓	w/2.0 Ac	
Pesticide	1 (2 if arch)				TA			
PCB					TA	(X) ✓		
TPH			16 oz glass ✓			TA	(X) ✓	
Metal						TA	(X) ✓	
Hg						TA	(X) ✓	
Bioassay				1 ✓	NF	(X) ✓		

Sampler Signatures

[Signature] 6/22/08 RDW

DB QA 6/22/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: MDO2

Project: Port Harbor Sediment Characterization Study

Date: 7/17/08

Location Data: Harbor-wide / Rayonier

Time: 0920

Area of Concern: MILL DOCK

Boat: RSS CAROLYN DOW

GPS Time: \_\_\_\_\_

Core Collection Method: VIBROCORE

Location (UTM Zone 10, NAD 83 meters): X 469513.1  
Y 5329669.7

Sample Team: LOUJINE

Coring Start Time: 0920  
Water Depth: 23.1 Ft.  
Core Bottom Depth: 8.1 Ft.  
Coring Finish Time: 0922  
Overall Recovery (%): 79%

0935 UPON VISUAL OBSERVATION OF CORE MATERIAL THROUGH POLYCARBONATE LINER AND INSPECTION OF MATERIAL IN CUTTING SHOE (SILTY SAND WITH SOME)

Sample ID: <u>MDO2B</u>	Depth Interval: <u>12 in. to 24 in.</u>
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) <u>X</u> / Silt <u>X</u> / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: <u>Dark</u>	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: <u>Sulfur</u>	
Biota: _____	Immediate Analysis      Archive for Later Analysis
Samples Collected: 16 oz poly jar <u>1</u> TOC/Grain size <u>X</u>	
16 oz glass jar <u>1</u> Dioxins/Furans <u>X</u>	
16 oz glass jar <u>1</u> SVOCs / resin / TBT / Ammonia <u>X</u>	
16 oz glass jar <u>1</u> Pest / PCBs / TPH / Metals / Hg <u>X</u>	
4 oz glass jar <u>1</u> Sulfide / Other: _____ <u>X</u>	
core _____      Radioisotope Dating _____	
Sample ID: <u>MDO2C</u>	Depth Interval: <u>48 in. to 60 in.</u>
Sediment Type (%): Cobble <u>X</u> / Gravel <u>X</u> / Sand (VC C M F VF) <u>X</u> / Silt <u>X</u> / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris <u>X</u> / Other: ___	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: <u>Gray</u>	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis      Archive for Later Analysis
Samples Collected: 16 oz poly jar <u>1</u> TOC/Grain size <u>X</u>	
16 oz glass jar <u>1</u> Dioxins/Furans <u>X</u>	
16 oz glass jar <u>1</u> SVOCs / resin / TBT / Ammonia <u>X</u>	
16 oz glass jar <u>1</u> Pest / PCBs / TPH / Metals / Hg <u>X</u>	
4 oz glass jar <u>1</u> Sulfide / Other: _____ <u>X</u>	
core _____      Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis      Archive for Later Analysis
Samples Collected: 16 oz poly jar _____      TOC/Grain size _____	
16 oz glass jar _____      Dioxins/Furans _____	
16 oz glass jar _____      SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____      Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____      Sulfide / Other: _____	
core _____      Radioisotope Dating _____	
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____	Immediate Analysis      Archive for Later Analysis
Samples Collected: 16 oz poly jar _____      TOC/Grain size _____	
16 oz glass jar _____      Dioxins/Furans _____	
16 oz glass jar _____      SVOCs / resin / TBT / Ammonia _____	
16 oz glass jar _____      Pest / PCBs / TPH / Metals / Hg _____	
4 oz glass jar _____      Sulfide / Other: _____	
core _____      Radioisotope Dating _____	

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
0" - 6"	1	(0"-6")	(0"-6") Dark brown	some natural detritus, some wood chips ranging from cm to ~1" colors are mostly brown and black, teredos infestation present	some natural detritus, some wood chips ranging from cm to ~1" colors are mostly brown and black, teredos infestation present
	2	(No sample)	Silt, <i>Callinectes</i> (alive), slight sulfur odor, shell fragments (bivalve), kelp, some small gravel		
	3				
	4				
	5				
	6				
6" - 12"	7	(6"-12")	(6"-12") - Dark brown	some natural detritus, some wood chips colors of wood chips are tan, brown, black and trace red, some teredos present	some natural detritus, some wood chips colors of wood chips are tan, brown, black and trace red, some teredos present
	8	(No sample)	Silt, some small gravel, slight sulfur odor		
	9				
	10				
	11				
	12				
12" - 24"	13	MDO-25	(12"-24") - Dark brown/black silt with trace sand, moderate H <sub>2</sub> S odor may have a petroleum odor contributing	Highly degraded wood chips with moderate H <sub>2</sub> S odor and may have some petroleum impacted wood, colors are mostly tan and brown, no evidence of teredos infestation	Highly degraded wood chips with moderate H <sub>2</sub> S odor and may have some petroleum impacted wood, colors are mostly tan and brown, no evidence of teredos infestation
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
	24				
24" - 36"	25	(24"-36")	Dark brown/black wood material, <del>with</del> small amount of mineral sediment is silt	Wood material is very degraded wood chips with a strong H <sub>2</sub> S and maybe petroleum odor.	Wood material is very degraded wood chips with a strong H <sub>2</sub> S and maybe petroleum odor.
	26	(No sample)	Strong H <sub>2</sub> S odor with petroleum impactation possible, no natural detritus, only wood material in this interval.		
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
36" - 48"	37	(36"-48")	(36"-48") - Same as above	Interval appears to be mostly wood material	Interval appears to be mostly wood material
	38	(No sample)	(36"-48") - Same as above		
	39	(36"-48")	(42"-48") - Grey silty sand with large and small gravel, and some small and large cobbles, trace shell fragments, no wood material		
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
	48				
48" - 60"	49	MDO-2C	(48"-60") - Same as above	No wood material	No wood material
	50	(No sample)	(48"-60") - Same as above		
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
	60				



Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
60" - 72"	61	No sample	(60"-72") - same as above	Same as above
	62			
	63			
	64			
	65			
	66			
	67			
	68			
	69			
	70			
	71			
	72			
6	73			
74				
75				
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78				
79				
80				
81				
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7	84			
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93				
94				
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8	96			
97				
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107				
9	108			
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110				
111				
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113				
114				
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116				
117				
118				
119				
10	120			

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/21/08 ✓✓

**Sample ID:** M003A ✓✓

**Time:** 1608 ✓✓

**Area of Concern:** Mill Dock

**Location Data** Harbor-Wide/ Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** Carolyn Dow - Pete, Ter

Bottom depth (ft): 34.7A ✓ Penetration depth (cm): 22cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive surface ✓	None	Uboegobia sp. Algae (floating on top) Spirochaetopsis tubes Amphipods (on kelp)
Gravel	Brown	Slight ✓	
Sand V C C M F V F	Brown surface	Moderate ✓	
Silt ✓	Gray ✓	Strong	
Clay	Black ✓	Overwhelming	
Organic matter	Other:	Sulfur ✓	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers				Lab	Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag				
Dioxin/Furan	1	Amber ✓			Axys	✓		
Grain size/TOC		1 ✓			ARI	✓		
SVOCs	1 (2 if arch)				ARI	✓		
Resin / Guai		16oz glass ✓			ARI	✓		
Organotin					ARI			
Ammonia					ARI	✓		
Sulfide		2oz	16oz glass ✓		ARI	✓	✓	WZ.M.A.R.
Pesticide	1 (2 if arch)				TA			
PCB					TA	✓		
TPH		16oz glass ✓			TA	✓		
Metal					TA	✓		
Hg					TA	✓		
Bioassay				1 ✓	NF	✓		

**Sampler Signatures**

*[Signature]* 6/22/08 RDW DB DA 6/22/08 RDW

**Sample Custodian Signature**

Sediment Core Log

Station ID: MDO3

Project: Port Angeles Harbor Sediment Characterization Study

Date: 6-17-08

Location Data: Harbor-wide / Rayonier

Time: 1254

Area of Concern: Rayonier MILL DOCK

Boat: Salvador I (NWUC)

GPS Time: 1253

Core Collection Method: Vibracore

Location (UTM Zone 10, NAD 83 meters): X 5329773.74  
Y 469604.58

Sample Team: M LONGTINE S PEURNEY C FUNK

Coring Start Time: 1254  
Water Depth: 30' 4" Ft. ✓  
Core Bottom Depth: 10 Ft.  
Coring Finish Time: 1254  
Overall Recovery (%): 100 + % (SEE BELOW)

Refusal @ 4' 2"  
- Using recovery based on where we hit refusal it appears we have ~~close~~ close to 100% recovery (excluding empty 4" of sleeve) of penetrated - recovered. See below for

Note: using 12' barrel (aluminum)

Sample ID: SEG 2nd ATTEMPT LOG Depth Interval: in to in

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected: 16 oz poly jar \_\_\_ TOC/Grain size \_\_\_  
 16 oz glass jar \_\_\_ Dioxins/Furans \_\_\_  
 16 oz glass jar \_\_\_ SVOCs / resin / TBT / Ammonia \_\_\_  
 16 oz glass jar \_\_\_ Pest / PCBs / TPH / Metals / Hg \_\_\_  
 4 oz glass jar \_\_\_ Sulfide / Other: \_\_\_  
 core Radioisotope Dating \_\_\_

expansion

Sample ID: MDO3 C ✓ Depth Interval: 35 in to 47 in ✓

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: DB QA 6/20/08 RDW

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected: 16 oz poly jar 1 ✓ TOC/Grain size 16oz Poly ✓  
 16 oz glass jar 1 ✓ Dioxins/Furans 16oz Amber ✓  
 16 oz glass jar 1 ✓ SVOCs / resin / TBT / Ammonia 16oz Glass SVOC, Resin, NH3 ✓  
 16 oz glass jar 1 ✓ Pest / PCBs / TPH / Metals / Hg 16oz Glass ✓  
 4 oz glass jar 1 ✓ Sulfide / Other: 4oz Glass w/ Zn Ac ✓  
 core Radioisotope Dating 6/19/08 RDW

recovered

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in to \_\_\_\_\_ in

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected: 16 oz poly jar \_\_\_ TOC/Grain size \_\_\_  
 16 oz glass jar \_\_\_ Dioxins/Furans \_\_\_  
 16 oz glass jar \_\_\_ SVOCs / resin / TBT / Ammonia \_\_\_  
 16 oz glass jar \_\_\_ Pest / PCBs / TPH / Metals / Hg \_\_\_  
 4 oz glass jar \_\_\_ Sulfide / Other: \_\_\_  
 core Radioisotope Dating \_\_\_

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in to \_\_\_\_\_ in

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_

Biota: Immediate Analysis Archive for Later Analysis

Samples Collected: 16 oz poly jar \_\_\_ TOC/Grain size \_\_\_  
 16 oz glass jar \_\_\_ Dioxins/Furans \_\_\_  
 16 oz glass jar \_\_\_ SVOCs / resin / TBT / Ammonia \_\_\_  
 16 oz glass jar \_\_\_ Pest / PCBs / TPH / Metals / Hg \_\_\_  
 4 oz glass jar \_\_\_ Sulfide / Other: \_\_\_  
 core Radioisotope Dating \_\_\_

NOTES: UPON RETRIEVAL OF POLYCARBONATE CORE SLEEVE, OBSERVED 20" OF REVERSED MATERIAL, WHICH IS 20" GREATER THAN OPERATOR - MEASURED SEDIMENT PENETRATION. LIKELY DUE TO VERY SOFT WOOD DEBRIS INTERVAL. THICKNESS OF WOOD DEBRIS INTERVAL IS NOT KNOWN, AND WOOD DEBRIS INTERVAL (0-35" SEE LITHOLOGICAL LOG) IS TOO SOUPY FOR COLLECTION OF ANALYTICAL SAMPLE. THEREFORE, WILL ATTEMPT TO COLLECT CORE AGAIN. COLLECTED SEDIMENT FROM INTERVAL 35" TO 47" FOR POSSIBLE ANALYSIS PENDING RECOVERY AND CONDITION OF 2nd CORE.

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization		
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy	
	1		VERY SOOPY MIX OF DARK GRAYISH BROWN ORGANIC MUCK WITH WOOD DEBRIS AND SILT / CLAY. STRONG SULFUR ODOR. WOOD DEBRIS CONSISTS OF REDDISH DRN BARK AND TAN CHIPS TO 2". SILEN.			
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
1	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
2	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					
	32					
	33					
	34					
	35					
3	36		MIXED GRAVEL, SAND, AND FINES. DARK GRAYISH BROWN OVERALL COLOR. (GRAVEL ROUNDED) TO SUB ROUNDED TO 3". SAND F TO VC. BLACK SOME SILT DEBRIS. STRONG SULFUR ODOR. SOME BARK. REDDISH BROWN WITH TEREDOS TO 3". FINES INCL. SILT AND CLAY.			
	37					
	38					
	39					
	40					
	41					
	42					
	43					
	44					
	45					
	46					
	47					
4	48					
	49					
	50					
	51					
	52					
	53					
	54					
	55					
	56					
	57					
	58					
	59					
5	60					

# Sediment Core Log

Station ID: MDO3 <sup>2nd</sup> ATTEMPT

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide (Rayonier)  
 Area of Concern: MILL DOCK  
 GPS Time: 1420  
 Location (UTM Zone 10, NAD 83 meters): X 469001.24  
 Y 5329778.7

Date: 6/17/08 ✓  
 Time: 1416  
 Boat: NWUWC SWOLPEEL  
 Core Collection Method: VIBRA CORE  
 Sample Team: M LONGTINE C FULL  
S PEUTNEY

Coring Start Time: 1416  
 Water Depth: 31.7 Ft. 1415  
 Core Bottom Depth: 5.0 Ft.  
 Coring Finish Time: 1418  
 Overall Recovery (%): 100+%

78" OF SEDIMENT RECOVERED

Hit refusal @ 5' bss  
 Cutting shoe: pebbles, sediment observed  
 1510 UPON INSPECTION, DETERMINED THIS 2nd ATTEMPT CORE IS ACCEPTABLE FOR B SAMPLE. WOOD DEBRIS INTERVAL (0 TO 66") MATERIAL IS MUCH LESS SOOPY IN GENERAL THAN OBSERVED IN FIRST ATTEMPT CORE. WILL COLLECT "B" SAMPLE FROM THIS CORE AND WILL USE "C" INTERVAL FROM FIRST ATTEMPT CORE.

Sample ID: MDO3 B ✓ 1418 ✓ Depth Interval: 48 in to 60 in ✓

Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:				Immediate Analysis			Archive for Later Analysis		
Samples Collected:	16 oz poly jar	✓	TOC/Grain size	16oz Poly	✓	X			
	16 oz glass jar	✓	Dioxins/Furans	16oz Amber	✓	X			
	16 oz glass jar	✓	SVOCs / resin / TBT / Ammonia	✓	✓	16oz Glass			
	16 oz glass jar	✓	Pest / PCBs / TPH / Metals / Hg	✓	✓	PCB, TPH - 16oz glass			
	4 oz glass jar	✓	Sulfide / Other:	4oz Glass	✓				
	core		Radioisotope Dating						

Sample ID: ~~SEE FIRST ATTEMPT LOG~~ Depth Interval: ~~in to in~~

Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:				Immediate Analysis			Archive for Later Analysis		
Samples Collected:	16 oz poly jar		TOC/Grain size						
	16 oz glass jar		Dioxins/Furans						
	16 oz glass jar		SVOCs / resin / TBT / Ammonia						
	16 oz glass jar		Pest / PCBs / TPH / Metals / Hg						
	4 oz glass jar		Sulfide / Other:						
	core		Radioisotope Dating						

Sample ID: ~~SEE FIRST ATTEMPT LOG~~ Depth Interval: ~~in to in~~

Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:				Immediate Analysis			Archive for Later Analysis		
Samples Collected:	16 oz poly jar		TOC/Grain size						
	16 oz glass jar		Dioxins/Furans						
	16 oz glass jar		SVOCs / resin / TBT / Ammonia						
	16 oz glass jar		Pest / PCBs / TPH / Metals / Hg						
	4 oz glass jar		Sulfide / Other:						
	core		Radioisotope Dating						

Sample ID: ~~SEE FIRST ATTEMPT LOG~~ Depth Interval: ~~in to in~~

Sediment Type (%):	Cobble	/Gravel	/Sand (V C M F VF)	/Silt	/Clay	/Organic mtrl	/Woody debris	/Shell debris	/Other:
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:								
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:								
Biota:				Immediate Analysis			Archive for Later Analysis		
Samples Collected:	16 oz poly jar		TOC/Grain size						
	16 oz glass jar		Dioxins/Furans						
	16 oz glass jar		SVOCs / resin / TBT / Ammonia						
	16 oz glass jar		Pest / PCBs / TPH / Metals / Hg						
	4 oz glass jar		Sulfide / Other:						
	core		Radioisotope Dating						

NOTES:

Samples Received.  
 6/19/08 RDW

DB QA 6/19/08  
 DB QA 6/20/08 RDW

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0 - 21"	1		Very dark brown Silt with large amount of wood chips. Some bark, SOUPY - extremely saturated, kelp present, very slight odor (H <sub>2</sub> S)	40% wood - mainly wood chips, slight odor, only slight degradation
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	1	12		
13				
14				
15				
16				
17				
18				
19				
20				
21				
	22		Very dark brown Sandy	~ 15% wood
2	23			
22" - 35"	24		Silt, small amount wood waste, shell fragments throughout, slight odor	
	25			
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
3	36			
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
4	48			
49				
50				
51				
52				
53				
54				
54" - 78"	55	MDO3B	Very dark brown sandy silt with large amount of wood waste	50% wood waste mostly wood chips - moderate H <sub>2</sub> S odor
	56			
	57			
	58			
	59			
	60			
5	60			

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization		
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy	
54 - 78'	61		and shell varying sizes of gravel some shell fragments kept present, moderate H <sub>2</sub> S odor			
	62					
	63					
	64					
	65					
	66					
	67					
	68					
	69					
	70					
	71					
6	72					
7	73					
	74					
	75					
	76					
	77					
	78					
		79		↓		
		80		↓		
		81		↓		
		82		↓		
		83		↓		
	84		↓			
8	85					
9	86					
	87					
	88					
	89					
	90					
	91					
	92					
	93					
	94					
	95					
		96				
10	97					
	98					
	99					
	100					
	101					
	102					
	103					
	104					
	105					
	106					
		107				
	108					
10	109					
	110					
	111					
	112					
	113					
	114					
	115					
	116					
	117					
	118					
		119				
	120					

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/22/08 ✓✓

Sample ID: MD04A ✓✓

Time: 1459 ✓✓

Area of Concern: Mill Dock

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Daw - Pote, Jan

Bottom depth (ft): <u>32.9 ft</u> ✓		Penetration depth (cm): <u>22cm</u> ✓	
<b>Sediment type:</b> Cobble ✓ Gravel ✓ Sand <u>VCC M FVF</u> Silt <u>90%</u> Clay Organic matter Woody debris Shell debris Other:		<b>Sediment color:</b> <u>Drab olive</u> Brown <u>Brown surface</u> Gray <u>below surface</u> Black <u>below surface</u> Other: ✓	
<b>Sediment Odor:</b> <u>None</u> Slight ✓ Moderate Strong Overwhelming Sulfur Petroleum Other:		<b>Comments:</b> 1cm RPD Phylochaetopten's Spirochaetopten's Maldanidae Prionospio sp.	
<b>Analyses</b>		<b>Sample Containers</b>	
	<b>16 oz glass jar</b>	<b>16 oz poly</b>	<b>4 oz jar</b>
	<b>Plastic bag</b>	<b>Lab</b>	<b>Immediate Analysis</b>
	<b>Archive</b>	<b>MS/MSD</b>	
Dioxin/Furan	<u>Amber</u> ✓		
Grain size/TOC		<u>1</u> ✓	
SVOCs	1 (2 if arch)		
Resin / Guai			
Organotin		<u>16 oz glass</u> ✓	
Ammonia			
Sulfide		<u>2 oz</u>	<u>1 glass</u> ✓
Pesticide	1 (2 if arch)		
PCB			
TPH		<u>16 oz glass</u> ✓	
Metal			
Hg			
Bioassay			1

Sampler Signatures

[Signature] 6/22/08 RDW  
Sample Custodian Signature

DB QA 6/22/08 RDW



FIRST ATTEMPT

# Sediment Core Log

Station ID: MD 04

Project: Port Angeles Harbor Sediment Characterization Study

Date: 6/21/08

Location Data: Harbor-wide (Rayonier)

Time: 1344

Area of Concern: MILL DOCK

Boat: MUWUC SALVAGER

GPS Time: 1330

Core Collection Method: VIBRACORE

Sample Team: M LONGTINE CFUNK  
S PEUTNEY

Location (UTM Zone 10, NAD 83 meters): X 469616.4  
Y 5329871.6

Coring Start Time: 1344  
Water Depth: 34' 6" ± Ft. 30' 2" @ 1343  
Core Bottom Depth: 32' 10" Ft.  
Coring Finish Time: 1344  
Overall Recovery (%): 81%  
penetration: 2' 8" = 32"

1345 Stopped advancing @ 32' 10" due to difficulty advance experienced while advancing - stopped to ensure integrity of top interval. Within core based on results of MD05 coring. 1400 PULLED CORE SLEEVE FROM BARREL TO INSPECT. 26" OF SEDIMENT RECOVERED. 81% RECOVERY. CUT OPEN TO INSPECT FURTHER.

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____		_____
	16 oz glass jar _____ Dioxins/Furans _____	_____		_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____		_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____		_____
	4 oz glass jar _____ Sulfide / Other: _____	_____		_____
	core _____ Radioisotope Dating _____	_____		_____
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____		_____
	16 oz glass jar _____ Dioxins/Furans _____	_____		_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____		_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____		_____
	4 oz glass jar _____ Sulfide / Other: _____	_____		_____
	core _____ Radioisotope Dating _____	_____		_____
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____		_____
	16 oz glass jar _____ Dioxins/Furans _____	_____		_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____		_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____		_____
	4 oz glass jar _____ Sulfide / Other: _____	_____		_____
	core _____ Radioisotope Dating _____	_____		_____
Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%):	Cobble / Gravel / Sand (VC C M F VF) / Silt / Clay / Organic mtrl / Woody debris / Shell debris / Other:			
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other:			
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other:			
Biota:		Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____	_____		_____
	16 oz glass jar _____ Dioxins/Furans _____	_____		_____
	16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____	_____		_____
	16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____	_____		_____
	4 oz glass jar _____ Sulfide / Other: _____	_____		_____
	core _____ Radioisotope Dating _____	_____		_____

NOTES: 1445 UPON FURTHER INSPECTION OF CORE AND (MC) DETERMINED THAT UPPER EST 14" OF CORE CONTAINS WOOD DEBRIS AND MIX OF ORGANIC MUCK AND SAND AND FINES. BELOW 14" HAVE GRAVEL. INTEGRITY OF SAMPLE IS UNCLEAR. WILL ATTEMPT TO CORE AGAIN. DEPTH CONTROL NOT CLEAR ON THIS SAMPLE (C) CORE. APPARENT INADEQUATE RECOVERY OF SEDIMENT OVERLYING GRAVEL LAYER.

6/21/08

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos Infestation: none / light / medium / heavy
	1	NO SAMPLES	DARK GRAYISH BROWN ORGANIC MUCK WITH WOOD DEBRIS (BARK AND CHIPS). MODERATE SULFIDE ODOR. APPEARS DISTURBED. RECOVERY OF THIS INTERVAL SUSPECTED TO BE LESS THAN ACTUAL THICKNESS. → SEE SUBSEQUENT CORE ATTEMPTS.	REDDISH BROWN BARK AND TINY CHIPS TO 3/4"	
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
1	12				
	13	SAMPLES →	GRAVEL AND SAND, MINOR FINES. GRAVEL WELL ROUNDED TO SUBROUNDED TO 3". SAND MOSTLY C AND VC.		
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
2	24				
	25	NO SAMPLES →	BOTTOM OF CORE		
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
3	36				
	37	NO SAMPLES → SEE NEXT ATTEMPT # 2			
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
	47				
4	48				
	49	NO SAMPLES →			
	50				
	51				
	52				
	53				
	54				
	55				
	56				
	57				
	58				
	59				
5	60				

# Sediment Core Log

Station ID: M1D04

2nd ATTEMPT

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: MILL DOCK  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X  
Y

Date: 6/21/08  
 Time: \_\_\_\_\_  
 Boat: NWUWC SALVAGER I  
 Core Collection Method: VIBROCORE  
 Sample Team: M LONGTINE C FUNK  
SPEUTNEY

Coring Start Time: 1510  
 Water Depth: 32' 2" Ft. @ 1508  
 Core Bottom Depth: 33' 10" Ft.  
 Coring Finish Time: 1510  
 Overall Recovery (%): \_\_\_\_\_

1520 EXTRACTED CORE SLEEVE FROM BARREL.  
 SEDIMENT PARTIALLY WASHED OUT THE  
 CORE CATCHER → REJECT CORE

Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____	
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____ 16 oz glass jar _____ Dioxins/Furans _____ 16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____ 16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____ 4 oz glass jar _____ Sulfide / Other: _____ core _____ Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____	
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____ 16 oz glass jar _____ Dioxins/Furans _____ 16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____ 16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____ 4 oz glass jar _____ Sulfide / Other: _____ core _____ Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____	
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____ 16 oz glass jar _____ Dioxins/Furans _____ 16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____ 16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____ 4 oz glass jar _____ Sulfide / Other: _____ core _____ Radioisotope Dating _____
Sample ID: _____	Depth Interval: _____ in. to _____ in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____	
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____	
Biota: _____ Immediate Analysis _____ Archive for Later Analysis _____	
Samples Collected:	16 oz poly jar _____ TOC/Grain size _____ 16 oz glass jar _____ Dioxins/Furans _____ 16 oz glass jar _____ SVOCs / resin / TBT / Ammonia _____ 16 oz glass jar _____ Pest / PCBs / TPH / Metals / Hg _____ 4 oz glass jar _____ Sulfide / Other: _____ core _____ Radioisotope Dating _____

NOTES:

3rd attempt

# Sediment Core Log

Station ID: MDO4

Project: Port Angeles Harbor Sediment Characterization Study

Date: 6/21/08

Location Data: Harbor-wide / Rayonier

Time: 1535

Area of Concern: MILL DOCK

Boat: NWOWC SALVAGER I

GPS Time: \_\_\_\_\_

Core Collection Method: VIBROCORE

Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_

Sample Team: M MONAGHAN C FUNK

} SEE ATTEMPT #1  
Y \_\_\_\_\_

S PEUTNEY

Coring Start Time: 1535

1540 PULL SLEEVE FROM CORE TUBE TO INSPECT. TOP OF SEDIMENT MEASURED VISIBLY THROUGH SLEEVE. 26" REMOVED. ACCEPTABLE RECOVERY. OPEN SLEEVE TO CHECK IF DISTURBED. 1600 CORE ACCEPTABLE.

Water Depth: 33' 1" 6 Ft. Ⓞ

Core Bottom Depth: 35' 5" Ft.

Coring Finish Time: 1535

Overall Recovery (%): \_\_\_\_\_

PENETRATION = 2' 4" = 29"

Sample ID: MDO4 B/V 1535 Depth Interval: 6 in. to 18 in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																																																
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____																																																
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____																																																
Biota:	_____																																																
Samples Collected:	<table border="0"> <tr> <td>16 oz poly jar</td> <td>___</td> <td>TOC/Grain size</td> <td>___</td> <td>Immediate Analysis</td> <td>___</td> <td>Archive for Later Analysis</td> <td>___</td> </tr> <tr> <td>16 oz glass jar</td> <td>___</td> <td>Dioxins/Furans</td> <td>___</td> <td>___</td> <td>___</td> <td>___</td> <td>___</td> </tr> <tr> <td>16 oz glass jar</td> <td>___</td> <td>SVOCs / resin / TBT / Ammonia</td> <td>___</td> <td>___</td> <td>___</td> <td>___</td> <td>___</td> </tr> <tr> <td>16 oz glass jar</td> <td>___</td> <td>Pest / PCBs / TPH / Metals / Hg</td> <td>___</td> <td>___</td> <td>___</td> <td>___</td> <td>___</td> </tr> <tr> <td>4 oz glass jar</td> <td>___</td> <td>Sulfide / Other: _____</td> <td>___</td> <td>___</td> <td>___</td> <td>___</td> <td>___</td> </tr> <tr> <td>core</td> <td>___</td> <td>Radioisotope Dating</td> <td>___</td> <td>___</td> <td>___</td> <td>___</td> <td>___</td> </tr> </table>	16 oz poly jar	___	TOC/Grain size	___	Immediate Analysis	___	Archive for Later Analysis	___	16 oz glass jar	___	Dioxins/Furans	___	___	___	___	___	16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___	___	___	___	16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___	___	___	___	4 oz glass jar	___	Sulfide / Other: _____	___	___	___	___	___	core	___	Radioisotope Dating	___	___	___	___	___
16 oz poly jar	___	TOC/Grain size	___	Immediate Analysis	___	Archive for Later Analysis	___																																										
16 oz glass jar	___	Dioxins/Furans	___	___	___	___	___																																										
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___	___	___	___																																										
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___	___	___	___																																										
4 oz glass jar	___	Sulfide / Other: _____	___	___	___	___	___																																										
core	___	Radioisotope Dating	___	___	___	___	___																																										

No "C" interval obtained.

Sample ID: No "C" SAMPLE. SEE LITH LOG Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																																																
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____																																																
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____																																																
Biota:	_____																																																
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Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

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Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___																																																
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core	___	Radioisotope Dating	___	___	___	___	___																																										

NOTES:

Samples RCDL  
6/22/08 RCDL

DB QA 6/22/08 RCDL

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other	Teredos infestation: none / light / medium / heavy
	1		<p>DARK GRAYISH BROWN ORGANIC MUCK AND FINES, SAND, AND WOOD CHIPS/STRANDS AND BARK SAND TO COARSE. MINOR SHELL FRAGMENTS (BARNACLE). MUCK POSSIBLY PULP.</p> <p>AS DESCRIBED FOR 0 TO 6" EXCEPT FOR ADDITION OF MORE SAND, FINES, AND GRAVEL MIXED WITH WOOD DEBRIS</p> <p>IN INTERVAL 16 TO 18" MODERATE SWEET ODOUR</p> <p>GRAVEL WITH SAND AND FINES (GRAVEL SUB-END TO WALK RND. TO 2 1/2". SAND UP TO VC. OVERALL DARK GRAYISH BROWN.</p> <p>BOTTOM OF CORE SLEEVE</p>	TAN WOOD STRIPS TO 2" AND REDDISH BROWN BARK	
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				
	10				
	11				
1	12				
	13				
	14				
	15				
	16			NO WOOD DEBRIS	
	17				
	18				
	19				
	20				
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	23				
2	24				
	25				
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M004 R

NO WOOD DEBRIS

NOTE: COLLECTED SAMPLE FROM WITHIN WOOD DEBRIS INTERVAL ONLY. INADEQUATE PENETRATION INTO UNDERLYING GRAVEL/SAND LAYER TO COLLECT SUB-WOOD DEBRIS SAMPLE. BASED ON RESULTS OF ATTEMPT No. 1 AT THIS

LOCATION AND RESULTS AT M005, PENETRATING CORE DEEPER INTO GRAVEL LAYER WOULD RESULT IN EXCESSIVE DISTURBANCE OF OVERLYING WOOD-DEBRIS INTERVAL.

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/21/08

Sample ID: MD05A

Time: 1539

Area of Concern: Mill Dock

Location Data Harbor-Wide/ Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carolyn Dow - Petr, Ten

Bottom depth (ft): <u>32.5</u>		Penetration depth (cm): <u>12cm</u>						
<b>Sediment type:</b> <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand VCC M F VF <input type="checkbox"/> Silt <input type="checkbox"/> Clay <input type="checkbox"/> Organic matter <input type="checkbox"/> Woody debris <input checked="" type="checkbox"/> Shell debris <input type="checkbox"/> Other:	<b>Sediment color:</b> <input checked="" type="checkbox"/> Drab olive <del>surface</del> <input checked="" type="checkbox"/> Brown <input checked="" type="checkbox"/> Brown surface <input checked="" type="checkbox"/> Gray <input type="checkbox"/> Black <input type="checkbox"/> Other:	<b>Sediment Odor:</b> <input checked="" type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Strong <input type="checkbox"/> Overwhelming <input type="checkbox"/> Sulfur <input type="checkbox"/> Petroleum <input type="checkbox"/> Other:	<b>Comments:</b> amphipods Spirochaetopsis 2cm RPD Barnacles on rocks					
<b>Analyses</b>	<b>Sample Containers</b>							
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1 Amber				Axys	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Grain size/TOC		1			ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SVOCs	1 (2 if arch)				ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Resin / Guai		16 oz glass			ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Organotin					ARI			
Ammonia					ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Sulfide		2oz	1 glass		ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	u/Zn/As
Pesticide	1 (2 if arch)				TA			
PCB					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
TPH		16 oz glass			TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Metal					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Hg					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Bioassay				1	NF			

Sampler Signatures

[Signature] 6/22/08 RDW

DB QA 6/22/08 RDW

Sample Custodian Signature

# Sediment Core Log

Station ID: MD05

1st attempt

Project: Port Angeles Harbor Sediment Characterization Study

Date: 6/19/0

Location Data: Harbor-wide (Rayonier)

Time: \_\_\_\_\_

Area of Concern: MILL DOCK

Boat: NWDC WOLFEL

GPS Time: 1350

Core Collection Method: VIBROCORE

Location (UTM Zone 10, NAD 83 meters): X 469581.8

Sample Team: M LONGTINE C FUNK

Y 5330030.1

S PENTNEY

Coring Start Time: 1356 12 FOOT CORE BARREL, 10 FT CORE SLEEVE

Water Depth: 30' 6" Ft. @ 1350

Core Bottom Depth: 40' 6" Ft.

Coring Finish Time: 1400

Overall Recovery (%): 5.1" ≈ 50% = No good

Note: Wynch line appeared to move a large amount while advancing into the sediment - was advancing on angle

Sample ID:	Depth Interval:	in.	to	in.
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota: _____				
Samples Collected:		Immediate Analysis		Archive for Later Analysis
16 oz poly jar	___	TOC/Grain size	___	___
16 oz glass jar	___	Dioxins/Furans	___	___
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
4 oz glass jar	___	Sulfide / Other: _____	___	___
core	___	Radioisotope Dating	___	___
<b>Sample ID:</b> _____ <b>Depth Interval:</b> _____ <b>in.</b> to _____ <b>in.</b>				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____				
Biota: _____				
Samples Collected:		Immediate Analysis		Archive for Later Analysis
16 oz poly jar	___	TOC/Grain size	___	___
16 oz glass jar	___	Dioxins/Furans	___	___
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
4 oz glass jar	___	Sulfide / Other: _____	___	___
core	___	Radioisotope Dating	___	___
<b>Sample ID:</b> _____ <b>Depth Interval:</b> _____ <b>in.</b> to _____ <b>in.</b>				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: _____				
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Biota: _____				
Samples Collected:		Immediate Analysis		Archive for Later Analysis
16 oz poly jar	___	TOC/Grain size	___	___
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16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
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core	___	Radioisotope Dating	___	___
<b>Sample ID:</b> _____ <b>Depth Interval:</b> _____ <b>in.</b> to _____ <b>in.</b>				
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: ___				
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Biota: _____				
Samples Collected:		Immediate Analysis		Archive for Later Analysis
16 oz poly jar	___	TOC/Grain size	___	___
16 oz glass jar	___	Dioxins/Furans	___	___
16 oz glass jar	___	SVOCs / resin / TBT / Ammonia	___	___
16 oz glass jar	___	Pest / PCBs / TPH / Metals / Hg	___	___
4 oz glass jar	___	Sulfide / Other: _____	___	___
core	___	Radioisotope Dating	___	___

NOTES:

# Sediment Core Log

2nd attempt

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: Mill Dock  
 GPS Time: Same as 1st attempt  
 Location (UTM Zone 10, NAD 83 meters): X  
Y

Station ID: MDO5  
 Date: 6/19/08  
 Time: \_\_\_\_\_  
 Boat: NWINC Salvager I  
 Core Collection Method: Vibracore  
 Sample Team: M. Lonatone, C. Funk  
S. Pentecost

Coring Start Time: 1423  
 Water Depth: 31' 8" @ 1419 Ft.  
 Core Bottom Depth: 35' 0 Ft.  
 Coring Finish Time: 1425  
 Overall Recovery (%): 100+ (see penetration: 3' 4" = 40" 52 SEDIMENT)

Hit refusal @ 35'  
1440 Begin opening core  
1515 UPON OPENING CORE AND INSPECTING, OBSERVED THAT TOP 28" OF SEDIMENT COLUMN IS VERY SOFTY DISTURBED SILT FROM 28" TO 52" SEDIMENT IN CORE TUBE IS INTACT, APPARENTLY, COLLECTED INTERVAL 29" TO 41" INTO SAMPLE BOWL FOR POSSIBLE LATER USE PENDING OBSER-

Sample ID:	Depth Interval: _____ in. to _____ in.		
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____		
Biota:	Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID:	Depth Interval: _____ in. to _____ in.		
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____		
Biota:	Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID:	Depth Interval: _____ in. to _____ in.		
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____		
Biota:	Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____
Sample ID:	Depth Interval: _____ in. to _____ in.		
Sediment Type (%):	Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____		
Sediment Color:	Drab olive / Brown / Brown surface / Gray / Black / Other: _____		
Sediment Odor:	None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____		
Biota:	Immediate Analysis		Archive for Later Analysis
Samples Collected:	16 oz poly jar _____	TOC/Grain size _____	_____
	16 oz glass jar _____	Dioxins/Furans _____	_____
	16 oz glass jar _____	SVOCs / resin / TBT / Ammonia _____	_____
	16 oz glass jar _____	Pest / PCBs / TPH / Metals / Hg _____	_____
	4 oz glass jar _____	Sulfide / Other: _____	_____
	core _____	Radioisotope Dating _____	_____

NOTES: (cont) VARIATIONS OF 3rd ATTEMPT CORE. FOR THIRD ATTEMPT, WILL



Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers	
	1		VERY DISTURBED SOUPY SILT, BROWN. NO COR NOTED		
	2				
	3				
	4				
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	10				
	11				
1	12				
	13				
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	22				
	23				
2	24				
	25				
	26				
	27				
	28				
	29		SILT GRADING DOWN THROUGH SAND TO SAND AND GRAVEL (SAND AND GRAVEL AT 36"). DISTURBED CORE (?)		
	30				
	31				
	32				
	33				
	34				
	35				
3	36				
	37				
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	45				
	46				
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	53		BOTTOM OF CORE		
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	55				
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	59				
5	60				

3rd ATTEMPT

# Sediment Core Log

Station ID: MD05

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / (Rayonier)  
 Area of Concern: MILL DOCK  
 GPS Time: 33 FT NORTH OF  
 Location (UTM Zone 10, NAD 83 meters): X } 2nd ATTEMPT  
Y }

Date: 6/19/08  
 Time: 1539  
 Boat: NWJWC WAF 822  
 Core Collection Method: VIBRATOR  
 Sample Team: M LONGTINE C PUNK

Coring Start Time: 1539  
 Water Depth: 33' 4" Ft.  
 Core Bottom Depth: 34' 4" Ft.  
 Coring Finish Time: 1539  
 Overall Recovery (%): 100%  
 penetration: 2' 0"

Refusal @ 2' 0" ML  
 1540 STOPPED ADVANCING CORE AT 2' 0" PENETRATION AS SOON AS IT APPEARED THAT DRIVING WAS SLOWING DOWN (DUE TO GRAVEL BASED ON OBSERVATIONS OF FIRST AND SECOND ATTEMPTS) IN ORDER TO MINIMIZE DISTURBANCE OF CORE. UPON RETRIEVAL OF SLEEVE FROM BARREL, 24" OF SEDIMENT WAS OBSERVED IN LINER. NO SIGN OF SETTLING OBSERVED.

Sample ID: MD05B 1539 Depth Interval: 4 in. to 10 in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_

Biota: \_\_\_\_\_

Samples Collected:	Immediate Analysis	Archive for Later Analysis
<u>1</u> 16 oz poly jar <u>✓</u>	<u>✓</u> TOC/Grain size	<u>✓</u>
<u>Amber</u> 16 oz glass jar <u>✓</u>	<u>✓</u> Dioxins/Furans	<u>✓</u>
16 oz glass jar <u>✓</u>	<u>✓</u> SVOCs / resin / TBT / Ammonia	<u>✓</u>
16 oz glass jar <u>✓</u>	<u>✓</u> Pest / PCBs / TPH / Metals / Hg	<u>✓</u>
<u>2</u> 4 oz glass jar <u>✓</u>	<u>✓</u> Sulfide / Other: <u>CHD</u>	<u>✓</u>
core	Radioisotope Dating	

Sample ID: MD05C 1539 Depth Interval: 10 in. to 22 in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_

Biota: \_\_\_\_\_

Samples Collected:	Immediate Analysis	Archive for Later Analysis
<u>1</u> 16 oz poly jar <u>✓</u>	<u>✓</u> TOC/Grain size	<u>✓</u>
<u>Amber</u> 16 oz glass jar <u>✓</u>	<u>✓</u> Dioxins/Furans	<u>✓</u>
16 oz glass jar <u>✓</u>	<u>✓</u> SVOCs / resin / TBT / Ammonia	<u>✓</u>
16 oz glass jar <u>✓</u>	<u>✓</u> Pest / PCBs / TPH / Metals / Hg	<u>✓</u>
<u>2</u> 4 oz glass jar <u>✓</u>	<u>✓</u> Sulfide / Other: <u>CHD</u>	<u>✓</u>
core	Radioisotope Dating	

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_

Biota: \_\_\_\_\_

Samples Collected:	Immediate Analysis	Archive for Later Analysis
16 oz poly jar	TOC/Grain size	
16 oz glass jar	Dioxins/Furans	
16 oz glass jar	SVOCs / resin / TBT / Ammonia	
16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	
4 oz glass jar	Sulfide / Other: _____	
core	Radioisotope Dating	

Sample ID: \_\_\_\_\_ Depth Interval: \_\_\_\_\_ in. to \_\_\_\_\_ in.

Sediment Type (%): Cobble \_\_\_ / Gravel \_\_\_ / Sand (VC C M F VF) \_\_\_ / Silt \_\_\_ / Clay \_\_\_ / Organic mtrl \_\_\_ / Woody debris \_\_\_ / Shell debris \_\_\_ / Other: \_\_\_

Sediment Color: Drab olive / Brown / Brown surface / Gray / Black / Other: \_\_\_

Sediment Odor: None / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: \_\_\_

Biota: \_\_\_\_\_

Samples Collected:	Immediate Analysis	Archive for Later Analysis
16 oz poly jar	TOC/Grain size	
16 oz glass jar	Dioxins/Furans	
16 oz glass jar	SVOCs / resin / TBT / Ammonia	
16 oz glass jar	Pest / PCBs / TPH / Metals / Hg	
4 oz glass jar	Sulfide / Other: _____	
core	Radioisotope Dating	

NOTES: (cont)  
 THEREFORE CORE APPEARS TO BE INTACT.  
 Samples Received  
 6/21/08  
 RDW

DBS QA 6/21/08 RDW

OUT BELOW

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization	
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers	
	1		SAND AND FINES, BROWN,		
	2		SAND UP TO MEDIUM.		
	3				
	4	MDO5 B	SAND, FINES, AND	NO WOOD MATERIAL	
	5		GRAVEL - SAND F TO C.		
	6		SILT AND CLAY, BROWN, EST		
	7		25% GRAVEL INCL. SUB-ANGULAR		
	8		TO SUBROUND TO 1/2" GRADES		
	9		DOWN TO SAND AND		
	10		GRAVEL. NO SILT OR CLAY BROWN.		
	11		SAND AND GRAVEL WITH		
	12		MINOR FINES. GRAVEL		
1	13				SUB ANG TO SUBRND
	14				TO 1" - SOME BIVALVE
	15		SHELL DEBRIS.		
	16				
	17				
	18				
	19				
	20				
	21				
	22				
	23				
2	24		BOTTOM OF CORE		
	25				
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
3	36				
	37				
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	40				
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	43				
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	45				
	46				
	47				
4	48				
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	52				
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	57				
	58				
	59				
5	60				

Project: Port Angeles Harbor Sediment Characterization Study

Tissue Sample Log

Date: 6-22-08

Boat/Sampling Team: LEKC/Ryan

*THE WHITZEN*

Location Data Harbor-Wide / Rayonier Area of Concern: Mill Dock  
 GPS Date/Time 6-22-08 / 1130 ~~1150~~ N 5329565.79 E 469586.40 GPS PDOP AK ALL NAD83 (m)

Sample ID: <u>MDO6TH</u>	Time: <u>1150</u>	Depth from water surface (ft): <u>20</u>	
<i>Tissue type:</i>	<i>Sample Type/No:</i>	<i>Weight / Length</i>	<i>Comments:</i>
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	<u>SVOC, PCB, Dioxin, Metal, Hg</u>
<u>Horse Clam</u>	#: <u>6</u> (5 min)	<u>10</u> Lbs in <i>back scale</i>	<u>App: 6.5x5.5" 6.5x6"</u> <u>6.5x5" 7"x5.5"</u> <u>6.5x5.5"</u> <u>7x5.5"</u>
Macroalgae	kelp / eelgrass	Lbs	

Location Data Harbor-Wide / Rayonier Area of Concern: Mill Dock  
 GPS Date/Time 6-22-08 / 1215 <sup>N</sup> Lat 5329633.60 <sup>E</sup> Long 469713.09 GPS PDOP NA D83 (m)

Sample ID: <u>MDO7TH</u>	Time: <u>1235</u>	Depth from water surface (ft): <u>15</u>	
<i>Tissue type:</i>	<i>Sample Type/No:</i>	<i>Weight / Length</i>	<i>Comments:</i>
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
<u>Horse Clam</u>	#: <u>1</u> (5 min)	<u>&lt; 1</u> Lbs in <i>est</i>	<u>appx 6" x 5"</u>
Macroalgae	kelp / eelgrass	Lbs	

[Signature] 6/22/08 RDW  
 Sampler Signatures

[Signature] 6/23/08 RDW  
 Sample Custodian Signature

# OH01A-R

Notes: an OH01A was collected on 6-11-08, but per Jen, it was mislabeled and should have been FT12A. This is the correct OH01A.   
 6-19-08

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/18/08 ✓✓

**Sample ID:** OH01A ✓✓

**Time:** 1632 ✓✓

**Area of Concern:** Outer Harbor

**Location Data:** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

**Location (UTM Zone 10, NAD83, meters) X** \_\_\_\_\_ **Y** \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

**Bottom depth (ft):** 64.9 ft ✓ **Penetration depth (cm):** 18 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<del>None</del> ✓	2 cm RPD Phylochaetopsis tubes Prolifera
Gravel	Brown	<u>Slight</u>	
<u>Sand</u> VCC M FVF	<u>Brown surface</u>	Moderate	
Silt	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	<u>Sulfur</u>	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

little

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16oz Amber		✓	Axys	⊗		
Grain size/TOC		1 16oz Poly		✓	ARI	⊗		
SVOCs	1 (2 if arch)	16oz glass w/ NH3		✓	ARI	⊗		
Resin / Guai					ARI	⊗		
Organotin					ARI			
Ammonia		16oz glass w/ SVOC, resin		✓	ARI	⊗		
Sulfide		2oz Glass w/ Zn Ac		✓	ARI	⊗		
Pesticide	1 (2 if arch)				TA			
PCB					TA	⊗		
TPH		16oz Glass			TA	⊗		
Metal					TA	⊗		
Hg					TA	⊗		
Bioassay				1	NF			

- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗
- ⊗

**Sampler Signatures**

[Signature] 6/19/08 ADW

DB QA 6/20/08

**Sample Custodian Signature**

0H02A

**Project:** Port Angeles Harbor Sediment

**Grab Sediment Sample Log**

Characterization Study  
**Date:** 6-11-08 ✓✓

**Sample ID:** 0H02A ✓✓

**Time:** 0837 ✓✓

**Area of Concern:** Outer Harbor

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X: \_\_\_\_\_ Y: \_\_\_\_\_

RPD: 30cm

**Boat/Sampling Team:** GRABBOAT - P. STRIPPI, C. FUNK

Bottom depth (ft): 87' ✓ Penetration depth (cm): 19' ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	Silt grading to Clay - (D.O. to grey/D.O.) Nemertians, spionidea tubes ascideans, spilocinetopterous tubes phascolosoma spp axinipisida serricata spp. onuphidae tubes macoma glycera spp. macoma elimata
Gravel	Brown	Slight	
Sand VCC M F VF	Brown surface	Moderate	
Silt Surface	Gray	Strong	
Clay ✓	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Fine Sand under Clay layer (very small layer)

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
<input checked="" type="checkbox"/> Dioxin/Furan	1	✓ 16oz Glass	✓ Glass - Amber		Axys			
<input checked="" type="checkbox"/> Grain size/TOC		1/16oz	✓ Poly		ARI			
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch)	✓ 16oz glass w/	✓ Resin, NH3		ARI			
<input checked="" type="checkbox"/> Resin / Guai		✓ 16oz glass w/	✓ SVOC, NH3		ARI			
<input checked="" type="checkbox"/> Organotin					ARI			
<input checked="" type="checkbox"/> Ammonia		✓ 16oz Glass w/	✓ Resin, SVOC		ARI			
<input checked="" type="checkbox"/> Sulfide		2oz glass	✓		ARI			
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)				TA			
<input checked="" type="checkbox"/> PCB					TA			
<input checked="" type="checkbox"/> TPH		16oz glass	✓		TA			
<input checked="" type="checkbox"/> Metal					TA			
<input checked="" type="checkbox"/> Hg					TA			
<input checked="" type="checkbox"/> Bioassay		Bag	✓	1	NF			

*Courtney Funk*  
\_\_\_\_\_  
Sampler Signatures

*RDW 6/11/08 RDW DB QA 6/11/08 RDW*  
\_\_\_\_\_  
Sample Custodian Signature

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6-11-08 ✓

**Sample ID:** OH03A ✓

**Time:** 0944 ✓

**Area of Concern:** Outer Harbor

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** Grab boat - P. Striplin RPD: 1cm

Bottom depth (ft): 116 ✓ Penetration depth (cm): 17.5 ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	spilochetopterous tubes, flexosa amphipoda, thyrasira flexosa sp. hermit crabs. sternapsis
Gravel	Brown	Slight	
<u>Sand</u> V C C M F <u>VF</u>	<u>Brown surface</u>	Moderate ✓	
<u>Silt</u>	Gray	Strong ✓	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

	Analyses		Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab					
<input checked="" type="checkbox"/> Dioxin/Furan	1		16 oz Amber ✓		Axys					
<input checked="" type="checkbox"/> Grain size/TOC			1 16 oz Poly ✓		ARI					
<input checked="" type="checkbox"/> SVOCs	1 (2 if arch) ✓		16 oz glass ✓		ARI					
<input checked="" type="checkbox"/> Resin / Guai					ARI					
<input checked="" type="checkbox"/> Organotin					ARI					
<input checked="" type="checkbox"/> Ammonia			16 oz Glass w/ SVOC, Res ✓		ARI					
<input checked="" type="checkbox"/> Sulfide			20z Glass ✓		ARI					
<input checked="" type="checkbox"/> Pesticide	1 (2 if arch)				TA					
<input checked="" type="checkbox"/> PCB					TA					
<input checked="" type="checkbox"/> TPH			16 oz Glass ✓		TA					
<input checked="" type="checkbox"/> Metal					TA					
<input checked="" type="checkbox"/> Hg					TA					
<input checked="" type="checkbox"/> Bioassay				1	NF					

Cambrey Frank  
Sampler Signatures

[Signature] 6/11/08 RDW  
Sample Custodian Signature

DB QA 6/11/08 RDW

Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-10-08 ✓

Sample ID: RFO1A ✓

Time: 1203 ✓

Area of Concern: Reference location

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Grab boat - P. Striplin, C. Funk

No obvious RPD  
Oxidized SAND

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 15cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	<input checked="" type="checkbox"/> None	<u>10</u> f-m SAND, photos, amphipoda? pscephialordi, tubes? lumbrineris sp., ampeleska sp., No wood debris
Gravel	Brown	<input type="checkbox"/> Slight	
<input checked="" type="checkbox"/> Sand VC C M F VF	Brown surface	<input type="checkbox"/> Moderate	
Silt	<input checked="" type="checkbox"/> Gray	<input type="checkbox"/> Strong	
Clay	Black	<input type="checkbox"/> Overwhelming	
Organic matter	Other:	<input type="checkbox"/> Sulfur	
Woody debris		<input type="checkbox"/> Petroleum	
Shell debris		<input type="checkbox"/> Other:	
Other:			

Netets,  
Spirochaeta  
costarum.

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16oz Amber ✓			Axys			
Grain size/TOC		1 16oz Poly ✓			ARI			
SVOCs	1 (2 if arch)	16oz Glass ✓			ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide		2oz	1 Glass ✓		ARI			
Pesticide	1 (2 if arch)	16oz Glass ✓			TA			
PCB					TA			
TPH					TA			
Metal					TA			
Hg					TA			
Bioassay				1	NF			



Courtney Funk

Sampler Signatures

[Signature] 6/11/08

DB QA 6/11/08 RDW

Sample Custodian Signature

Note: Verbally informed by P. Striplin that 3 bags collected for Bio-assayed on 6/11/08 - he hand delivered to NF Jack Ward who RDW processing.



Project: Port Angeles Harbor Sediment Characterization Study

Grab Sediment Sample Log

Date: 6-10-08

Sample ID: RPO1A RFD1A

Time: 1238

Area of Concern: Reference location

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): \_\_\_\_\_ Penetration depth (cm): 18

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	amphipods, sculpin, seaweed, no obvious RPD, psephedialordia, nereis.
Gravel	Brown	Slight	
<u>Sand</u> V C C <u>M</u> <u>F</u> V F	Brown surface	Moderate	
Silt	<u>Gray</u>	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
Grain size/TOC		1			ARI			
SVOCs	1 (2 if arch)				ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal					TA			
Hg					TA			
Bioassay				1	NF			

Courtney Turk  
 Sampler Signatures

\_\_\_\_\_  
 Sample Custodian Signature

**Project:** Port Angeles Harbor Sediment Characterization Study  
**Date:** 6-10-08  
**Time:** 1236

**Grab Sediment Sample Log**  
**Sample ID:** RPOIA RFOIA  
**Area of Concern:** Reference area

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_  
 Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** Grab boat - P. Striplin, C. Funk

Bottom depth (ft): <u>8</u> ✓	Penetration depth (cm): <u>21</u>		
<b>Sediment type:</b> Cobble Gravel <input checked="" type="checkbox"/> Sand VCC <input checked="" type="checkbox"/> M <input checked="" type="checkbox"/> F <input checked="" type="checkbox"/> VF Silt Clay Organic matter Woody debris Shell debris Other:	<b>Sediment color:</b> Drab olive Brown Brown surface <input checked="" type="checkbox"/> Gray Black Other:	<b>Sediment Odor:</b> <input checked="" type="checkbox"/> None Slight Moderate Strong Overwhelming Sulfur Petroleum Other:	<b>Comments:</b> <u>Shrimp, NO RPD          spicheeterous</u>

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
Grain-size/TOC		1			ARI			
SVOCs	1 (2 if arch)				ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal					TA			
Hg					TA			
Bioassay				1	NF			

Courtney Funk  
 Sampler Signatures

DB QA 6/11/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment

Grab Sediment Sample Log

Characterization Study

Date: 6-10-08 RFOQA

Sample ID: RFOQA

Time: 1330

Area of Concern: Reference location

Location Data Harbor-Wide / Rayonier GPS Date/Time GPS PDOP

Location (UTM Zone 10, NAD83, meters) X Y

Boat/Sampling Team: Grab boat - P. Stiplin, C. Funk

Bottom depth (ft): 3.8 Penetration depth (cm): 20

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	(clam) (dead shell) No RPD, macomanesida, unidentifiable polychetes, amphipoda, tellina sp? macoma volbiaforias, lumbinis sp.
Gravel	Brown	Slight	
Sand VCC M F V F	Brown surface	Moderate	
Silt	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses Sample Containers

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	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1	16 oz Amber		✓	Axys			
Grain size/TOC		1 16 oz Poly		✓	ARI			
SVOCs	1 (2 if arch)	16 oz Glass		✓	ARI			
Resin / Guai				✓	ARI			
Organotin				✓	ARI			
Ammonia					ARI			
Sulfide		2oz	1 Glass	✓	ARI ZAC ✓			
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal					TA			
Hg					TA			
Bioassay				1	NF			

C. Funk  
Sampler Signatures

6/11/08 RDW

DB QA 6/11/08 RDW

Sample Custodian Signature

Note: verbal. from P. Stiplin - 3 bags of Bioassay also collected and turned over to NF Jack Ward who RDW processing.

**Project:** Port Angeles Harbor Sediment

**Grab Sediment Sample Log**

Characterization Study  
**Date:** 6-10-08

**Sample ID:** RFO2A

**Time:** 1358

**Area of Concern:** Reference location

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** Grab boat - C. Funk, P. Stripin

Bottom depth (ft): <u>3.4</u>		Penetration depth (cm): <u>16</u>	
<b>Sediment type:</b> Cobble Gravel <u>Sand</u> VCC M <u>F</u> VF Silt Clay Organic matter Woody debris Shell debris Other:	<b>Sediment color:</b> Drab olive Brown Brown surface <u>Gray</u> Black Other:	<b>Sediment Odor:</b> <u>None</u> Slight Moderate Strong Overwhelming Sulfur Petroleum Other:	<b>Comments:</b> No RPD, Lumbricidae, nephtys, amphipoda,
<b>Analyses</b>	<b>Sample Containers</b>		
	<b>16 oz glass jar</b>	<b>16 oz poly</b>	<b>4 oz jar</b>
			<b>Plastic bag</b>
			<b>Lab</b>
			<b>Immediate Analysis</b>
			<b>Archive</b>
			<b>MS/MSD</b>
Dioxin/Furan	1		
Grain size/TOC		1	
SVOCs	1 (2 if arch)		
Resin / Guai			
Organotin			
Ammonia			
Sulfide			1
Pesticide	1 (2 if arch)		
PCB			
TPH			
Metal			
Hg			
Bioassay			1

Courtney Funk  
 Sampler Signatures

\_\_\_\_\_  
 Sample Custodian Signature

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6-10-08

**Sample ID:** RFO2A

**Time:** 1412 ~~1409~~

**Area of Concern:** Reference location

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

Bottom depth (ft): <u>3.3</u>		Penetration depth (cm): <u>11</u>						
<b>Sediment type:</b> Cobble Gravel <input checked="" type="checkbox"/> Sand VCC M <input checked="" type="checkbox"/> VF Silt Clay Organic matter Woody debris Shell debris Other:	<b>Sediment color:</b> Drab olive Brown Brown surface <input checked="" type="checkbox"/> Gray Black Other:	<b>Sediment Odor:</b> None Slight Moderate Strong Overwhelming Sulfur Petroleum Other:	<b>Comments:</b> Eel grass, macoma macoma resida, Clinoclidin muttla(?) amphipoda, umberneris					
<b>Analyses</b>	<b>Sample Containers</b>							
	<i>16 oz glass jar</i>	<i>16 oz poly</i>	<i>4 oz jar</i>	<i>Plastic bag</i>	<i>Lab</i>	<i>Immediate Analysis</i>	<i>Archive</i>	<i>MS/MSD</i>
Dioxin/Furan	1				Axys			
Grain size/TOC		1			ARI			
SVOCs	1 (2 if arch)				ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal					TA			
Hg					TA			
Bioassay				1	NF			

Courtney Funk  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

Project: Port Angeles Harbor Sediment

Grab Sediment Sample Log

Characterization Study  
Date: 6-10-08 ✓

Sample ID: RF03A ✓

Time: 1012 ✓

Area of Concern: Reference location

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_ RPD: Kem

Bottom depth (ft): 39.3 Penetration depth (cm): 18

<b>Sediment type:</b>	<b>Sediment color:</b>	<b>Sediment Odor:</b>	<b>Comments:</b>
Cobble	<u>Drab olive</u>	<u>None</u>	<u>streaks of oxidation</u>
Gravel	<u>Brown</u>	Slight	<u>sediment in sediment</u>
Sand V C C M F V F	<u>Brown surface</u>	Moderate	<u>Silt w some Clay</u>
<u>Silt - surface</u>	<u>Gray</u>	Strong	<u>spionadae?</u>
<u>Clay</u>	<u>Black</u>	Overwhelming	<u>phyllochaetopterae,</u>
Organic matter	Other: _____	Sulfur	<u>shrimp, malcanidae,</u>
Woody debris		Petroleum	<u>goniadae, terebella</u>
Shell debris		Other: _____	
Other: _____			

oxidation  
streaks of oxidation  
sediment in sediment  
Silt w some Clay  
spionadae?  
phyllochaetopterae,  
shrimp, malcanidae,  
goniadae, terebella  
10 Ida (terebellas)  
amphipoda,  
bivalvia

Analyses	Sample Containers							
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab	Immediate Analysis	Archive	MS/MSD
Dioxin/Furan	1				Axys			
Grain size/TOC		1			ARI			
SVOCs	1 (2 if arch)				ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide		2oz	1 Glass		ARI w/ZnAc			
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal					TA			
Hg					TA			
Bioassay				1	NF			

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Courtney Funk

Sampler Signatures

[Signature] 6/10/08 @ 6/11/08 RPDW

Sample Custodian Signature

DBQA 6/11/08 RPDW

Notes: Verbal from P. Stripplin - 3 bags collected 6/10/08 for bioassay. These were given to NF Jack Ward by field team w/o RPDW processing.

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6-10-08

**Sample ID:** 010 RFO3A

**Time:** 1052

**Area of Concern:** Reference location

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_ **RPD:** 1cm

**Boat/Sampling Team:** \_\_\_\_\_

Bottom depth (ft): 39.6 Penetration depth (cm): 23

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	Silt grading into silt/clay drab olive trans into grey into black spionadae, maldanidae, anixopsidolor, parvilucina, adontorhina, nephtys, terebellida, terebellides sp.?, amphipoda
Gravel	Brown	Slight	
Sand VCC M F VF	Brown surface	Moderate	
<u>Silt</u>	<u>Gray</u>	Strong	
<u>Clay</u>	<u>Black</u>	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1				Axys			
Grain size/TOC		1			ARI			
SVOCs	1 (2 if arch)				ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal					TA			
Hg					TA			
Bioassay				1	NF			

\_\_\_\_\_  
Sampler Signatures

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Sample Custodian Signature

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6-10-08

**Sample ID:** RFO3A

**Time:** 1115

**Area of Concern:** Reference location

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

RPD: 2cm

Bottom depth (ft): _____		Penetration depth (cm): <u>24</u>						
<b>Sediment type:</b> Cobble Gravel Sand V C C M F V F <u>Silt</u> <u>Clay</u> Organic matter Woody debris Shell debris Other:	<b>Sediment color:</b> <u>Drab olive</u> Brown Brown surface <u>Gray</u> <u>Black</u> Other:	<b>Sediment Odor:</b> <u>None</u> Slight Moderate Strong Overwhelming Sulfur Petroleum Other:	<b>Comments:</b> spionadae?, asychys sp. molluska, amphipoda, macoma nestua, nettles, large bivalve					
<b>Analyses</b>	<b>Sample Containers</b>							
	<b>16 oz glass jar</b>	<b>16 oz poly</b>	<b>4 oz jar</b>	<b>Plastic bag</b>	<b>Lab</b>	<b>Immediate Analysis</b>	<b>Archive</b>	<b>MS/MSD</b>
Dioxin/Furan	1				Axys			
Grain size/TOC		1			ARI			
SVOCs	1 (2 if arch)				ARI			
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)				TA			
PCB					TA			
TPH					TA			
Metal					TA			
Hg					TA			
Bioassay				1	NF			

Courtney Feuk  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature



Project: Port Angeles Harbor Sediment Characterization Study

Tissue Sample Log

L. Dunn  
R. Blanton  
J. Tandy  
C. Ansel

Date: 7-12-08

Boat/Sampling Team: E.E. White LEKT

2 locations

Location Data <u>Harbor-Wide</u> / Rayonier		Area of Concern: <u>Reference-Dungeness Bay</u>	
GPS Date/Time 7-12-08 0128 X <u>1136</u> <u>493152</u> Y <u>5333987</u> GPS PDOP <u>0.7</u>		<u>495368</u> <u>5332172</u> <u>0.8</u>	
Sample ID: <u>RF04TH</u>	Time: <u>1030 / 1159</u>	Depth from water surface (ft): <u>43' / 36'</u>	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
<u>Horse Clam</u>	#: <u>4</u> (5 min)	Lbs in	<u>5 3/4" x 3 3/4"</u> <u>5 1/2" x 4 1/2"</u> <u>5 1/2" x 3 3/4"</u> <u>4 1/2" x 3 1/2"</u>
Macroalgae	kelp / eelgrass	Lbs	

Location Data <u>Harbor-Wide</u> / Rayonier		Area of Concern: <u>Reference-Dungeness Bay</u>	
GPS Date/Time 7-12-08 1136 X <u>495368</u> Y <u>5332172</u> GPS PDOP <u>0.8</u>			
Sample ID: <u>RF05TH</u>	Time: <u>1159</u>	Depth from water surface (ft): <u>36'</u>	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
<u>Horse Clam</u>	#: <u>5</u> (5 min)	Lbs in	<u>5 3/4" x 4 1/4"</u> <u>4 3/4" x 4 1/4"</u> <u>6 1/2" x 4"</u> <u>6" x 4 1/4"</u> <u>6" x 4 1/2"</u>
Macroalgae	kelp / eelgrass	Lbs	

Eric A. White

Sampler Signatures

Sample Custodian Signature

Project: Port Angeles Harbor Sediment Characterization Study

Tissue Sample Log

L.D.

Date: 7-12-08

Boat/Sampling Team: E.E. E. White LEKT: J.T.  
R.B. G.A.

Location Data Harbor-Wide / Rayonier		Area of Concern: <u>Rekrewe-Dungeness Bay</u>	
GPS Date/Time <u>7-12-08 1136</u> X <u>495318</u> Y <u>5332172</u>		GPS PDOP <u>0.8</u>	
Sample ID: <u>RF06-TG</u>	Time: <u>1159</u>	Depth from water surface (ft): <u>36</u>	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
Lingcod	Whole / Filet	Lbs/ in	
<u>Geoduck</u>	#: <u>1</u> (5 min)	Lbs in	<u>shell 6" x 4"</u> <u>w/siphon 12" long</u>
Horse Clam	#: (5 min)	Lbs in	
Macroalgae	kelp / eelgrass	Lbs	

Location Data Harbor-Wide / <u>Rayonier</u>		Area of Concern: <u>Rayonier - Mill Dock / East of MD</u>	
GPS Date/Time <u>7-12-08 1509</u> Lat <u>469922</u> Long <u>5321942</u>		GPS PDOP <u>0.8</u>	

Sample ID: <u>MD08TH</u>	Time: <u>1509</u>	Depth from water surface (ft): <u>38</u>	
Tissue type:	Sample Type/No:	Weight / Length	Comments:
Lingcod	Whole / Filet	Lbs/ in	
Geoduck	#: (5 min)	Lbs in	
<u>Horse Clam</u>	#: <u>3</u> (5 min)	Lbs in	<u>4 1/4" x 3 1/2"</u> <u>3 1/2" x 3"</u> <u>3 3/4" x 3"</u>
Macroalgae	kelp / eelgrass	Lbs	

[Signature]

Sampler Signatures

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/18/08 ✓

Sample ID: RL01A ✓

Time: 1450 ✓

Area of Concern: Red Lion

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 8.0 ✓ Penetration depth (cm): 19cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	<u>Drab olive</u>	<u>None</u>	<u>below</u> <u>8cm → organic material</u> <u>layer (very fine)</u> <u>1.5cm thick</u> <u>then back to gray</u> <u>Sphaeropteris tubes</u> <u>Ophelinidae</u>
Gravel	Brown	Slight ✓	
<u>Sand</u> VCC (M)F V F	Brown surface	Moderate	
Silt	<u>Gray</u> ✓	Strong	
Clay	Black ✓	Overwhelming	
<u>Organic matter</u>	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16 oz Amber ✓			Axys		<input checked="" type="checkbox"/>	
Grain size/TOC		1 16 oz Poly ✓			ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
SVOCs	1 (2 if arch)	4 oz Glass ✓			ARI		<input checked="" type="checkbox"/>	
Resin / Guai					ARI			
Organotin					ARI			
Ammonia		4 oz Glass ✓			ARI	<input checked="" type="checkbox"/>		
Sulfide		2 oz Glass ✓	4 Zn Ac		ARI	<input checked="" type="checkbox"/>		
Pesticide	1 (2 if arch)	16 oz Glass ✓	metals		TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
PCB					TA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
TPH		16 oz Glass ✓	w/ H <sub>2</sub>		TA	<input checked="" type="checkbox"/>		
Metal		16 oz Glass ✓	w/ Pb, PCBs		TA		<input checked="" type="checkbox"/>	
Hg		16 oz Glass ✓	w/ TPH		TA	<input checked="" type="checkbox"/>		
Bioassay		1 Bag ✓			NF	<input checked="" type="checkbox"/>		

Sampler Signatures

[Signature] 6/19/08 RDW

DB QA 6/20/08 RDW

Sample Custodian Signature

**Project:** Port Angeles Harbor Sediment Characterization Study

**Grab Sediment Sample Log**

**Date:** 6/18/08 ✓✓

**Sample ID:** RLO2A ✓✓

**Time:** 1530 ✓✓

**Area of Concern:** Red Bluff

**Location Data** Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone-10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

**Boat/Sampling Team:** \_\_\_\_\_

Bottom depth (ft): 8.5 ✓ Penetration depth (cm): 22 cm ✓

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	<u>None</u>	Lots of eelgrass Nereis Nephtid
Gravel	Brown	Slight ✓	
<u>Sand</u> VCC MCFVF	Brown surface	Moderate	
Silt	<u>Gray</u>	Strong	
Clay	Black ✓	Overwhelming	
<u>Organic matter</u>	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD	
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab				
<u>A</u> <del>X</del> Dioxin/Furan	1	16 oz Amber ✓			Axys		<del>X</del>		
<del>X</del> Grain size/TOC		1 16 oz Poly ✓			ARI	<del>X</del>			
<u>A</u> SVOCs	1 (2 if arch)	4 oz Glass ✓			ARI		<del>X</del>		
Resin / Guai					ARI				
Organotin					ARI				
<del>X</del> Ammonia			4 oz Glass ✓			ARI	<del>X</del>		
<del>X</del> Sulfide		2 oz Glass w/ ZnAc ✓			ARI	<del>X</del>			
<del>X</del> Pesticide	1 (2 if arch)	16 oz glass w/ metals ✓			TA		<del>X</del>		
<del>X</del> PCB					TA		<del>X</del>		
<del>X</del> TPH			16 oz glass w/ H <sub>2</sub> ✓			TA	<del>X</del>		
<del>X</del> Metal			16 oz glass w/ Pest/PCB ✓			TA		<del>X</del>	
<del>X</del> Hg			16 oz glass w/ TA ✓			TA	<del>X</del>		
<del>X</del> Bioassay		1 Bag	1		NF	<del>X</del>			

Sampler Signatures

[Signature] 6/19/08 RDW

DB QA 6/20/08 RDW

Sample Custodian Signature

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/12/08

Sample ID: RLO3A

Time: 14:09

Area of Concern: Red Lion

Location Data: Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: Carlynn Dow

Bottom depth (ft): <u>0</u>		Penetration depth (cm): <u>11</u>	
<b>Sediment type:</b> <input checked="" type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand V C C (M) (F) V F <input type="checkbox"/> Silt <input type="checkbox"/> Clay <input type="checkbox"/> Organic matter <input type="checkbox"/> Woody debris <input checked="" type="checkbox"/> Shell debris <u>lots</u> <input type="checkbox"/> Other:		<b>Sediment color:</b> <input type="checkbox"/> Drab olive <input checked="" type="checkbox"/> Brown <input type="checkbox"/> Brown surface <input checked="" type="checkbox"/> Gray <input type="checkbox"/> Black <input type="checkbox"/> Other:	
<b>Sediment Odor:</b> <input checked="" type="checkbox"/> None <input checked="" type="checkbox"/> Slight <u>amendic</u> <input type="checkbox"/> Moderate <u>around algae</u> <input type="checkbox"/> Strong <input type="checkbox"/> Overwhelming <input type="checkbox"/> Sulfur <input type="checkbox"/> Petroleum <input type="checkbox"/> Other:		<b>Comments:</b> Large rocks/shells uniform color to 10cm Red algae <u>Jwenik Shrimp</u> Red kelp <u>Telina modesta</u> <u>Spio chaetopterus tubes</u>	

Lumbricidae  
Cumacean  
~~Amphipoda~~

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1	16oz Amber	✓		Axys		⊗	
Grain size/TOC		1 16oz Poly	✓		ARI	⊗		
SVQCs	1 (2 if arch)	16oz Glass	✓		ARI		⊗	
Resin / Guai					ARI			
Organotin					ARI			
Ammonia					ARI			
Sulfide			1		ARI			
Pesticide	1 (2 if arch)	16oz Glass w/ Metals	✓		TA		⊗	
PCB					TA		⊗	
TPH					TA			
Metal		16oz Glass w/ Pest, PCB	✓		TA		⊗	
Hg		4oz Glass	✓		TA	⊗		
Bioassay			1		NF			

\_\_\_\_\_  
Sampler Signatures

\_\_\_\_\_  
Sample Custodian Signature

# Sediment Core Log

Project: Port Angeles Harbor Sediment Characterization Study  
 Location Data: Harbor-wide / Rayonier  
 Area of Concern: PEN LION  
 GPS Time: \_\_\_\_\_  
 Location (UTM Zone 10, NAD 83 meters): X \_\_\_\_\_  
 Y \_\_\_\_\_

Station ID: RLO3  
 Date: 7/25/08  
 Time: 1902  
 Boat: RSS CAROLYN DU  
 Core Collection Method: DIVER PISTON CORE  
 Sample Team: LONGTINE, PARKER, MELSON

Coring Start Time: 1902  
 Water Depth: 72 Ft.  
 Core Bottom Depth: 35 Ft.  
 Coring Finish Time: \_\_\_\_\_  
 Overall Recovery (%): \_\_\_\_\_

PENETRATION = 35'  
RECOVERY = 32'

Sample ID: <u>RLO3</u>		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt <input checked="" type="checkbox"/> / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris <input checked="" type="checkbox"/> / Other: _____		Sediment Color: <u>Drab olive</u> / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____		Biota: <u>Polychaetes</u>	
Samples Collected:		TOC/Grain size	Immediate Analysis
16 oz poly jar	_____	_____	_____
16 oz glass jar	_____	Dioxins/Furans	Archive for Later Analysis
16 oz glass jar	_____	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____		Sediment Color: <u>Drab olive</u> / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____		Biota: _____	
Samples Collected:		TOC/Grain size	Immediate Analysis
16 oz poly jar	_____	_____	_____
16 oz glass jar	_____	Dioxins/Furans	Archive for Later Analysis
16 oz glass jar	_____	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____		Sediment Color: <u>Drab olive</u> / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____		Biota: _____	
Samples Collected:		TOC/Grain size	Immediate Analysis
16 oz poly jar	_____	_____	_____
16 oz glass jar	_____	Dioxins/Furans	Archive for Later Analysis
16 oz glass jar	_____	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____
Sample ID: _____		Depth Interval: _____ in. to _____ in.	
Sediment Type (%): Cobble ___ / Gravel ___ / Sand (VC C M F VF) ___ / Silt ___ / Clay ___ / Organic mtrl ___ / Woody debris ___ / Shell debris ___ / Other: _____		Sediment Color: <u>Drab olive</u> / Brown / Brown surface / Gray / Black / Other: _____	
Sediment Odor: <u>None</u> / Slight / Moderate / Strong / Overwhelming / Sulfur / Petroleum / Other: _____		Biota: _____	
Samples Collected:		TOC/Grain size	Immediate Analysis
16 oz poly jar	_____	_____	_____
16 oz glass jar	_____	Dioxins/Furans	Archive for Later Analysis
16 oz glass jar	_____	_____	_____
16 oz glass jar	_____	SVOCs / resin / TBT / Ammonia	_____
16 oz glass jar	_____	Pest / PCBs / TPH / Metals / Hg	_____
4 oz glass jar	_____	Sulfide / Other: _____	_____
core	_____	Radioisotope Dating	_____

NOTES:

Depth (ft.)	Depth (in.)	Sample ID	Comments	Wood Material Characterization
				Color: tan / reddish / brown / olive green / gray / black / other Teredos Infestation: none / light / medium / heavy Type: Bark (size, species) Wood chips (size, decomposition state) Natural detritus Logs (description) Sawdust Pulp Fibers
0"	1	RLO3	(0"-16") Brown Silt, trace shell fragments, trace polychete tubes, trace of organic material. No odor, no wood material	No wood material
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	1			
16"	13			
	14			
	15			
	16			
16"	17	RLO3	(16"-24") Brown Silt, many shell fragments (from 16"-3") No odor, no wood material	
	18			
	19			
	20			
24"	21			
	22			
	23			
	24			
2	25			
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
3	36			
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
4	48			
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
5	60			

Project: Port Angeles Harbor Sediment  
Characterization Study

Grab Sediment Sample Log

Date: 6/19/08

Sample ID: WW01A

Time: 1159

Area of Concern: Waste Water

Location Data Harbor-Wide / Rayonier GPS Date/Time \_\_\_\_\_ GPS PDOP \_\_\_\_\_

Location (UTM Zone 10, NAD83, meters) X \_\_\_\_\_ Y \_\_\_\_\_

Boat/Sampling Team: \_\_\_\_\_

Bottom depth (ft): 52.6 ft Penetration depth (cm): 16 cm

Sediment type:	Sediment color:	Sediment Odor:	Comments:
Cobble	Drab olive	None	1.5 cm RPD Spionidae tubes Spirochaetopsis tubes Maldanidae Tellina modesta
Gravel	Brown	Slight	
Sand VCC M F VF	Brown surface	Moderate	
Silt	Gray	Strong	
Clay	Black	Overwhelming	
Organic matter	Other:	Sulfur	
Woody debris		Petroleum	
Shell debris		Other:	
Other:			

Pegettia?  
Amphipods

30-40%

Analyses	Sample Containers					Immediate Analysis	Archive	MS/MSD
	16 oz glass jar	16 oz poly	4 oz jar	Plastic bag	Lab			
Dioxin/Furan	1 Amber				Axys	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Grain size/TOC		1			ARI	<input checked="" type="checkbox"/>		
SVOCs	1 (2 if arch)	16 oz glass			ARI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Resin / Guai					ARI			
Organotin					ARI			
Ammonia		4 oz Glass			ARI	<input checked="" type="checkbox"/>		
Sulfide			2 oz Glass		ARI	<input checked="" type="checkbox"/>	1/2 Zn Ac	<input checked="" type="checkbox"/>
Pesticide	1 (2 if arch)	16 oz Glass w/ Metals			TA		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PCB					TA			
TPH		16 oz glass w/ Hg			TA	<input checked="" type="checkbox"/>		
Metal		16 oz glass w/ Rest			TA		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hg		16 oz glass w/ TPB			TA	<input checked="" type="checkbox"/>		
Bioassay				1	NF	<input checked="" type="checkbox"/>		

1 jar  
MS/MSD

MS/MSD

Sampler Signatures

[Signature] RDW 6/21/08

DB QA 6/21/08 RDW

Sample Custodian Signature



**Appendix B**  
**Station Locations and Sample Descriptions**

**Table B-1. Coordinates for Surface Sediment Stations**

Station	Water depth (feet)*	Original Target Coordinates (UTM 10 - NAD 83)		Original Target Coordinates (Lat/Long)		Actual Grab Sample Locations (UTM 10 - NAD 83)		Actual Grab Sample Locations (Lat/Long)	
		x	y	x	y	x	y	x	y
<b>Harbor-Wide Stations</b>									
BA01	127.0	467641.42	5331505.33	-123.434932	48.135979	467640.66	5331506.78	-123.434942	48.135992
BA02	112.0	467300.99	5331391.86	-123.439499	48.134940	467300.94	5331389.98	-123.439499	48.134923
BL01	32.8	466721.30	5330315.35	-123.447206	48.125225	466721.42	5330314.79	-123.447204	48.125220
BL02	44.2	466802.02	5330272.50	-123.446118	48.124844	466782.02	5330338.46	-123.446392	48.125436
BL03	48.3	467008.46	5330334.09	-123.443349	48.125409	467007.60	5330333.79	-123.443360	48.125406
BL04	50.4	467154.43	5330345.55	-123.441388	48.125519	467155.17	5330345.69	-123.441378	48.125521
BL05	57.1	467026.29	5330608.90	-123.443130	48.127882	467025.38	5330609.35	-123.443142	48.127886
BL06	79.5	467186.02	5330939.91	-123.441009	48.130868	467186.85	5330938.82	-123.440998	48.130859
BL07	61.5	467265.39	5330614.13	-123.439917	48.127942	467264.98	5330614.53	-123.439923	48.127945
BL08	80.0	467419.86	5330925.72	-123.437865	48.130753	467420.63	5330926.14	-123.437855	48.130757
EH01	183.0	470257.84	5331768.14	-123.399784	48.138471	470333.78	5331771.64	-123.398763	48.138506
EH02	125.0	469885.10	5331667.08	-123.404787	48.137544	469887.42	5331665.89	-123.404756	48.137533
EH03	158.0	469426.69	5331675.48	-123.410949	48.137598	469427.78	5331675.66	-123.410934	48.137599
EH04	127.0	469797.29	5331350.02	-123.405945	48.134687	469798.66	5331348.19	-123.405926	48.134671
EI01	2.8	470391.84	5329142.91	-123.397800	48.114858	470392.17	5329142.20	-123.397796	48.114852
EI02	7.6	471207.97	5329167.52	-123.386837	48.115117	471208.41	5329167.10	-123.386831	48.115114
EI03	15.3	471550.44	5329222.69	-123.382240	48.115629	471518.85	5329321.39	-123.382671	48.116516
EI04	9.7	472516.42	5329230.68	-123.369262	48.115743	472120.83	5329132.19	-123.374570	48.114840
EI05	NA	472970.63	5329296.34	-123.363163	48.116354	Could Not Obtain a Sample		Could Not Obtain a Sample	
EI06	8.0	473450.95	5329423.48	-123.356718	48.117518	473387.16	5329388.16	-123.357573	48.117197
EI07	17.2	473768.90	5329573.94	-123.352455	48.118884	473775.18	5329653.23	-123.352376	48.119598
FP01	39.6	469001.84	5331911.24	-123.416677	48.139698	469001.34	5331910.46	-123.416683	48.139691
FP02	24.6	468554.34	5332005.19	-123.422699	48.140522	468563.27	5331992.51	-123.422578	48.140408
FP03	148.0	468451.57	5331524.70	-123.424044	48.136194	468452.40	5331526.29	-123.424033	48.136208
FT01	20.9	467821.15	5329947.64	-123.432399	48.121974	467821.43	5329947.71	-123.432395	48.121974
FT02	26.9	467939.06	5330014.79	-123.430819	48.122584	467938.90	5330015.80	-123.430821	48.122593
FT03	NA	468045.14	5329983.78	-123.429392	48.122310	Could Not Obtain a Sample		Could Not Obtain a Sample	
FT04	20.0	468062.58	5329803.26	-123.429144	48.120687	468066.38	5329904.80	-123.429100	48.121601
FT05	48.8	468084.78	5330233.88	-123.428878	48.124562	468084.03	5330234.93	-123.428888	48.124572
FT06	66.4	468353.80	5330518.48	-123.425284	48.127136	468357.49	5330518.24	-123.425234	48.127134
FT07	82.3	468629.83	5330837.92	-123.421598	48.130024	468629.50	5330838.85	-123.421602	48.130032
FT08	116.0	468910.28	5331189.45	-123.417854	48.133200	468910.22	5331189.03	-123.417855	48.133196
FT09	32.8	468305.76	5329998.02	-123.425891	48.122451	468307.77	5329997.45	-123.425864	48.122446
FT10	50.4	468651.91	5330249.37	-123.421258	48.124730	468650.85	5330248.59	-123.421272	48.124723
FT11	60.9	468993.95	5330488.56	-123.416679	48.126898	468993.96	5330488.59	-123.443555	48.126798
FT12	91.0	469665.18	5330962.97	-123.407693	48.131199	469665.21	5330964.05	-123.407692	48.131209
FT13	103.0	469354.26	5331082.56	-123.411880	48.132260	469353.91	5331082.15	-123.411884	48.132256
IE01	46.1	467776.23	5332015.25	-123.433159	48.140573	Could Not Obtain a Sample		Could Not Obtain a Sample	
IE02	NA	467539.38	5331912.68	-123.436334	48.139638	Could Not Obtain a Sample		Could Not Obtain a Sample	
IE03	76.1	467342.26	5332009.90	-123.438991	48.140503	467342.18	5332008.52	-123.438992	48.140490
IE04	86.7	466917.30	5331868.53	-123.444693	48.139209	466917.93	5331867.70	-123.444684	48.139202

**Table B-1. Coordinates for Surface Sediment Stations**

Station	Water depth (feet)*	Original Target Coordinates (UTM 10 - NAD 83)		Original Target Coordinates (Lat/Long)		Actual Grab Sample Locations (UTM 10 - NAD 83)		Actual Grab Sample Locations (Lat/Long)	
		x	y	x	y	x	y	x	y
IE05	55.9	466617.79	5331871.34	-123.448719	48.139219	466617.82	5331869.76	-123.448718	48.139204
IE06	40.0	466432.71	5331833.75	-123.451204	48.138871	466432.97	5331834.33	-123.451200	48.138876
IE07	10.0	466259.50	5331777.08	-123.453527	48.138352	466262.11	5331776.33	-123.453492	48.138345
IE08	49.7	465861.78	5331646.11	-123.458863	48.137152	465870.56	5331645.64	-123.458745	48.137148
IE09	39.1	465734.99	5331550.27	-123.460559	48.136283	465739.63	5331554.46	-123.460497	48.136321
IE10	167.0	466953.06	5331733.68	-123.444202	48.137998	466954.49	5331734.99	-123.444182	48.138010
IE11	151.0	466746.65	5331685.25	-123.446972	48.137551	466746.01	5331685.39	-123.446981	48.137552
IE12	112.0	466368.10	5331554.83	-123.452050	48.136358	466368.33	5331555.94	-123.452047	48.136368
IE13	80.5	466059.71	5331484.77	-123.456189	48.135711	466060.53	5331484.51	-123.456178	48.135709
IE14	130.0	466986.31	5331593.44	-123.443744	48.136738	466984.99	5331592.93	-123.443761	48.136733
IE15	80.5	466593.28	5331172.15	-123.448993	48.132927	466593.49	5331173.11	-123.448991	48.132936
IE16	66.5	466288.88	5331198.20	-123.453087	48.133145	466288.19	5331198.91	-123.453096	48.133152
IH01	29.1	465675.98	5331300.81	-123.461332	48.134036	465675.57	5331300.46	-123.461338	48.134032
IH02	37.8	465753.28	5331188.22	-123.460284	48.133027	465753.50	5331186.82	-123.460281	48.133014
IH03	22.3	465795.89	5330996.81	-123.459696	48.131307	465793.86	5330996.09	-123.459723	48.131301
IH04	19.5	465814.30	5330918.02	-123.459442	48.130599	465814.18	5330918.32	-123.459444	48.130602
IH05	14.5	465899.45	5330795.32	-123.458288	48.129500	465901.18	5330795.49	-123.458265	48.129502
IH06	21.5	466013.80	5330716.01	-123.456745	48.128792	466021.00	5330697.18	-123.456647	48.128623
KP01	29.6	467246.43	5330207.60	-123.440141	48.124283	467245.39	5330207.47	-123.440155	48.124282
KP02	29.4	467356.13	5330154.95	-123.438663	48.123815	467344.60	5330149.78	-123.438817	48.123768
KP03	17.9	467462.31	5330097.19	-123.437232	48.123301	467458.80	5330108.18	-123.437280	48.123400
KP04	17.7	467575.31	5330048.10	-123.435710	48.122865	467574.28	5330047.88	-123.435723	48.122863
KP05	51.8	467592.06	5330355.47	-123.435508	48.125631	467592.60	5330355.78	-123.435501	48.125634
KP06	79.1	467908.22	5330882.44	-123.431299	48.130388	467908.11	5330880.99	-123.431300	48.130375
KP07	106.0	468063.01	5331213.43	-123.429244	48.133374	468063.80	5331213.14	-123.429233	48.133371
KP08	50.5	467403.41	5330387.79	-123.438045	48.125912	467394.24	5330384.51	-123.438168	48.125882
LA01	2.5	465053.59	5331204.13	-123.469689	48.133132	465053.30	5331203.00	-123.469693	48.133122
LA02	3.5	465097.08	5331096.91	-123.469096	48.132170	465097.20	5331097.30	-123.469094	48.132173
LA03	3.3	465159.40	5331182.83	-123.468265	48.132946	465159.60	5331182.10	-123.468262	48.132940
MA01	21.8	466261.01	5330433.06	-123.453401	48.126260	466261.12	5330432.95	-123.453399	48.126259
MA02	45.6	466378.76	5330530.88	-123.451826	48.127146	466506.78	5330529.02	-123.450105	48.127136
MA03	46.3	466359.99	5330659.46	-123.452088	48.128302	466360.32	5330659.54	-123.452084	48.128303
MA04	40.5	466577.34	5330508.41	-123.449155	48.126955	466547.34	5330504.19	-123.449558	48.126915
MA05	52.4	466572.55	5330678.76	-123.449233	48.128487	466572.08	5330679.59	-123.449240	48.128494
MA06	75.4	466806.67	5330965.08	-123.446109	48.131075	466806.78	5330963.65	-123.446108	48.131062
OH01	64.9	471240.55	5330565.80	-123.386494	48.127699	471239.63	5330565.14	-123.386506	48.127693
OH02	87.0	470830.35	5330976.00	-123.392034	48.131371	470832.32	5330975.17	-123.392008	48.131363
RL01	8.0	468158.00	5329690.05	-123.427853	48.119673	468158.67	5329690.93	-123.427844	48.119681
RL02	8.5	468327.96	5329597.03	-123.425563	48.118845	468313.12	5329597.11	-123.425762	48.118845
RL03	29.6	468674.63	5329893.97	-123.420926	48.121533	468675.77	5329893.75	-123.420911	48.121531
WW01	52.6	470304.69	5330253.31	-123.399048	48.124844	470303.97	5330254.06	-123.399058	48.124851

**Table B-1. Coordinates for Surface Sediment Stations**

Station	Water depth (feet)*	Original Target Coordinates (UTM 10 - NAD 83)		Original Target Coordinates (Lat/Long)		Actual Grab Sample Locations (UTM 10 - NAD 83)		Actual Grab Sample Locations (Lat/Long)	
		x	y	x	y	x	y	x	y
<b>Rayonier Mill Stations</b>									
CO01	NA	469493.31	5329428.39	-123.409893	48.117384	469495.00	5329440.00	-123.409871	48.117489
CO02	14.6	469513.71	5329545.35	-123.409627	48.118438	469512.29	5329544.93	-123.409646	48.118434
CO03	10.2	469651.08	5329571.19	-123.407783	48.118677	469681.65	5329526.61	-123.407369	48.118277
CO04	6.8	469765.32	5329496.39	-123.406243	48.118009	469771.85	5329518.49	-123.406157	48.118208
CO05	15.6	469827.88	5329504.55	-123.405403	48.118086	469827.14	5329548.56	-123.405416	48.118481
DO01	37.4	470626.34	5329734.21	-123.394690	48.120189	470626.09	5329734.80	-123.394694	48.120194
DO02	50.4	471133.54	5330006.67	-123.387894	48.122664	471133.56	5330007.09	-123.387894	48.122667
DO03	56.8	471461.27	5330198.97	-123.383503	48.124408	471460.79	5330198.37	-123.383509	48.124403
DO04	58.8	471716.96	5330521.73	-123.380089	48.127324	471717.13	5330521.51	-123.380086	48.127322
DO05	55.7	471930.74	5330261.84	-123.377199	48.124995	471930.34	5330261.82	-123.377204	48.124995
EC01	NA	469828.22	5329337.67	-123.405386	48.116584	530172.00	5329343.00	-122.594610	48.116632
EC02	NA	469794.81	5329426.28	-123.405842	48.117380	530147.47	5329419.71	-122.594934	48.117323
EC03	17.4	469798.63	5329486.95	-123.405795	48.117926	469827.97	5329574.53	-123.405407	48.118715
EC04	13.9	469855.89	5329489.44	-123.405025	48.117951	469872.57	5329550.48	-123.404806	48.118501
EC05	NA	469850.01	5329427.74	-123.405100	48.117396	469867.00	5329394.50	-123.404869	48.117097
ED01	38.9	469768.79	5330018.44	-123.406233	48.122706	469767.52	5330017.26	-123.406250	48.122695
ED02	38.8	469747.59	5329870.37	-123.406508	48.121373	469751.47	5329867.42	-123.406455	48.121347
ED03	36.7	469737.63	5329788.21	-123.406636	48.120633	469737.36	5329789.21	-123.406639	48.120642
ED04	31.1	469721.44	5329704.80	-123.406847	48.119882	469721.30	5329703.93	-123.406849	48.119874
ED05	16.1	469697.79	5329591.52	-123.407157	48.118862	469697.88	5329592.32	-123.407156	48.118869
EE01	3.0	469971.66	5329387.36	-123.403463	48.117038	469966.21	5329401.18	-123.403537	48.117162
EE02	2.1	469995.32	5329331.34	-123.403141	48.116535	469996.74	5329322.11	-123.403121	48.116452
EE03	7.3	470046.36	5329290.26	-123.402452	48.116168	470058.46	5329324.02	-123.402292	48.116472
EE04	2	470192.00	5329205.61	-123.400489	48.115413	470190.20	5329203.48	-123.400514	48.115394
EE05	2	470286.61	5329160.79	-123.399215	48.115014	470285.68	5329158.26	-123.399228	48.114992
LP01	5.4	469062.91	5329526.79	-123.415683	48.118249	469063.85	5329525.99	-123.415670	48.118242
LP02	NA	469146.31	5329468.28	-123.414558	48.117727	Could Not Obtain a Sample		Could Not Obtain a Sample	
LP03	10.2	469222.25	5329499.40	-123.413540	48.118010	469238.19	5329513.94	-123.413327	48.118142
LP04	12.9	469291.96	5329539.23	-123.412606	48.118372	469291.49	5329538.35	-123.412612	48.118364
LP05	11.6	469384.08	5329490.68	-123.411365	48.117940	469385.23	5329492.71	-123.411349	48.117958
MD01	22.5	469584.51	5329596.50	-123.408679	48.118901	469585.39	5329596.47	-123.408691	48.118902
MD02	30.9	469593.22	5329671.19	-123.408568	48.119574	469593.07	5329670.54	-123.408570	48.119568
MD03	34.7	469604.43	5329773.27	-123.408424	48.120493	469604.35	5329772.94	-123.408425	48.120490
MD04	32.9	469613.14	5329874.10	-123.408314	48.121400	469616.21	5329870.84	-123.408273	48.121371
MD05	32.5	469584.73	5330032.98	-123.408707	48.122828	469580.98	5330030.63	-123.408758	48.122807
OH03	121.0	470524.15	5331302.44	-123.396172	48.134293	470521.73	5331301.36	-123.396205	48.134284

**Table B-1. Coordinates for Surface Sediment Stations**

Station	Water depth (feet)*	Original Target Coordinates (UTM 10 - NAD 83)		Original Target Coordinates (Lat/Long)		Actual Grab Sample Locations (UTM 10 - NAD 83)		Actual Grab Sample Locations (Lat/Long)	
		x	y	x	y	x	y	x	y
<b>Reference Stations</b>									
RF01	7.8	490394.33	5334821.95	-123.129187	48.166568	490395.73	5334822.89	-123.129168	48.166577
RF02	3.6	490408.73	5334397.08	-123.128983	48.162746	490413.26	5334407.47	-123.128923	48.162840
RF03	39.3	491488.91	5334490.70	-123.114459	48.163604	491489.95	5334490.10	-123.114445	48.163598

\*Water depths are not corrected to mean lower low water and vary from Table B-2 due to surface samples being collected at different times and on different days than these subsurface samples.

Note: Coordinates are listed for replicate samples when collected to obtain enough sediment for chemical and bioassay analysis.

Key:

- UTM = Universal Transverse Mercator
- NAD = North American Datum
- NA = Intertidal Sample

**Table B-2. Coordinates for Subsurface Sediment Stations**

Station	Water depth (feet)	Original Target Coordinates (UTM 10 - NAD 83)		Original Target Coordinates (Lat/Long)		Actual Core Sample Locations (UTM 10 - NAD 83)		Actual Core Sample Locations (Lat/Long)	
		x	y	x	y	x	y	x	y
<b>Harbor-Wide Stations</b>									
BL02	37.3	466802.02	5330272.50	-123.446118	48.124844	466782.00	5330338.00	-123.446392	48.125432
BL08	80.0	467419.86	5330925.72	-123.437865	48.130753	467422.00	5330928.00	-123.437837	48.130773
EI02	7.8	471207.97	5329167.52	-123.386837	48.115117	471207.90	5329169.10	-123.386838	48.115131
EI04	NA	472516.42	5329230.68	-123.369262	48.115743	Could Not Obtain a Sample		Could Not Obtain a Sample	
EI07	NA	473768.90	5329573.94	-123.352455	48.118884	Could Not Obtain a Sample		Could Not Obtain a Sample	
FT04	12.0	468062.58	5329803.26	-123.429144	48.120687	468066.00	5329905.00	-123.429105	48.121602
FT06	60.0	468353.80	5330518.48	-123.425284	48.127136	468358.00	5330519.00	-123.425227	48.127141
FT12	88.3	469665.18	5330962.97	-123.407693	48.131199	469664.90	5330963.00	-123.407696	48.131199
IE01	46.1	467776.23	5332015.25	-123.433159	48.140573	467772.00	5332015.00	-123.433215	48.140571
IE05	66.0	466617.79	5331871.34	-123.448719	48.139219	466622.30	5331862.60	-123.448657	48.139140
IE09	40.0	465734.99	5331550.27	-123.460559	48.136283	465739.00	5331556.00	-123.460506	48.136335
IE12	111.0	466368.10	5331554.83	-123.452050	48.136358	466367.20	5331554.30	-123.452062	48.136353
IE14	130.0	466986.31	5331593.44	-123.443744	48.136738	466985.26	5331593.55	-123.443758	48.136739
IE16	68.2	466288.88	5331198.20	-123.453087	48.133145	466288.20	5331197.40	-123.453096	48.133138
IH02	39.8	465753.28	5331188.22	-123.460284	48.133027	465753.00	5331186.00	-123.460288	48.133007
IH06	17.3	466013.80	5330716.01	-123.456745	48.128792	466021.00	5330698.00	-123.456647	48.128631
KP02	34.2	467356.13	5330154.95	-123.438663	48.123815	467345.00	5330150.00	-123.438812	48.123770
KP03	21.9	467462.31	5330097.19	-123.437232	48.123301	467459.00	5330108.00	-123.437277	48.123398
KP07	102.2	468063.01	5331213.43	-123.429244	48.133374	468065.90	5331213.50	-123.429205	48.133375
KP08	49.0	467403.41	5330387.79	-123.438045	48.125912	467395.00	5330384.00	-123.438158	48.125878
LA02	3.3	465097.08	5331096.91	-123.469096	48.132170	465097.20	5331097.60	-123.469094	48.132176
MA02	43.5	466378.76	5330530.88	-123.451826	48.127146	466506.00	5330533.00	-123.450116	48.127172
MA06	77.0	466806.67	5330965.08	-123.446109	48.131075	466960.10	5330950.60	-123.444046	48.130953
RL03	72.0	468674.63	5329893.97	-123.420926	48.121533	469327.10	5330618.30	-123.412211	48.128082
<b>Rayonier Stations</b>									
CO01	NA	469493.31	5329428.39	-123.409893	48.117384	Could Not Obtain a Sample		Could Not Obtain a Sample	
CO02	15.2	469513.71	5329545.35	-123.409627	48.118438	469523.00	5329554.60	-123.409503	48.118521
CO03	3.7	469651.08	5329571.19	-123.407783	48.118677	469681.90	5329526.70	-123.407366	48.118278
CO04	11.7	469765.32	5329496.39	-123.406243	48.118009	469775.50	5329517.80	-123.406107	48.118202
CO05	21.3	469827.88	5329504.55	-123.405403	48.118086	469827.20	5329548.30	-123.405415	48.118479
DO01	NA	470626.34	5329734.21	-123.394690	48.120189	Could Not Obtain a Sample		Could Not Obtain a Sample	
DO02	NA	471133.54	5330006.67	-123.387894	48.122664	Could Not Obtain a Sample		Could Not Obtain a Sample	
DO03	NA	471461.27	5330198.97	-123.383503	48.124408	Could Not Obtain a Sample		Could Not Obtain a Sample	
DO04	60.1	471716.96	5330521.73	-123.380089	48.127324	471717.50	5330521.10	-123.380081	48.127318
DO05	59.8	471930.74	5330261.84	-123.377199	48.124995	471931.30	5330267.40	-123.377191	48.125045
EC01	NA	469828.22	5329337.67	-123.405386	48.116584	Could Not Obtain a Sample		Could Not Obtain a Sample	
EC02	NA	469794.81	5329426.28	-123.405842	48.117380	Could Not Obtain a Sample		Could Not Obtain a Sample	
EC03	18.0	469798.63	5329486.95	-123.405795	48.117926	469828.80	5329573.10	-123.405395	48.118702
EC04	19.0	469855.89	5329489.44	-123.405025	48.117951	469855.90	5329550.50	-123.405030	48.118500
EC05	NA	469850.01	5329427.74	-123.405100	48.117396	Could Not Obtain a Sample		Could Not Obtain a Sample	
ED01	34.5	469768.79	5330018.44	-123.406233	48.122706	469766.30	5330019.80	-123.406267	48.122718

**Table B-2. Coordinates for Subsurface Sediment Stations**

Station	Water depth (feet)	Original Target Coordinates (UTM 10 - NAD 83)		Original Target Coordinates (Lat/Long)		Actual Core Sample Locations (UTM 10 - NAD 83)		Actual Core Sample Locations (Lat/Long)	
		x	y	x	y	x	y	x	y
ED02	38.8	469747.59	5329870.37	-123.406508	48.121373	469750.90	5329867.60	-123.406463	48.121348
ED03	29.2	469737.63	5329788.21	-123.406636	48.120633	469737.75	5329788.65	-123.406634	48.120637
ED04	27.3	469721.44	5329704.80	-123.406847	48.119882	469720.51	5329703.18	-123.406860	48.119867
ED05	24.2	469697.79	5329591.52	-123.407157	48.118862	469698.10	5329592.30	-123.407153	48.118869
EE01	10.4	469971.66	5329387.36	-123.403463	48.117038	469966.30	5329400.80	-123.403536	48.117159
EE02	4.3	469995.32	5329331.34	-123.403141	48.116535	469996.70	5329335.00	-123.403123	48.116568
EE03	10.4	470046.36	5329290.26	-123.402452	48.116168	470058.80	5329324.40	-123.402287	48.116476
EE04	8.0	470192.00	5329205.61	-123.400489	48.115413	470188.10	5329206.80	-123.400542	48.115424
EE05	NA	470286.61	5329160.79	-123.399215	48.115014	Could Not Obtain a Sample		Could Not Obtain a Sample	
LP01	NA	469062.91	5329526.79	-123.415683	48.118249	Could Not Obtain a Sample		Could Not Obtain a Sample	
LP02	NA	469146.31	5329468.28	-123.414558	48.117727	Could Not Obtain a Sample		Could Not Obtain a Sample	
LP03	NA	469222.25	5329499.40	-123.413540	48.118010	Could Not Obtain a Sample		Could Not Obtain a Sample	
LP04	NA	469291.96	5329539.23	-123.412606	48.118372	Could Not Obtain a Sample		Could Not Obtain a Sample	
LP05	8.2	469384.08	5329490.68	-123.411365	48.117940	469388.50	5329500.10	-123.411306	48.118025
MD01	21.0	469584.51	5329596.50	-123.408679	48.118901	469578.10	5329604.10	-123.408766	48.118969
MD02	23.1	469593.22	5329671.19	-123.408568	48.119574	469513.10	5329669.70	-123.409644	48.119556
MD03	31.6	469604.43	5329773.27	-123.408424	48.120493	469604.58	5329773.74	-123.408422	48.120497
MD04	33.1	469613.14	5329874.10	-123.408314	48.121400	469616.40	5329871.60	-123.408270	48.121378
MD05	33.3	469584.73	5330032.98	-123.408707	48.122828	469581.80	5330030.10	-123.408747	48.122802

\*Water depths are not corrected to mean lower low water and vary from Table B-1 due to surface samples being collected at different times and on different days than these subsurface samples

Key:

UTM = Universal Transverse Mercator

NAD = North American Datum

NA = Intertidal Sample

**Table B-3. Coordinates for Tissue Sample Locations**

Station	Water depth (feet)	Original Target Coordinates (UTM 10 - NAD 83)		Actual Tissue Sample Locations		Tissue Collected
		x	y	x	y	
<b>Harbor-Wide Stations</b>						
EI08TH	30.0	470779.27	5329097.68	470889.00	5329427.00	Horse Clam
IE17	NA	465775.89	5331624.45	Could Not Obtain a Sample		
IE18TH	15.0	466445.33	5331836.80	466283.00	5331726.00	Horse Clam
IE19TH	NA	466956.41	5331984.36	Could Not Obtain a Sample		
IE20TH	7.0	467539.47	5332031.15	467980.00	5332028.00	Horse Clam
IE21TL	57.0	466015.12	5331352.65	466176.00	5331401.00	Lingcod
IE22TL	57.0	466164.91	5331356.81	466176.00	5331401.00	Lingcod
IE23TL	57.0	466164.91	5331252.79	466176.00	5331401.00	Lingcod
IE24TL	57.0	466010.96	5331252.79	466176.00	5331401.00	Lingcod
IE25TM	7.0	467218.85	5332058.23	467604.00	5332074.00	<i>Laminaria</i> Macroalgae
IE26TM	17.5	468137.19	5332039.20	468194.00	5332037.00	Eelgrass Macroalgae
RL04	NA	468582.59	5329787.96	Could Not Obtain a Sample		
<b>Rayonier Mill Stations</b>						
EC06TH	21.0	469765.42	5329478.77	469888.00	5329681.15	Horse Clam
EC07	NA	469887.66	5329482.37	Could Not Obtain a Sample		
EC08	NA	469970.35	5329392.49	Could Not Obtain a Sample		
LP06	NA	469182.99	5329349.35	Could Not Obtain a Sample		
LP07	NA	469305.23	5329345.75	Could Not Obtain a Sample		
LP08	NA	469431.06	5329392.49	Changed to Sample MD09		
MD06TH	20.0	469589.25	5329565.06	469586.40	5329565.79	Horse Clam
MD07TH	15.0	469589.25	5329680.11	469713.09	5329633.60	Horse Clam
MD08TH	38.5	469596.44	5329863.46	469922.00	5329942.00	Horse Clam
MD08TG	38.5	469596.44	5329863.46	469922.00	5329942.00	Geoduck
MD09TH	30.0	NA	NA	469532.00	5329969.00	Horse Clam
<b>Reference Stations</b>						
RF04TH	43.0	494214.35	5334140.26	493152.00	5333987.00	Horse Clam
RF06TG	36.0	492258.09	5336391.08	495318.00	5332172.00	Geoduck
RF04TH-2	36.0	NA	NA	495368.00	5332172.00	Horse Clam
RF05TH	43.0	494269.93	5333729.00	495368.00	5332172.00	Horse Clam

Coordinates are listed for replicate samples when collected to obtain enough tissue for all chemical analyses.

\*Water depths are not corrected to mean lower low water and vary from Table B-1 due to surface samples being collected at different times and on different days than these subsurface samples.

Key:

UTM = Universal Transverse Mercator

NAD = North American Datum



**Table B-4. Surface Sample Collection and Description Summary**

Sample ID	Attempts	Sample Date	Sample Time	Penetration Depth (cm)	Substrate/Other Remarks
<b>Harbor-Wide Samples</b>					
BA01A	1	6/7/2008	10:57	22.5	Surface of sediment is olive drab to 4 centimeters.
BA02A	1	6/7/2008	11:50	25	Upper sediment to 1 cm is light brown with olive drab. Some wood debris present.
BL01A	1	6/19/2008	9:44	24	Brown at surface. Strong hydrogen sulfide odor. Approximately 30% wood debris.
BL02A	1	6/13/2008	15:09	27	Olive color at surface. Wood debris toward bottom. No biota.
BL03A	1	6/13/2008	14:19	22	Olive color at surface. Small amount of woody debris. Shell fragments. No apparent biota. Strong hydrogen sulfide odor.
BL04A	1	6/13/2008	13:13	12	Some sheen noted. Slight odor - unknown, described as "strange". Sediment is cobble, gravel, sand (VC to VF) with little clay and silt. Shell debris present.
BL05A	1	6/9/2008	15:00	20	Fine sand/silt/clay with drab olive surface and gray/black below. No odor. Many polychaetes, some wood debris.
BL06A	1	6/11/2008	15:11	26	Brown surface. Sandy silt with trace clay. No odor.
BL07A	1	6/9/2008	15:34	20	Brown surface. No wood debris. No odor.
BL08A	1	6/9/2008	16:08	24	Brown surface. Silt grades into clay. No wood. No odor.
EH01A	2	6/8/2008	14:58	16; 11	Brown sand with cobble. No odor.
EH02A	2	6/7/2008	7:48	18; 15	Silty fine grained sand. Required 2 grabs to complete (at 07:48 and at 08:39).
EH03A	1	6/8/2008	15:32	20	Drab olive sandy silt. No odor.
EH04A	1	6/6/2008	16:47	20	Silt with trace sand. Olive drab and brown to 3 centimeters. No wood debris.
EI01A	1	6/19/2008	11:19	13	Drab olive/brown surface. Gray below. Sand. No odor.
EI02A	1	6/18/2008	14:10	19	Gray sand. No odor.
EI03A	1	6/18/2008	13:38	9	Gray cobble/sand. No odor.
EI04A	1	6/18/2008	12:57	15	Gray sand. No odor.
EI05A					ABANDONED
EI06A	1	6/18/2008	10:10	19	Gray sand. No odor.
EI07A	2	6/18/2008	8:50	15; 15	Gray/black sand with cobble/gravel. Drab olive/brown surface. No odor.
FP01A	1	6/7/2008	9:26	20	Silty fine grained sand. Approximately 1% wood debris.
FP02A	1	6/7/2008	12:36	18	Small oblong gravel. No odor.
FP03A	1	6/8/2008	12:52	19	Brown surface layer. Clay from 8 to 10 centimeters. Slight hydrogen sulfide odor.
FT01A	1	6/17/2008	11:54	24	Light brown at surface. 5% or less wood debris and some shell debris. Very slight hydrogen sulfide odor.
FT02A	1	6/17/2008	12:42	22	Light brown at surface. Moderate hydrogen sulfide odor. Wood and shell debris.
FT03A					ABANDONED
FT04A	1	6/17/2008	14:27	13	Drab olive surface, gray below. Sand/silt. No odor.

**Table B-4. Surface Sample Collection and Description Summary**

Sample ID	Attempts	Sample Date	Sample Time	Penetration Depth (cm)	Substrate/Other Remarks
FT05A	1	6/12/2008	13:29	21	Drab olive/brown surface. Silt/clay. No odor.
FT06A	1	6/12/2008	12:31	18	No odor. Brown surface layer. Sand is fine grained.
FT07A	1	6/12/2008	9:54	20	Drab olive/brown surface. Silt. No odor.
FT08A	1	6/11/2008	12:16	19	No odor. Brown at surface. Silt grades silty clay.
FT09A	1	6/12/2008	11:11	24	Olive to 10 cm, then very dark gray to black. Slight hydrogen sulfide odor.
FT10A	1	6/12/2008	10:29	23	Brown surface. Trace fine to very fine sand. No odor.
FT11A	1	6/12/2008	8:49	17	Brown surface. Color is olive and brown with slight gray. No odor. Trace sand.
FT12A	1	6/11/2008	11:13	15	Silt grading silt with clay with trace sand.
FT13A	1	6/11/2008	11:43	16	Sand/silt/clay. Drab olive/gray. Some polychaetes, shell frags.
IE01A					ABANDONED
IE02A					ABANDONED
IE03A	2	6/7/2008	14:50	20; 22	Mottled brown at sediment surface. Wood debris (bark) on sediment surface.
IE04A	3	6/8/2008	10:11	12; 20; 10	Brown surface layer. Significant (up to 50%) wood. Moderate hydrogen sulfide odor.
IE05A	1	6/7/2008	16:12	30	Sediment surface is brown to 1 centimeter, then black with mottled gray that fades to black downward.
IE06A	1	6/8/2008	16:29	10.5	Strong hydrogen sulfide odor, silt. Approximately 75% wood.
IE07A	1	6/16/2008	9:28	17	95% wood debris. Moderate hydrogen sulfide odor.
IE08A	1	6/13/2008	12:15	25	Moderate hydrogen sulfide odor. Large piece of bark (1 ft by 1 ft).
IE09A	1	6/16/2008	10:21	34	Brown at surface. Some wood debris.
IE10A	1	6/8/2008	18:04	21	Light brown surface, then olive to 9cm. At 9cm, turns to black silt with some clay. Slight hydrogen sulfide odor. Less than 5% wood debris, with bark on surface.
IE11A	1	6/9/2008	9:37	12	Slight hydrogen sulfide odor. Greater than 5% wood chips, heavily degraded, not bark.
IE12A	1	6/9/2008	12:52	24	Wood chips and bark present. Slight sulfur odor.
IE13A	1	6/9/2008	14:05	20	Red rock and sawdust. Moderate sulfur odor. Approximately 75% wood debris.
IE14A	1	6/9/2008	8:39	29	Brown at surface. No wood. No biological activity.
IE15A	1	6/9/2008	10:43	23	Drab olive/brown surface, gray below. Silt. No odor. Approximately 5% wood debris.
IE16A	1	6/9/2008	11:45	32	Moderate sulfur odor, silt. 70% sawdust present.
IH01A	1	6/16/2008	11:07	26	Gravel and VC to VF sand with a thin layer of silt at 3 cm. 30% wood debris and sawdust. Color unclear - Olive, brown, yellow.
IH02A	2	6/16/2008	12:23	10; 29	Brown at surface. Slight hydrogen sulfide odor. 10% wood debris.

**Table B-4. Surface Sample Collection and Description Summary**

Sample ID	Attempts	Sample Date	Sample Time	Penetration Depth (cm)	Substrate/Other Remarks
IH03A	2	6/16/2008	13:23	22; 25	Wood chips and wood debris up to 90%.
IH04A	2	6/16/2008	14:21	10; 17	Slight hydrogen sulfide odor. Wood chips, bark, and debris up to 70%.
IH05A	1	6/16/2008	15:50	21	Brown surface. Slight hydrogen sulfide odor.
IH06A	1	6/16/2008	16:27	22	Brown surface. Strong odor (type not noted).
KP01A	1	6/17/2008	9:05	27	Olive and brown at surface. Slight hydrogen sulfide odor.
KP02A	1	6/17/2008	9:47	27	Olive and light brown at surface. 20% wood debris. Very slight hydrogen sulfide odor.
KP03A	1	6/17/2008	10:19	22	Some silt. Brown surface. No odor.
KP04A	1	6/17/2008	10:58	18	Drab olive/gray below. Sand/silt/clay. No odor.
KP05A	1	6/12/2008	14:59	17	Brown surface layer. Little clay in sand.
KP06A	1	6/11/2008	16:15	21	Brown surface. Silt grades to silt with trace clay. No odor.
KP07A	1	6/11/2008	12:50	24	Brown surface. Fecal materials. Silt grading into silty clay.
KP08A	1	6/12/2008	15:58	11	Sediment type is cobble, gravel, sand (VC to VF), and silt. Contains wood, bark, and significant shell debris. No odor.
LA01A	1	7/23/2008	9:32	25	Brown with black mottled throughout. Silt with very trace fine sand. Woody debris 80% of the substance. Woody debris is small, mushy chips. Slight sulfur odor. Sheen.
LA02A	1	7/23/2008	10:46	25	Drab olive surface with grayish-brown below. No visible RPD. Silt with some very trace fine sand. A lot of green kelp. Slight woody debris. Slight sulfur odor.
LA03A	1	7/23/2008	10:10	25	Drab olive surface, grayish-brown below. Mottled black throughout surface and below surface. Moderate sulfur odor.
MA01A	1	6/17/2008	15:27	22	Gray surface. Moderate odor (type not noted).
MA02A	2	6/13/2008	10:50	16; 16	Light brown color at surface. Black below with green tint. Apx 80% woody debris. Sheen noted. Strong hydrogen sulfide odor.
MA03A	1	6/13/2008	10:01	26	Olive color at surface. No odor recorded.
MA04A	1	6/12/2008	16:47	27	Significant wood debris (~90%).
MA05A	1	6/13/2008	9:08	26	Olive color at surface. Slight odor noted, type not described.
MA06A	1	6/11/2008	13:56	23	Brown surface. Approximately 5% wood.
OH01A-R	1	6/18/2008	16:22	18	Light brown at surface. Slight hydrogen sulfide odor.
OH02A	1	6/11/2008	8:37	19	No odor. Thin brown clay and silt surface layer.
OH03A	1	6/11/2008	9:44	17.5	Brown surface. No odor.
RL01A	1	6/18/2008	14:50	19	Drab olive/gray below. Sand. No odor. Organic matter present.
RL02A	1	6/18/2008	15:31	22	Organic matter in sediment. No odor.

**Table B-4. Surface Sample Collection and Description Summary**

Sample ID	Attempts	Sample Date	Sample Time	Penetration Depth (cm)	Substrate/Other Remarks
RL03A	1	6/12/2008	14:09	11	Sediment type is cobble, gravel, sand (M-F), and silt. Significant shell debris and rocks. Slight anaerobic odor around algae.
WW01A	1	6/19/2008	11:59	16	Drab olive/light brown surface. Sand/silt. No odor.
RF01A	3	6/10/2008	12:03	15; 18; 21	Gray sand. No odor
RF02A	3	6/10/2008	13:32	20; 16; 11	Gray sand. No odor
RF03A	3	6/10/2008	10:12	18; 23; 24	No odor. Streaks of oxidation in sediment. Brown surface, then Olive, Brown, Gray, and Black.
<b>Rayonier Mill Area Samples</b>					
CO01A	1	6/22/2008	13:15	10	Sweet, unidentified odor. Few shell fragments. No apparent biota.
CO02A	1	6/22/2008	14:13	17	Light gray at surface. Significant shell debris. No odor.
CO03A	1	6/22/2008	16:42	16	Brown and gray sand with cobble/gravel. Juvenile fish, amphipods.
CO04A	1	6/20/2008	14:03	17	Slight hydrogen sulfide and another chemical (unsure, but sweet) odor.
CO05A	1	6/20/2008	13:19	22	Gray sand/silt with cobble and shell debris. No odor.
DO01A	1	6/19/2008	15:28	22	Drab olive/brown surface. Sand/silt. No odor.
DO02A	1	6/19/2008	14:54	13	Drab olive/brown surface. Sand/silt/cobble/gravel/shell debris/wood debris/organic matter.
DO03A	1	6/19/2008	14:06	17	Drab olive/brown surface. Gray below. Sand/silt, trace clay.
DO04A	1	6/19/2008	12:46	19	Drab olive/brown surface. Sand/silt. No odor.
DO05A	1	6/19/2008	13:21	16	Drab olive/brown surface. Sand/silt. No odor.
EC01A	1	6/21/2008	12:24	10	Brown sand with cobble/gravel. No odor.
EC02A	1	6/21/2008	12:57	10	No odor. Apx 10% gravel and cobbles.
EC03A	1	6/20/2008	11:52	22	Gray sand/silt. No odor.
EC04A	1	6/20/2008	12:24	12	Gray/black sand/silt. No odor.
EC05A	1	6/21/2008	12:40	10	No biota.
ED01A	1	6/21/2008	14:56	19	No odor. Apx 5% wood debris.
ED02A	1	6/19/2008	15:53	24	Organic matter and shell debris. Slight odor, type not noted. Light brown at surface.
ED03A	1	6/20/2008	16:13	23	Moderate hydrogen sulfide and sweet odor.
ED04A	1	6/20/2008	15:16	30	Organic matter. Overwhelming hydrogen sulfide and methane odor.
ED05A	1	6/20/2008	10:40	16	Penetration depth noted as 16 feet. Small pieces of shell debris. Brown surface. No odor.
EE01A	1	6/20/2008	9:57	23	Gray/black sand with cobble/gravel. No odor.
EE02A	1	6/20/2008	9:21	18	Brown surface. No odor.
EE03A	1	6/20/2008	14:44	14	Gray fine sand. No odor.
EE04A	1	6/20/2008	8:47	10	Gray/black cobble/gravel/sand. No odor.

**Table B-4. Surface Sample Collection and Description Summary**

Sample ID	Attempts	Sample Date	Sample Time	Penetration Depth (cm)	Substrate/Other Remarks
EE05A	1	6/20/2008	8:40	10	Gray sand with cobble/gravel. No odor, no biota.
LP01A	1	6/22/2008	12:36	12	Shell debris. Olive at surface. No odor.
LP02A	1				ABANDONED
LP03A	1	6/22/2008	11:07	15	Apx 30% wood debris (small fibers) and shell debris. No odor.
LP04A	1	6/22/2008	10:07	11	Apx 40% wood debris (chips, little bark). No odor.
LP05A	1	6/22/2008	9:01	22	Apx 50% wood debris (bark). Strong odor.
MD01A	1	6/22/2008	15:42	23	Brown at surface. No odor.
MD02A	1	6/21/2008	17:14	30	Gray surface. Moderate odor.
MD03A	1	6/22/2008	16:08	22	Olive at surface. Slight hydrogen sulfide odor.
MD04A	1	6/22/2008	14:59	22	Light brown at surface. No odor.
MD05A	1	6/21/2008	15:39	12	Olive at surface. No odor. Shell debris.

Table B-5. Core Collection and Description Summary

Station ID	Attempts	Acceptable Core Collected (Y or N)	Core Collection Date	Core Collection Time	Water Depth (ft)*	Penetration (feet/inches below mudline)	% Recovery	Sample (inches)	Sediment Description (inches)	Wood Material Description (inches)
<b>Harbor-Wide Samples</b>										
BL02	3	Y	6/8/2008	16:11	40' 2"	8' 6"	85	B = 36-48	0-60: Mixed fines, sand, and wood material. Sand est. 5%. Grayish brown, very moist, soft, strong sulfur odor. Woody material est. 40% consists of bark and chips, highly decomposed.	Up to 40% wood material from 0-60" consisting of bark and chips, increasingly decomposed with depth, large pieces are red.
								C = 60-78	60-78: Sand, well sorted, medium with minor coarse sand and fines, gray salt and pepper color, no wood debris.	No wood below 60".
BL08	3	Y	6/11/2008	10:12	80'	6'	100		0-12: Olive brown silt with fine sand and <5% wood debris consisting of bark. Bark is dark brown to black, highly decomposed, no sign of teredos infestation, some shell fragments.	0-12: <5% wood material consisting of dark brown to black bark, highly decomposed, no teredos.
								B= 12-24	12-24: Olive brown silt with clay and fine sand (<10%) and small shell fragments.	12-72: No wood observed.
								C= 36-48	24-72: Olive brown clayey silt with <10% fine sand, shell fragments, no wood.	
									72-84: Olive gray silt and clay and <10% fine sand with shell fragments and whole shells and <10% wood debris, dark brown, moderately decomposed, no teredos observed.	72-84: <10% wood material consisting of dark brown wood, moderately decomposed, no teredos observed.
EI02	3	Y	7/18/2008	14:41	8.0'	2.2'	70	B = 6-12	0-12: Dark gray fine sand with some gravel and cobble, shell fragments, and polychaete, no wood material.	None observed.
EI04	3	N	7/18/2008	16:56	14.2'	0 to 2.6'	0 to 45	No samples collected due to inadequate penetration and recovery.	Station abandoned due to hard bottom conditions. Material recovered consisted of sand and gravel.	None observed.
EI07	3	N	7/20/2008	9:00	18.3'	0"	0	No samples collected due to inadequate penetration and recovery.	Station abandoned due to hard bottom conditions. No sediment material recovered, likely due to rocky bottom.	None observed.
FT04	1	Y	6/7/2008	13:12	12'	5'	85	B = 12-24 C = 36-48	0-48: Sandy silt with some clay, grayish brown. Sand mostly very fine to fine with some medium. Minor shell debris throughout. Slight to moderate sulfur odor. Soft, moist to very moist. Hydrocarbon sheen 0-6. Woody debris to 10% throughout, up to 2, mostly small chunks and fibers, no bark.	0-48: Woody debris to 10% throughout, up to 2, mostly small chunks and fibers, no bark.
FT06	4	Y	6/9/2008	14:48	61'	4.5'	100		0-12: Mixed sand and fines, grayish brown. Sand fine to medium. Minor shell fragments to 5mm. Wet, soft, no odor.	None observed.
								B = 12-24	12-24: Sand, silt, and clay, sand very fine to fine, grayish brown, no odor. 10% shell debris to 2. Sand, gravel, fines, and shell debris, grayish brown.	
								C = 36-48	24-36: Sand very fine to medium, gravel rounded to 1/2, shell fragments to 2.	
									36-60: Mixed sand, gravel, and fines, grayish brown, no odor. Sand very fine to medium. Gravel rounded to 1.5. Shell debris including intact bivalves to 2 >20%.	

Table B-5. Core Collection and Description Summary

Station ID	Attempts	Acceptable Core Collected (Y or N)	Core Collection Date	Core Collection Time	Water Depth (ft)*	Penetration (feet/inches below mudline)	% Recovery	Sample (inches)	Sediment Description (inches)	Wood Material Description (inches)
FT12	1	Y	7/18/2008	12:25:00 PM	88.3'	5.9'	85		0-6: Silty fine sand, dark brown, with some shell fragments and organic detritus, no odor.	None observed.
								B = 6-12	6-12: As above except slight hydrocarbon odor and a snail.	
								C = 36-48	12-54: Silty fine sand, dark brown, with some shell fragments. No odor or organic detritus.	
IE01	1	Y	6/17/2008	8:01	46.1'	10.0'	84		0-6: Wood material and silt, dark brown, moderate sulfur odor. Wood material 90% consists of teredos-infested wood and bark and chips.	0-6: 90% wood material consisting of teredos-infested wood and bark and chips.
									6-12: Wood pulp and chips with silt, dark brown. Wood pulp and chips 80%. Moderate sulfur odor.	6-12: 80% wood pulp and chips. Moderate sulfur odor.
								B = 30-42	12-42: 70% wood pulp, chips, bark, and teredos-infested natural detritus, with silt, dark brown. Wood chips red, brown, and black. Moderate sulfur odor.	12-42: 70% wood pulp, chips, bark, and teredos-infested natural detritus. Wood chips red, brown, and black. Moderate sulfur odor.
									42-48: Fine sandy silt, dark brown, with <10% wood material. Slight sulfur odor.	42-48: <10% wood material.
								C = 48-60'	48-60: Very fine to fine sand, dark brown, with abundant shell fragments and live clam. No odor.	48-60: No wood material.
IE05	1	Y	6/13/2008	13:15	66.0'	10.0'	100		0-12: Muck and wood material, dark brown, soupy. Sheen and strong sulfur odor. Wood material includes pulp (gelatinous), chips, strands, and bark.	0-98: Predominantly wood material (pulp, chips, strands, and bark).
								B = 12-24	12-36: Mixed wood waste, organic muck, and fines, dark grayish brown. Wood material includes pulp (gelatinous), chips, strands, and bark. Very strong sulfur odor.	
									36-65: Predominantly wood chips, strands, and bark with likely pulp, little mineral sediment. Strong sulfur odor.	
									65-98: Mixed silt and wood material, soupy, grayish brown. Wood consists of chips, strands, and bark. Strong sulfur odor.	
								C = 98-110	98-120: Clayey silt with some very fine or fine sand and shell fragments to 1.5, dark grayish brown. Moderate sulfur odor.	98-120: No wood material.
IE09	3	Y	6/13/2008	9:27	40.0'	9' 1"	100	B = 36-48	0-120: Wood material with minor marine plant matter, no mineral sediment material observed. Mixed light brownish gray and tan in overall color. Predominantly gelatinous material (pulp) with tan wood chips, wood strips/strands, and reddish brown bark to 3. Bark and strands slightly decomposed. Moderate sulfur odor.	0-120: Wood material with minor marine plant matter, no mineral sediment material observed. Mixed light brownish gray and tan in overall color. Predominantly gelatinous material (pulp) with tan wood chips, wood strips/strands, and reddish brown bark to 3. Bark and strands slightly decomposed. Moderate sulfur odor.
IE12	2	Y	6/20/2008	10:31:00 AM	110' 11"	10.0'	100		0-12: Wood debris and pulp, blackish brown, possibly some mineral sediment, soupy. Strong sulfur odor. Wood debris consists of reddish brown bark and tan chips and strands to 1.5, partially decomposed.	0-99: Predominantly wood debris and pulp, with wood debris consisting of reddish brown bark and tan chips and strands, partially decomposed.
								B = 12-24	12-24: Wood debris and pulp, dark grayish brown, possibly some mineral sediment. Strong sulfur odor. Wood debris consists of reddish brown bark and tan chips and strands to 1.5, partially decomposed.	
									24-99: As above except chips and strands to 4.	
								C = 107-119	99-108: Mixed wood debris and mixed sand and silt with bivalve shells. Wood debris as described above.	99-108: Mixed wood debris and mixed sand and silt with bivalve shells. Wood debris as described above.
									108-120: Silty sand and shell debris, dark grayish brown. Sand very fine to fine. Moderate sulfur odor.	108-120: No wood material.

Table B-5. Core Collection and Description Summary

Station ID	Attempts	Acceptable Core Collected (Y or N)	Core Collection Date	Core Collection Time	Water Depth (ft)*	Penetration (feet/inches below mudline)	% Recovery	Sample (inches)	Sediment Description (inches)	Wood Material Description (inches)
IE14	1	Y	6/20/2008	14:11	128' 8"	10.0'	100	B = 12-24	0-56: Dark grayish brown organic muck, including pulp, and wood debris. No observable mineral sediment. Strong sulfur odor. Wood debris includes partly decomposed black and reddish brown bark to 2 and tan chips to 3.	0-56: Dark grayish brown organic muck, including pulp, and wood debris. No observable mineral sediment. Wood debris includes partially decomposed black and reddish brown bark to 2 and tan chips to 3.
									56-62: As above except with some clay and silt.	56-62: As above except with some clay and silt.
								C = 62-74	62-120: Clay and silt, dark grayish brown, with some clam shell debris, no wood material.	62-120: No wood material.
IE16	2	Y	6/12/2008	9:25	68' 2"	10.0'	100		0-12: Clayey silt with some fine or very fine sand, grayish brown. Trace shell fragments to 1/4. Slight sulfur odor.	None observed.
								B=12-24	12-36: Clayey silt with minor very fine sand, grayish brown. Minor shell fragments to 1/2. Slight sulfur odor.	
								C = 36-48	36-48: Clayey silt with minor fine or very fine sand, grayish brown. Minor shell fragments to 3/8. Minor sulfur odor.	
									48 -72: As above except shell fragments (bivalves and snails) to 1.5.	
		72-120: As above except decreasing clay and increasing fine or very fine sand, and locally (84 -100) higher (5%) shell content.								
IH02	2	Y	6/12/2008	12:59:00 PM	39' 8"	10.5'	95	B = 12-24	0-24: Mixed wood debris and decomposed wood material or pulp, greenish, grayish brown. No easily discernable mineral content. Wood material consists of tan and brown wood chips, strands to 2, and bark to 2, slightly decomposed.	0-24: Predominantly mixed wood debris and decomposed wood material and/or pulp. Wood material consists of tan and brown wood chips, strands to 2", and bark to 2", slightly decomposed.
									24-68: As above except size of wood chips and strands decreasing downward and degree of decomposition decreasing downward.	24-68: As above except size of wood chips and strands decreasing downward and degree of decomposition decreasing downward.
								C = 70-82	68-82: Clay and silt, dark grayish brown, with minor mica flakes to 2mm. Slight sulfur odor.	68-120: No wood material.
									82-120: As above except silt proportion generally decreasing downward.	
IH06	3	Y	6/10/2008	4:27:00 PM	17' 4"	10.0'	100		0-12: Dark grayish brown organic muck with silt and fine sand and some wood debris. Strong sulfur odor. Wood debris includes reddish brown chips to 1.5 and strands.	0-12: Wood debris includes reddish brown chips to 1.5 and strands.
								B = 12-24	12-24: Dark grayish brown organic muck with minor fine sand and 20% wood debris consisting of heavily decomposed fibers. Strong sulfur odor.	12-24: 20% wood debris consisting of heavily decomposed fibers.
									24-70: Mixed wood debris, silt, sand, and muck. Wood debris to 75% consists of tan and reddish brown chips to 2, tan strands, and bark. Slightly to heavily decomposed. Strong sulfur odor.	24-70": Wood debris to 75% consists of tan and reddish brown chips to 2", tan strands, and bark. Slightly to heavily decomposed.
									70-98: Mixed sand, silt, and wood debris. Wood debris ranges 40 to 50%, consisting of chips, strands, and bark, slightly to heavily decomposed.	70-98: Wood debris ranges 40 to 50%, consisting of chips, strands, and bark, slightly to heavily decomposed.
								C = 98-100	98-120: Silty sand with some clay, grayish brown. Sand very fine to fine. Bivalve shell fragments to 2. Moderate sulfur odor.	98-120: No wood material.



Table B-5. Core Collection and Description Summary

Station ID	Attempts	Acceptable Core Collected (Y or N)	Core Collection Date	Core Collection Time	Water Depth (ft)*	Penetration (feet/inches below mudline)	% Recovery	Sample (inches)	Sediment Description (inches)	Wood Material Description (inches)
KP02	1	Y	6/10/2008	11:47	34' 2"	8' 5"	100	B = 12-24	0-27: Mixed wood debris and fines, including organic muck, dark grayish brown. Minor fine sand. Wood debris to 40%, including reddish brown bark and chips/chunks to 4, with most <2, and tan chips and strands, moderately decomposed.	0-27": Wood debris to 40%, including reddish brown bark and chips/chunks to 4", with most <2", and tan chips and strands, moderately decomposed.
									27-41: Sandy silt and silty sand, brown. Sand fine to coarse.	27-41: No wood material observed.
									41-54: Silt and organic muck with subrounded gravel to 1.5 and some wood debris (strands) and minor fine sand and shell fragments. Moderate sulfur odor.	41-54: Some wood debris (strands).
								C = 54-66	54-66: Sandy silt, greenish grayish brown, with some clay nodules and subrounded pebbles to 3/4. Some plant roots. No odor.	54-120: No wood material observed.
									66-108: Sandy, clayey silt, grayish brownish tan, with minor twigs. Sand fine.	
	108-120: Sand, gravel, cobble, and fines, brownish tan.									
KP03	2	Y	6/10/2008	8:17	21' 11"	9.5'	100		0-24: Mixed wood debris, fines, sand, and organic muck, dark grayish brown. Wood debris to 40% consists of thin strands to 2, moderately to heavily decomposed. 20% sand fine to coarse. Moderate sulfur odor.	0-24": Wood debris to 40% consists of thin strands to 2", moderately to heavily decomposed.
								B = 24-36	24-36": Mixed sand, fines, including organic muck, and wood debris, dark grayish brown. Wood debris 30%, consisting of highly decomposed thin strands to 2". 20% very fine to medium sand. 50% fines/organic muck. Moderate sulfur odor.	24-36": Wood debris 30%, consisting of highly decomposed thin strands to 2".
									36-78: Mixed sand, fines, including organic muck, and wood debris, dark grayish brown. Wood debris 50%, consisting of moderately to highly decomposed chips and strands to 3. Chips reddish brown. 20% fine to coarse sand. 30% fines/organic muck. Moderate sulfur odor.	36-78": Wood debris 50%, consisting of moderately to highly decomposed chips and strands to 3". Chips reddish brown.
								C = 78-90	78-120: Silt and clay with minor fine sand, grayish brown. Clay 70%. Minor shell debris and trace wood debris. Moderate sulfur odor.	78-120: Trace wood debris.
KP07	1	Y	6/21/2008	10:15:00 AM	102' 2"	5.0'	>100	B = 12-24; C = 36-48	0-55: Clayey silt with minor sand, dark grayish brown. Whole shells and fragments. No odor.	None observed.
									60-92: As above except sand increasing in size and abundance downward from very fine to fine.	
KP08	3	Y	6/8/2008	9:48	49'	6' 7"	66		0-28: Disturbed mix of silt, sand and wood material, medium grayish brown. Wood material includes red chips, moderately decomposed.	0-28: Some wood material including red chips, moderately decomposed.
									28-30: Sandy silt, medium grayish brown.	28-60: No wood material observed.
									30-36: Sandy silt and clay.	
								B = 36-48	36-48: Silt with some sand and clay, medium grayish brown. Minor shell fragments.	
	C = 48-60	48-60: Sand, silt, and gravel with some thin clay layers. Overall grayish brown. Clay reddish brown. Gravel to 1, sub-angular to sub-rounded. Minor shell fragments.								

Table B-5. Core Collection and Description Summary

Station ID	Attempts	Acceptable Core Collected (Y or N)	Core Collection Date	Core Collection Time	Water Depth (ft)*	Penetration (feet/inches below mudline)	% Recovery	Sample (inches)	Sediment Description (inches)	Wood Material Description (inches)
LA02	1	Y	7/23/2008	14:03	3.3'	6.5'	70		0-6: Silt with kelp and minor wood material, dark brown. Slight sulfur odor. Wood material consists of brown chips 1/2 to 1.	0-6: Wood material consists of brown chips 1/2 to 1.
									6-12: Silt with kelp and wood material, dark brown. Wood consists of red and brown chips to 3 and decomposed wood chips to 1 cm.	6-12: Wood consists of red and brown chips to 3 and decomposed wood chips to 1 cm.
									12-24": Silty sand with gravel and wood debris, dark brown. Red and brown wood chips to 3", brown bark, and decomposed wood chips. Moderate sulfur odor. Gravel subrounded to rounded.	12-24": Red and brown wood chips to 3", brown bark, and decomposed wood chips.
								B = 24-36	24-36": Silty sand with gravel and wood material, dark brown. Red and brown wood chips to 3", brown bark, and brown decomposed wood. Gravel subrounded. Moderate sulfur odor.	24-36": Red and brown wood chips to 3", brown bark, and brown decomposed wood.
								36-48": Silty sand with some clay, gravel, and wood material, dark brown. Red and brown wood chips to 3", bark to 2", and light tan strands to 3". Gravel subrounded to rounded. Slight sulfur odor.	36-48": Red and brown wood chips to 3", bark to 2", and light tan strands to 3".	
MA02	1	Y	6/11/2008	13:30	43.5'	6'	100	B = 6-12	0-12": Silt and wood material, grayish brown. 40-70% wood consists of red and black bark, and yellow and brown chips to 1.5", no teredos, lightly to heavily decomposed.	0-12": 40-70% wood consists of red and black bark, and yellow and brown chips to 1.5", no teredos, lightly to heavily decomposed.
								C = 12-24	12-24: Clayey silt, grayish brown, with <10% wood material, no teredos.	12-24": <10% wood material, no teredos.
									24-48": Silt, grayish brown, with some shell fragments, no odor, and minor natural wood detritus, no teredos.	24-48": Minor natural wood detritus, no teredos.
									48-60": Clay with some (decreasing downward) silt and gravel and natural wood detritus, dark grayish brown. Shells to 3". Wood light to dark brown, moderately to highly decomposed, no teredos.	48-60": Natural wood detritus, light to dark brown, moderately to highly decomposed, no teredos.
MA06	1	Y	7/25/2008	15:20	77'	34"	91	Divided core into 2 cm intervals for radiometric dating per SAP.	0-6: Brown silt with some organic detritus and trace shell fragments and one small worm. No odor or wood material.	None observed.
									6-12: Brown silt with trace shell fragments and pocket of black organic material. No odor or wood material.	
									12-18: Brown silt with shell fragments. No odor or wood material.	
									18-25: Brown silt with abundant shell fragments. No odor or wood material.	
RL03	1	Y	7/25/2008	19:02	72'	35"	91	Divided core into 2 cm intervals for radiometric dating per SAP.	0-16: Silt, brown, with trace shell fragments and round black nodule of unidentified organic material, no odor, no wood material.	None observed.
									16-24": Silt, brown, with abundant shell fragments to 3". No odor. No wood material.	
<b>Rayonier Area Samples</b>										
CO01	3	N	7/24/2008	19:16	4.5' to 8.1'	0.6' to 1.0'	<65	No samples collected due to inadequate penetration and recovery.	Each of three coring attempts resulted in recovery of only several inches of gravel +/-cobble to 3". For each successive attempt, moved position further offshore. Station abandoned.	None observed.
CO02	3	Y	7/17/2008	14:07	19.8'	2.3'	64		0-6": Sandy silt with gravel and cobbles, dark brown. Kelp, shell fragments, and some red wood chips to 3", and natural detritus. No odor.	Minor red wood chips to 3" noted throughout core. Wood strands and chips noted in rejected core.
								B = 6-12	6-12: Silty sand with gravel and cobble, dark brown. Minor red wood chips and natural detritus. No odor.	NA

Table B-5. Core Collection and Description Summary

Station ID	Attempts	Acceptable Core Collected (Y or N)	Core Collection Date	Core Collection Time	Water Depth (ft)*	Penetration (feet/inches below mudline)	% Recovery	Sample (inches)	Sediment Description (inches)	Wood Material Description (inches)
CO03	3	Y	7/20/2008	11:11:00 AM	3.5'	5.7'	78		0-6: Sand and gravel with some cobble, dark brown. Sand coarse, gravel and cobble small to large. Kelp and natural detritus. Slight sulfur odor. Live polychaete tube and crab.	0-6: No wood noted.
									6-12": Sand with some gravel, dark gray, and trace wood chips. Sand medium with some coarse. Gravel small to large. Trace wood chips to 1/2". Slight sulfur odor.	6-12": Trace wood chips to 1/2".
								B = 24-36	12-24": Sand with gravel, dark gray, with wood chips. Sand medium. Gravel small and large. Thin layers of brown, decomposed wood chips at 21" and 24". Strong sulfur odor associated with wood chips.	12-48": Wood chips encountered as thin layers of small chips to 1/2" to isolated chips to 2-3". Decomposed and associated with slight to strong sulfur odor.
									36-48": Sand with gravel, dark gray, and trace wood chips. Sand medium. Gravel small. Trace wood chips, including one chip to 2-3". Slight sulfur odor associated with wood chips.	
CO04	3	Y	7/18/2008	19:02	11.7'	7.2'	62		0-6: Sand with gravel and cobble, dark brown. Sand coarse. Gravel and cobble small to large. Shell fragments and trace natural detritus. No odor.	NA
									6-12": As above except with trace wood chips to 1".	Trace wood chips to 1" from 6-36".
								B = 12-24	12-24": As above except observed black staining at 23".	
			24-36": As described for 6-12".							
CO05	3	Y	7/15/2008	18:11	21.3'	5.0'	73		0-12": Sand with silt and gravel and wood material. Sand coarse. Trace shell fragments. 50% wood material, including wood chips and twigs. Moderate sulfur odor.	0-12": 50% wood chips and trigs.
									12-24": Silt, dark brown, and wood material. 75% wood material consisting of wood chips, twigs, and fibers. Moderate sulfur odor.	12-27": up to 75% wood material, including chips, fibers, and twigs.
								B = 24-36	24-27": Silt and clay with high organic content and wood chips and twigs, dark brown.	
			27-36: fines (clay and/or pulp), black, strong petroleum and burnt rubber odor.	27-36": Trace wood chips to 1" from 6-36": possible pulp.						
DO01	3	N	7/22/2008	11:16	32.5'	3.2'	36	No samples collected due to inadequate penetration and recovery.	Station abandoned due to hard bottom conditions. Material recovered in 3 attempts includes sand, gravel, and cobbles to 2.5" and shell debris and intact clam shell to 3". Also included dense silt, light brown, in one attempt.	None observed.
DO02	3	N	7/24/2008	12:51	48'	0.9' to 3'	<65	No samples collected due to inadequate penetration and recovery.	Station abandoned due to inadequate penetration and recovery. In each of 3 attempts, recovered mixtures of sand, gravel, and fines, dark grayish brown, with some shell fragments. Gravel subrounded to 1.5".	None observed.
DO03	3	N	7/22/2008	13:06	55.2'	1.3 -5.9'	<65	No samples collected due to inadequate penetration and recovery.	Station abandoned due to inadequate penetration and recovery. Recovered material includes sand and gravel with some shell fragments. Gravel subrounded to 2".	None observed.
DO04	3	Y	7/22/2008	15:01	60.1'	4.8'	67	B = 6-12	0-24: Silt and clay, dark brown, with trace shell fragments. No odor or wood material.	None observed.
								C = 12-24		
								D = 24-32	24-36": Silt with clay, dark brown, with trace gravel and cobble to 2.5". No odor or wood material.	

Table B-5. Core Collection and Description Summary

Station ID	Attempts	Acceptable Core Collected (Y or N)	Core Collection Date	Core Collection Time	Water Depth (ft)*	Penetration (feet/inches below mudline)	% Recovery	Sample (inches)	Sediment Description (inches)	Wood Material Description (inches)
DO05	3	Y	7/22/2008	16:58	59.8'	3.3'	64		0-6: Silt and clay, dark brown, with shell fragments and polychaetes, no odor.	NA
								B = 6-12	6-12: As above except with minor small cobble and one 1" wood chip, no odor.	6-12": One 1" wood chip.
								C = 12-16	12-16: As above except no wood.	NA
EC01	0	NA	7/24/2008	NA	NA	NA	NA	No samples collected due to inadequate penetration and recovery.	No core collected. Shallow bottom visually observed to consist of cobbles to 6". Station abandoned.	NA
EC02	0	NA	7/24/2008	NA	NA	NA	NA	No samples collected due to inadequate penetration and recovery.	No core collected. Shallow bottom visually observed to consist of cobbles to 6". Station abandoned.	NA
EC03	4	Y	7/16/2008	11:37	19.0'	4	65		0-6": Sandy silt with wood chips to 2" (no teredos noted). Clam shells, shrimp, and abundant kelp. No odor.	0-6": Wood chips to 2", no teredos.
								B = 6-12	6-12": Silt, dark brown, petroleum and sulfur odor. No wood noted.	6-12": No wood.
								C = 12-24	12-24": Silt with clay, black, moderate petroleum odor, trace wood chips to 1/2". Trace shells and worm tube.	12-24": Trace small wood chips to 1/2".
EC04	1	Y	7/16/2008	13:21	19.0'	5.2'	66		0-6": Sand with silt and some gravel, dark brown. No odor. Trace shells, polychaete, no wood.	0-6": No wood.
									6-12": Silty sand, dark brown, with trace gravel and shell fragments. Slight sulfur odor. Some wood chips to 1 cm.	6-12": Some wood chips to 1cm.
								B = 12-24	12-24": Silt with clay and sand, grayish black with trace shell fragments and some gravel. Abundant wood chips to 3", brown and red, increasingly decomposed with depth.	12-32": Abundant wood chips to 3", brown and red, increasingly decomposed with depth.
									24-32": As above.	
EC05	3	N	7/24/2008	17:50	2.0'	1.0' to 1.7'	54	No samples collected due to inadequate penetration and recovery.	Station abandoned due to hard bottom conditions. Some material washed out of core barrel on each attempt, with only gravel and cobble retained above sand catcher.	None observed.
ED01	2	Y	6/19/2008	9:55	34.5'	5.0'	90		0-12": Sandy silt with clay and gravel and wood chips, very dark brown. Gravel sub-angular to sub-rounded. 10% wood chips, red and brown. Slight sulfur odor.	0-12": 10% wood chips, red and brown.
								B = 24-36	12-36": 98% wood material with some sand, slight sulfur odor. Mostly red and brown bark to 4" with some weathered (rounded) twigs and chips, no pulp, no teredos.	12-36": 98% wood material, mostly red and brown bark to 4" with some weathered (rounded) twigs and chips, no pulp, no teredos.
								C = 72-84	36-54": Sand and gravel with wood material. Sand fine to medium, very dark brown. Abundant small to large gravel. 30% wood material consisting mostly of chips.	36-54": 30% wood material consisting mostly of chips.
ED02	2	Y	6/18/2008	15:42	38 '8"	6.0'	100		0-12: Mixed sand, fined, and organic muck, dark grayish brown. Sand to medium. Mild sulfur odor.	None observed.
								B = 12-24	12-24: Mixed sand, fines, and organic muck, grayish brown. Sand to medium. Mild sulfur odor.	
								C = 36-48	24-55": Mixed sand, fines, gravel, and shell debris, overall grayish brown. Some clay. Sand up to coarse. Gravel subrounded to 1". Shell fragments to 2". Mild sulfur odor.	
									55-89": Interlayered sand, silt, and silty sand. Silt layers gray. Sandy layers brownish gray. Slight sulfur odor.	

Table B-5. Core Collection and Description Summary

Station ID	Attempts	Acceptable Core Collected (Y or N)	Core Collection Date	Core Collection Time	Water Depth (ft)*	Penetration (feet/inches below mudline)	% Recovery	Sample (inches)	Sediment Description (inches)	Wood Material Description (inches)
ED03	2	Y	6/18/2008	8:13 (attempt 1); 9:07 (attempt 2)	29' 9" (attempt 1); 29' 2" (attempt 2)	5.0' for both attempts	100 for both attempts	B = 6-18 (attempt 2)	0-16": Sandy silt with 70% wood material, very dark brown. Fine sand, coarsens with depth. 70% wood material consisting mostly of chips, reddish brown, to 1" and highly decomposed strands and pulp. Moderate sulfur odor.	0-16": 70% wood material consisting mostly of chips, reddish brown, to 1" and highly decomposed strands and pulp.
								C = 33-45 (attempt 1)	16-42: Sandy silt with trace wood material and minor gravel, very dark brown. Slight sulfur odor.	16-42: Trace wood material.
									42-60: Silt with sand, gravel, and clay, very dark brown, no wood material. Abundant shell fragments. Gravel sub-angular to rounded. No odor.	42-60: No wood material.
ED04	3	Y	6/18/2008	12:05	27' 3"	5'	100		0-15: Dark blackish brown muck with wood material, kelp, and grassy plant matter, strong sulfur odor.	0-15: Some wood material mixed in muck.
									15-36": Predominantly wood material, with silt and clay, overall dark grayish brown, very strong sulfur odor. Wood consists of reddish brown bark to 1", tan chips and strands to 2", and abundant finer strands and fibers.	15-36": Predominantly wood material consisting of reddish brown bark to 1", tan chips and strands to 2", and abundant finer strands and fibers.
								B = 36-48	36-60": Mixed silt and clay and 50% wood material, overall dark grayish brown, very strong sulfur odor. Wood consists of reddish brown bark to 1", tan chips and strands to 2", and abundant finer strands and fibers. Below 60" observed clay and rock in cutting shoe.	36-60": 50% wood material, consisting of reddish brown bark to 1", tan chips and strands to 2", and abundant finer strands and fibers. Below 60" no wood observed.
ED05	3	Y	7/16/2008	17:25	24.2'	4.5'	75		0-6": Fine sand and silt, dark gray, with shell fragments and kelp, no odor.	0-6: No wood observed.
									6-12: As above except with trace wood chips to 1 cm.	6-12: Trace wood chips to 1 cm.
								B = 12-24	12-24: Sandy silt with wood chips and shell fragments, moderate sulfur odor.	12-24: Wood chips.
									24-28: Mostly gray pulp/fibers with strong petroleum/sulfur odor.	24-28: Mostly gray pulp/fibers with strong petroleum/sulfur odor.
									28-36: 90% wood chips and fibers.	28-36: 90% wood chips and fibers.
EE01	1	Y	7/16/2008	15:02	10.9'	2.5'	63	B = 6-12	0-12: Sand with gravel and cobble, gray. Sand medium to coarse. No odor. Shell fragments and sand lance.	None observed.
EE02	2	Y	7/21/2008	9:32	3.4'	4.9'	74		0-6 Sand and gravel, dark gray. Sand coarse, gravel small. No odor. Kelp and eel grass.	None observed.
									6-12: As above except no kelp or eel grass.	
								B = 12-24	12-24: Sand and gravel, dark gray. Sand medium and coarse, gravel small. No odor. Some staining (organic).	
		C = 24-36	24-36: Sand with some gravel. Sand mostly medium with some coarse. Gravel small. Shell fragments. No odor.							
EE03	1	Y	7/16/2008	16:00	10.4'	4.7'	73	B = 6-12	0-12: Sand and gravel, gray. Sand medium. Some shell fragments and polychaete tubes. No odor.	None observed.
								C = 12-24	12-27: Sand, gravel, and cobble to 2. Large clam shell fragments. No odor.	
EE04	2	Y	7/17/2008	17:46	8.0'	6.7'	53		0-6: Sand, gravel, and cobble, grayish brown. Sand medium to coarse. Shell fragments. No odor.	None observed.
								B = 6-12; C = 12-24	6-24: Sand, gravel, and cobble, grayish brown. Sand fine to medium. Shell fragments. No odor.	
									24-32: Sand and gravel, grayish brown. Sand fine. Shell fragments. No odor.	

Table B-5. Core Collection and Description Summary

Station ID	Attempts	Acceptable Core Collected (Y or N)	Core Collection Date	Core Collection Time	Water Depth (ft)*	Penetration (feet/inches below mudline)	% Recovery	Sample (inches)	Sediment Description (inches)	Wood Material Description (inches)
EE05	3	N	7/21/2008	15:16	est. < 2'	est. 3"	0	No samples collected due to inadequate penetration and recovery.	Station abandoned due to hard bottom conditions. On each attempt, met refusal at estimated 3" depth. No material recovered.	None observed.
LP01	3	N	7/19/2008	16:18	17.5' to 18.5'	0' to 2.5'	<65	No samples collected due to inadequate penetration and recovery.	Station abandoned due to inadequate penetration and recovery. Recovered material includes cobble, gravel, and sand.	None observed.
LP02	3	N	7/19/2008	14:21	12.4	0'	0	No samples collected due to inadequate penetration and recovery.	Station abandoned due to inadequate penetration and recovery. No material recovered. Bottom observed to be include boulders to 14".	None observed.
LP03	3	N	7/19/2008	13:52	12.8' to 13.0'	0	0	No samples collected due to inadequate penetration and recovery.	Station abandoned due to inadequate penetration and recovery. No material recovered.	None observed.
LP04	4	N	7/19/2008	12:34	11.5' to 12.2'	0.0 to 2.2'	0 to 46	No samples collected due to inadequate penetration and recovery.	On core attempt 2, recovered material consisting almost entirely of wood chips and strands and dark brown muck, strong sulfur odor.	On core attempt 2, recovered material consisting almost entirely of wood chips and strands and dark brown muck, strong sulfur odor.
LP05	3	Y	7/19/2008	10:03	8.2'	3.0'	79		0-6": Silt with wood material and kelp, dark brown. Wood material includes chips and natural detritus. Sheen on water. Sulfur odor.	0-6": Silt with wood material and kelp, dark brown. Wood material includes chips and natural detritus. Sheen on water. Sulfur odor.
								B = 6-12	6-21: Predominantly wood material with some silt, dark brown. Wood chips to 2 and natural detritus. Petroleum odor and sheen.	6-12: Predominantly wood material with some silt, dark brown. Wood chips to 2" and natural detritus. Petroleum odor and sheen.
									Below 21": No material recovered, but based on observations of material in cutting shoe on core attempt #1, suspect wood material is underlain by sand and gravel to 1.5".	NA
MD01	3	Y	7/17/2008	12:01	21	3.0'	86		0-6": Silt with sand and gravel, dark brown, with kelp and trace natural detritus.	None observed.
								B = 6-12	6-12: Sandy silt with gravel and cobble, dark brown. No odor.	
								C = 12-24	12-26: Silty sand with gravel and cobble, gray, no odor.	
MD02	2	Y	7/17/2008	9:22	23.1'	8.1'	79		0-6": Silt, dark brown, with some small gravel, wood chips, and natural detritus. Slight sulfur odor. Brown and black wood chips to 1" with teredos infestation. Kelp and bivalve shell fragments.	0-6": Some brown and black wood chips to 1" with teredos infestation, and natural detritus.
									6-12: Silt, dark brown, with some small gravel, wood chips, and natural detritus. Slight sulfur odor. Tan, brown, black, and red wood chips with some teredos infestation.	6-12: Tan, brown, black, and red wood chips with some teredos infestation, and natural detritus.
								B = 12-24	12-24: Silt with sand, dark brown to black, with wood chips. Moderate sulfur odor and possible petroleum odor. Wood chips tan and brown with no teredos noted.	12-24: Wood chips, tan and brown, with no teredos.
									24-42: Predominantly wood material with some silt, dark brown to black, strong sulfur odor and possible petroleum odor. Wood consists of heavily decomposed chips.	24-42: Predominantly wood material consisting of heavily decomposed chips.
								C = 48-60	42-48: Silty sand with some gravel and cobble, gray, with trace shell fragments.	42-72: No wood material.
									48-72: Silty sand with gravel and cobble, gray, with trace shell fragments.	

Table B-5. Core Collection and Description Summary

Station ID	Attempts	Acceptable Core Collected (Y or N)	Core Collection Date	Core Collection Time	Water Depth (ft)*	Penetration (feet/inches below mudline)	% Recovery	Sample (inches)	Sediment Description (inches)	Wood Material Description (inches)
MD03	2	Y	6/17/2008	12:57 (attempt 1); 14:18 (attempt 2)	30.4' (attempt 1); 31' 7" (attempt 2)	4' 2" (attempt 1); 5.0' (attempt 2)	>100 for attempts 1 and 2.	B = 48-60" (attempt 2); C = 35-47" (attempt 1). In attempt 1 core, upper interval recovered was highly disturbed, but lower interval below woody debris was satisfactory. In attempt 2, upper interval was satisfactorily recovered, but interval below woody debris was not penetrated/recovered. Selected analytical samples from intervals in each core that appeared most representative of in situ conditions.	<p>Description below is composite based on observations from 2 cores (attempts 1 and 2). Neither core recovered representative sediment of entire sediment column. However, attempt 1 and attempt 2 cores appeared to recover representative sediment from lower (mostly sand, gravel, and fines) and upper (woody) intervals, respectively. Depths of sediment types are approximate: 0-36": Wood material and organic muck and sandy silt, dark grayish brown, slight to strong sulfur odor, with kelp. Wood consists of reddish brown bark and tan chips to 2", ranging from 15 to 50% (50% wood material in B interval sample).</p>	0-36": Wood material consisting of reddish brown bark and tan chips to 2", ranging from 15 to 50% (50% wood material in B interval sample).
									<p>36-0": Mixed sand, gravel, and fines, dark grayish brown. Sand fine to very coarse, black. Gravel subrounded to rounded to 2". Some reddish brown bark with teredos to 3". Strong sulfur odor.</p>	36-70": Some reddish brown bark with teredos to 3". Strong sulfur odor.
MD04	3	Y	6/21/2008	15:35	33' 1"	2' 4"	93	B = 6-18	0-6": Mixed organic muck, fines, sand, and wood material, dark grayish brown. May include pulp. Wood includes tan strips to 2" and reddish brown bark. Minor barnacle shell fragments.	0-16": Wood material includes tan strips to 2" and reddish brown bark.
									16-22": Gravel with sand and fines, dark grayish brown. Sand to very coarse. Gravel subrounded to rounded to 2.5". No wood material.	16-22": No wood material.
MD05	3	Y	6/19/2008	15:39	33' 4"	2.0'	100		0-4": Sand and fines, brown. Sand to medium.	None observed.
								B = 4-10	4-10": Sand, fines, and gravel, brown. 25% sand fine to coarse. Gravel subangular to subrounded to 1/2". Decreasing fines with depth.	
								B = 10-22	10-22": Sand and gravel with minor fines and some bivalve shell fragments. Gravel subangular to subrounded to 1".	

**Appendix C**  
**Sediment Investigation Data Tables**



## Definitions of Qualifiers

- J = Analyte was positively identified. The reported result is an estimate.
- JG = Analyte was positively identified. Value may be greater than the reported estimate.
- JK = Analyte was positively identified. Reported result is an estimate with unknown bias.
- JL = Analyte was positively identified. Reported result has a likely high bias.
- JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.
- JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.
- JTK = Analyte was positively identified. Reported result is an estimate with unknown bias, below the associated quantitation limit but above the MDL.
- NJ = The associated estimated positive result is tentatively identified.
- U = Analyte was not detected at or above the reported result.
- UJG = The associated estimated sample quantitation limit has a likely low bias.
- UJK = The associated estimated sample quantitation limit has a likely unknown bias.
- UJL = The associated estimated sample quantitation limit has a likely high bias.

**Table C-1. Sediment Grain Size in Surface Sediments**

Station	% Fines	% Gravel	% Coarse Sand	% Very Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	% Silt	% Clay
EH01A	5.4	8	6.2	4	23.8	48.7	3.9	2.9	2.4
EH02A	9.7	0.1	2	0.4	13.3	62.7	11.9	6	3.7
EH03A	29.2	0.9	0.8	0.2	1.9	28.1	39	18.8	10.2
EH04A	32.2	0.1	0.6	0.1	1.4	25	40.7	21.3	10.9
FP01A	10.3	0.3	0.8	0.3	3	57	28.3	5.5	4.8
FP02A	7.8	6.8	18.2	6.9	22.6	27.4	10.3	5.1	2.7
FP03A	69.3	0.1	1.9	0.1	4.5	4	20.2	48.9	20.3
BA01A	71.5	2.5	2.5	4.1	3.7	2.8	12.9	49.1	22.3
BA02A	82.6	0.1	1.5	1.1	2.3	2.7	9.8	55.1	27.5
IE03A	65.5	9.9	5.1	5.2	5.2	3.8	5.3	42.3	23.3
IE04A	67.9	8.3	4.3	4.1	4.7	4.5	6.1	43.6	24.2
IE05A	64.5	3.4	5.7	5.4	7.4	7.3	6.3	40.5	23.9
IE06A	42.6	12.8	9.6	13.3	8.6	7.7	5.5	23.6	18.9
IE07A	17.9	20.7	14.9	9.8	19.4	14.6	2.9	10.7	7.2
IE08A	71.2	2.8	5	6.6	5.7	4.1	4.6	48.2	23
IE09A	66.5	1	5.7	9.1	8	5.2	4.6	41.5	25.1
IE10A	81.1	0.8	3.5	4.6	3.7	1.6	4.7	53.5	27.6
IE11A	72	1.9	6.2	7.2	5.4	2.3	5	46.2	25.8
IE12A	71.7	12.4	3.2	6.6	2.4	1.2	2.6	44.8	26.8
IE13A	59.8	23.9	3.2	5.8	3	2	2.3	36.8	23
IE14A	78.2	0.1	4.5	3.6	4.6	2.5	6.6	51.8	26.3
IE15A	74.7	0.9	3	2.8	3.6	3.7	11.3	49.8	25
IE16A	66.5	1.5	5.1	10.5	5	2.9	8.4	44.5	22
LA01A	45	4.6	12.1	11.9	12.3	8.1	6	30.1	14.9
LA02A	69.7	0.3	4.9	4.1	6.8	6.2	8	45.1	24.6
LA03A	49.5	0.1	18.8	2.2	11.7	9.8	7.8	30.9	18.6
IH01A	31	21	11.2	11	14.1	7.2	4.4	16.5	14.5
IH02A	62	10.7	5.9	6.4	6.7	4.3	3.8	40.3	21.7
IH03A	42.9	18.3	9	7.5	8.7	7.2	6.4	31.2	11.6
IH04A	35.2	2.9	3	1.8	5	15.4	36.7	27.2	7.8
IH05A	30.1	0.5	1.2	0.4	1.8	16	49.8	24.5	5.6
IH06A	45.9	0.4	3.5	3.4	6	17.8	23	33.9	12.1
MA01A	23.9	0.1	0.8	0.3	3.1	35.9	36	16.2	7.7
MA02A	74.1	4.3	4.1	6	3.6	3.3	4.5	49.1	25
MA03A	71.1	1.1	3.7	5.5	4.4	5.1	9.1	46.4	24.6
MA04A	58.4	17.7	5	7.6	4.2	3.4	3.6	38.2	20.2
MA05A	73.5	0.3	3.2	3	4.5	5	10.5	51.5	22
MA06A	66.7	0.2	1.9	1.4	3.3	8.9	17.6	46	20.7
BL01A	57.2	2.7	4.2	3.4	5.1	10.8	16.5	46.3	10.9
BL02A	55.9	0.4	1.6	1.2	3.9	16.1	20.9	43.8	12
BL03A	71.1	3.3	2.2	2.5	5.3	4.9	10.7	55.2	15.9
BL04A	5.6	64.3	12.1	11.8	4.6	0.9	0.6	3.5	2
BL05A	67.3	1.2	3.5	2.6	5.3	8.8	11.4	45.2	21.9
BL06A	62.3	0.1	1.4	1.1	2.7	10.3	22.3	44.7	17.6
BL07A	68.5	0.2	2.3	1.3	4	8.2	15.5	47.1	21.3
BL08A	61.5	0.1	1.4	0.6	2.1	10.9	23.3	44.2	17.4

**Table C-1. Sediment Grain Size in Surface Sediments**

Station	% Fines	% Gravel	% Coarse Sand	% Very Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	% Silt	% Clay
KP01A	70.7	0.3	3	2.3	4	7.2	12.7	54	16.7
KP02A	61.4	1.9	3.8	2.7	5.4	9.7	15.1	45.4	16
KP03A	23.7	0.2	2.9	1.1	12.7	32.6	26.8	17.5	6.2
KP04A	64.6	0.2	0.8	0.5	1.6	5.5	26.6	55	9.7
KP05A	70.9	0.4	3.2	2.2	7.1	6.6	9.6	49	21.9
KP06A	61.4	1	0.9	0.8	2	10.4	23.5	44.5	16.8
KP07A	57.4	0.1	0.9	0.3	1.5	9.7	30	43.2	14.3
KP08A	44.7	21.4	4.9	3.1	10.2	7.9	7.8	31.1	13.6
FT01A	69.1	0.6	1.8	1.2	2.7	6.4	18.2	56.3	12.7
FT02A	66.8	0.4	2.6	2.2	5.6	8.2	14.2	55.1	11.8
FT04A	49.8	0.1	1.2	0.5	2.6	9.1	36.7	44.1	5.7
FT05A	63.8	0.1	2.9	0.9	7.3	10.4	14.7	45.5	18.3
FT06A	52.3	0.1	1.4	0.4	5.1	18	22.8	36.6	15.7
FT07A	40	0.7	0.5	0.2	1	22.7	34.8	28.1	11.9
FT08A	55.2	0.1	0.7	0.3	1.1	12.1	30.5	38.7	16.5
FT09A	42.9	0.1	7.6	1.3	21.4	12.7	14	34.8	8.1
FT10A	41.3	0.1	2.3	0.6	17.5	22.2	16.1	29.2	12
FT11A	45.2	0.1	1.2	0.5	6.9	22.7	23.6	31	14.1
FT12A	26.6	0.3	0.5	0.2	1.6	27.1	43.7	17.9	8.7
FT13A	27	0.4	0.5	0.2	1.1	31.4	39.4	18.4	8.6
RL01A	6.8	0.5	0.6	0.2	16.6	53.4	21.8	5.3	1.6
RL02A	2.9	0.1	0.8	0.1	27.6	62	6.4		
RL03A	14.5	2.2	7.4	1.4	31.8	29.5	13.1	10.7	3.7
LP01A	8.4	48.4	7.6	4.1	18.6	9	3.8	6.5	1.9
LP03A	1.9	21.7	22.3	13.7	28	9.1	3.4		
LP04A	12.7	12.3	18	10.9	25.4	10.4	10.3	8.2	4.4
LP05A	50.4	7.5	8.1	6.8	9.9	8.8	8.5	36.6	13.7
CO01A	2.2	70.8	6.1	10.9	5.2	3.7	1		
CO02A	40.1	8.3	5.4	4.2	8.9	11.5	21.6	33.6	6.6
CO03A	1.8	52.4	9.7	8.7	17.3	8.8	1.4		
CO04A	0.3	64.5	10.4	13.5	9.2	1.7	0.3		
CO05A	20	3.3	7.7	4.5	12.2	24.1	28.2	15.9	4.2
MD01A	38.6	4.6	8.4	6.1	10.9	9.4	22	31.9	6.7
MD02A	69.6	1	3.4	3.9	4.1	5.3	12.6	56.6	13.2
MD03A	67.2	0.3	3.4	2.8	6.6	7.6	12	60	7.3
MD04A	55.6	3.9	4.2	2.1	9.7	9	15.6	44.9	10.8
MD05A	10.9	22.1	17.3	14.2	20.5	10.1	4.9	7.9	2.8
ED01A	46.8	4.8	2.9	1.2	9.8	14.1	20.4	37.3	9.4
ED02A	67.6	0.3	3	0.7	6.5	9	12.9	55.2	12.4
ED03A	71.5	1.3	4.2	1.4	5.6	5.9	10.2	58.8	12.7
ED04A	76.7	0.1	7	0.9	5	4.6	5.7	61	15.6
ED05A	16.5	0.1	2.3	0.6	14.6	40.6	25.3	12.7	3.9
WW01A	20.9	0.1	2.4	0.3	16.1	26.3	34	14.2	6.7
OH01A-R	24.1	0.1	0.4	0.2	0.9	19.9	54.4	16.2	7.8
OH02A	28	0.1	0.6	0.2	1.3	22.5	47.4	18.6	9.4
OH03A	29.4	0.2	0.6	0.4	1.4	29.9	38.1	19.4	9.9

**Table C-1. Sediment Grain Size in Surface Sediments**

Station	% Fines	% Gravel	% Coarse Sand	% Very Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	% Silt	% Clay
DO01A	10.3	3.2	17	6.6	35.9	17.3	9.6	6.5	3.8
DO02A	20.8	1.4	3.1	2	11.7	25.7	35.3	13.7	7.1
DO03A	31.1	0.2	0.7	0.3	3.1	19.4	45.2	21.1	10
DO04A	26.7	0.1	0.5	0.2	1.2	20.8	50.6	17.9	8.8
DO05A	21.9	0.1	0.5	0.1	1.6	22.5	53.4	14.6	7.2
EC01A	1.5	59.8	11.6	14.9	7.8	3	1.5		
EC02A	0.1	43.9	12.5	11.8	23.1	8.5	0.2	0.1	
EC03A	33.8	0.4	1.8	1	3.5	13.3	46.3	28.6	5.2
EC04A	18.3	1.5	5.6	2.2	25.5	27.7	19.2	13.7	4.6
EC05A	0.4	56.3	5.3	6.1	13.4	16.6	1.9	0.4	
EE01A	0.2	46.4	14.7	18.1	15.4	5	0.2		
EE02A	5.6	6.8	15.5	9.6	44.4	14	4.1	4.3	1.2
EE03A	1.4	0.1	3.3	0.3	37.1	47.7	10.2		
EE04A	1.4	61.5	4.4	14.6	5.8	10.7	1.6		
EE05A	1.1	67.2	2.3	14.2	3.3	9.7	2.3		
EI01A	7.8	0.1	1.1	0.1	11.1	49.3	30.5	6.6	
EI02A	8.3	0.1	0.6	0.1	16.5	42.5	31.9	7	1.3
EI03A	2.8	28.8	9	6.7	35.5	9.2	7.9		
EI04A	5.9	0.1	0.3	0.1	1.9	38.8	52.9	4.4	1.5
EI06A	4	0.1	0.3	0.1	2.9	32.6	60.2	2.9	1.3
EI07A	16	2.9	4.1	1.7	14.2	44.4	16.7	11.8	4.2
RF01A	1.3	10.2	21.7	12.7	44.6	8.6	0.8		
RF02A	2.2	0.1	9.3	1.7	52	34.1	0.7	2.2	
RF03A	73.7	0.1	0.8	0.6	1.3	3.8	19.8	53.4	20.4

**Table C-2. Total Organic Carbon Content of Surface Sediment**

Station	% TOC	Qualifier	Station	% TOC	Qualifier	Station	% TOC	Qualifier	Station	% TOC	Qualifier
EH01A	1.59		IH04A	2.91		FT06A	1.47		ED05A	1.32	
EH02A	0.62		IH05A	1.8		FT07A	1.26		WW01A	0.742	
EH03A	0.832		IH06A	2.09		FT08A	1.43		OH01A-R	0.431	
EH04A	0.662		MA01A	1.13		FT09A	1.48		OH02A	0.679	
FP01A	1.03		MA02A	4.02		FT10A	1.38		OH03A	0.728	
FP02A	1.45		MA03A	2.38		FT11A	2.4		DO01A	0.423	
FP03A	1.9		MA04A	8.49		FT12A	0.708		DO02A	0.681	
BA01A	2.04		MA05A	2.46		FT13A	0.879		DO03A	0.542	
BA02A	1.82		MA06A	1.36		RL01A	0.414		DO04A	0.438	
IE03A	6.48		BL01A	5.03		RL02A	0.425		DO05A	0.495	
IE04A	4.81		BL02A	2.72		RL03A	0.763		EC01A	0.469	
IE05A	5.93		BL03A	2.51		LP01A	3.6		EC02A	0.239	
IE06A	33.2		BL04A	0.64		LP03A	1.55		EC03A	1.06	JL
IE07A	15.4		BL05A	2.46		LP04A	3.79		EC04A	1.35	
IE08A	8.76		BL06A	1.89		LP05A	3.6		EC05A	0.216	
IE09A	3.33		BL07A	2.48		CO01A	0.588		EE01A	0.232	
IE10A	1.64		BL08A	1.46		CO02A	2		EE02A	0.311	
IE11A	6.08		KP01A	4.21		CO03A	0.314		EE03A	0.176	
IE12A	2.72		KP02A	5.31		CO04A	0.182		EE04A	0.197	
IE13A	8.29		KP03A	1.8		CO05A	0.885		EE05A	0.222	
IE14A	2.79		KP04A	1.65		MD01A	2.36		EI01A	0.198	
IE15A	2.48		KP05A	1.09		MD02A	3.62		EI02A	0.182	
IE16A	4.9		KP06A	1.72		MD03A	1.24		EI03A	0.459	
LA01A	11.7		KP07A	1.65		MD04A	2.16		EI04A	0.172	
LA02A	10.3		KP08A	2.37		MD05A	1.45		EI06A	0.162	
LA03A	9.17		FT01A	2.44		ED01A	1.59		EI07A	0.628	
IH01A	17.2		FT02A	2.61		ED02A	2.22		RF01A	0.213	
IH02A	25.4		FT04A	1.12		ED03A	4.23		RF02A	0.403	
IH03A	11.7		FT05A	1.85		ED04A	5.13		RF03A	1.42	

TOC = total organic carbon.

**Table C-3. Concentration of Total Sulfides and Ammonia in Surface Sediment Samples**

Station	Sulfides (mg/kg dw)	Qualifier	Ammonia (mg/kg dw)	Station	Sulfides (mg/kg dw)	Qualifier	Ammonia (mg/kg dw)
EH02A	3.6		5.06	FT12A	68.6		NA
FP01A	32.6		7.34	RL01A	5.82		7.73
BA01A	702		11.7	RL02A	7.19		10.5
IE03A	993		17.9	LP01A	131		14.1
IE04A	1050		24.7	LP03A	2.09		4.34
IE05A	1300		21.1	LP04A	205		11.8
IE06A	2310		30.8	LP05A	1010		30.5
IE07A	1440		21.6	CO01A	0.00884	U	0.72
IE08A	1740		19.8	CO02A	805		9.8
IE09A	1480		14.1	CO03A	13.6		5.3
IE10A	1660	JG	37.1	CO04A	31.8		3.25
IE11A	1610		11.4	CO05A	170		12.8
IE12A	1530	JG	41.8	MD01A	465		71
IE13A	5250	JG	16.9	MD02A	910		42.1
IE14A	1480		19.2	MD03A	1020		24.3
IE15A	516	JG	37.8	MD04A	624		9.04
IE16A	1080	JG	10.6	MD05A	75.1	JK	8.43
LA01A	484		23	ED01A	188		19.3
LA02A	1050		20.2	ED02A	717		28.3
LA03A	1220		38.4	ED03A	1380		39.3
IH01A	996		8.38	ED04A	3240		403
IH02A	772		35.6	ED05A	112		7.88
IH03A	3080		24.1	WW01A	7.63	JK	7.48
IH04A	545		9.68	OH01A-R	175		6.52
IH05A	263		8.67	OH02A	10.6	JG	5.4
IH06A	740		27.9	OH03A	27.5	JG	4.04
MA01A	297		18.7	DO01A	12.5		17.2
MA02A	1890		11.6	DO02A	5.13		0.47
MA05A	592		29.4	DO03A	45.7		16.6
MA06A	398		NA	DO04A	14.2		12.3
BL01A	2220	JK	12	DO05A	1.81		12.4
BL02A	1700		17.6	EC01A	0.00951	U	7.77
BL03A	2180		43.2	EC02A	0.00947	U	0.64
BL04A	122		7.25	EC03A	94		13.7
BL06A	335	JG	24.3	EC04A	63.1		12.7
BL08A	498	JG	34.7	EC05A	0.00949	U	0.88
KP01A	725		19.6	EI01A	16.2		3.7
KP02A	758		13.5	EI02A	3.47		7.82
KP03A	125		8.06	EI03A	0.0086	U	9.1
KP05A	401		19.4	EI04A	21.9		8.15
KP06A	512	JG	29.1	EI06A	1.46		4.47
FT01A	860		8.34	EI07A	383		13.6
FT04A	82.3		11.7	RF01A	0.00942	U	4
FT06A	276		21.8	RF02A	408	JG	10.6
FT11A	149		14.3	RF03A	3.38	JG	25.4

All ammonia data was detected with no data qualifiers.

Key:

JK = Analyte was positively identified. Reported result is an estimate with unknown bias.

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

U = Analyte was not detected at or above the reported result.

NA = Not Analyzed

Table C-4. Concentrations of Metals in Surface Sediments

Station	Antimony (mg/kg)		Arsenic (mg/kg)		Barium (mg/kg)		Cadmium (mg/kg)		Chromium (mg/kg)		Copper (mg/kg)		Lead (mg/kg)		Mercury (mg/kg)		Nickel (mg/kg)		Silver (mg/kg)		Zinc (mg/kg)	
	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
EH01A	0.0019	U	2.3		7.1		0.035	JT	18		17		3.6		0.011	U	17		0.03	JT	33	
EH02A	0.0025	U	3		11		0.02	JT	23		21		6.1		0.019	JT	22		0.043	JT	44	
EH03A	0.41	U	5.6		20		0.24		28		20		6.9		0.049		24		0.063	JT	61	
EH04A	0.48	U	4.4		18		0.078	JT	25		17		6		0.029		21		0.054	JT	50	
FP01A	0.18	U	3		8.7		0.12	JT	21		14		4.3		0.032		18		0.13	JT	45	
FP02A	0.0025	U	3.6		8.5		0.13	JT	21		15		4.4		0.021	JT	18		0.04	JT	46	
FP03A	0.35	U	6.1		33		0.32		30		26		10		0.1		25		0.1	JT	66	
BA01A	0.45	U	7.6		39		0.47		38		34		12		0.11		30		0.13	JT	80	
BA02A	0.43	U	8.2		39		0.46		37		34		13		0.13		30		0.15	JT	83	
IE03A	0.75	U	9.8		37		0.91		36		36		13		0.075		29		0.16	JT	80	
IE04A	0.0068	U	9.6		41		0.97		41		40		15		0.13		32		0.18	JT	83	
IE05A	0.84	U	12		31		1.8		36		45		24		0.13		26		0.16	JT	90	
IE06A	0.75	U	13		27		2.2		31		44		20		0.19		22		0.14	JT	100	
IE07A	0.28	JT	13		24		2		25		28		12		0.33		21		0.098	JT	90	
IE08A															0.17							
IE09A	0.6	JT	12		33		5		33		60		42		1.2		26		0.18	JT	860	
IE10A															0.087		29					
IE11A	0.7	U	8.3		39		0.73		37		35		13		0.1				0.16	JT	82	
IE12A	0.56	U	11		49		1.2		44		45		16		0.15		34		0.19	JT	110	
IE13A	0.83	U	10		34		4.4		37		70		34		1.9		30		0.2	JT	610	
IE14A	0.62	U	8.4		46		0.76		42		39		15		0.15		33		0.16	JT	96	
IE15A	0.66		11		36		0.94		39		39		16		0.38		31		0.18	JT	130	
IE16A	0.17	JT	9.7		35		2.4		39		53		23		1.3		29		0.17	JT	290	
LA01A	0.59	JT	9.9		16		5.9		29		61		84		0.45		38		0.18	JT	320	
LA02A															0.59							
LA03A															0.59							
IH01A	0.9	JT	8.3		13		7.4		21		95		57		3.5		15		0.11	JT	1600	
IH02A	0.59	JT	69		26		4.1		29		60		27		1.3		23		0.17	JT	460	
IH03A	0.2	JT	8.2		20		1.7		19	JG	34		10		0.16		16		0.081	JT	84	
IH04A	0.37		5.6		13		0.78		16		24		11		0.15		15		0.053	JT	62	
IH05A	0.16	JT	5.2		12		0.66		19	JG	20		17		0.079		17		0.055	JT	47	
IH06A	0.22	JT	8.1		19		1.5		26		32		15		0.19		21		0.13	JT	91	
MA01A	0.13	JT	4		12		0.69		17		29		5.8		0.058		16		0.055	JT	48	
MA02A	0.3	JT	8.3		33		1.6		31		38		13		0.21		25		0.15	JT	99	
MA03A	0.36	JT	12		37		1.5		35		42		18		0.32		27		0.17	JT	120	
MA04A	0.23	JT	7.5		33		1.4		33		40		11		0.085		27		0.14	JT	84	
MA05A	0.33	JT	8.6		30		0.94		28		31		14		0.31		22		0.14	JT	90	
MA06A															0.19							
BL01A	0.17	JT	5		17		0.87		20		23		6.1		0.09		18		0.076	JT	49	
BL02A	0.2	JT	4.9		21		0.73		28		30		7.9		0.063		27		0.1	JT	61	
BL03A	0.28	JT	7.3		31		0.91		37	JG	42		14		0.12		34		0.16	JT	97	
BL04A	0.13	JT	3.5		9.9		0.19	JT	15		15		3.6		0.022		31		0.037	JT	31	
BL05A	0.51	U	9.2		29		0.6		39		39		14		0.22		32		0.16	JT	90	
BL06A	0.26		7.6		33		0.57		33		29		12		0.11		27		0.14	JT	82	
BL07A															0.21							
BL08A	0.43	U	6.8		29		0.34		34		30		12		0.13		29		0.12	JT	77	
KP01A	0.26	JT	8.6		21		1.1		26		32		12		0.16		22		0.12	JT	80	
KP02A	0.32	JT	9.9		22		1.3		29		34		12		0.11		25		0.12	JT	77	
KP03A	0.0023	U	3.9		16		0.22		26		24		7.2		0.036		26		0.075	JT	58	
KP04A	0.24	U	6		22		0.42		30		28		11		0.089		28		0.13	JT	63	
KP05A	0.37	JT	9.5		34		0.78		38	JG	39		16		0.1		31		0.18	JT	90	
KP06A															0.096							
KP07A	0.21		6.2		29		0.42		28		22		9		0.065		24		0.1	JT	67	
KP08A	0.26	JT	6.3		19		0.56		22		24		10		0.14		18		0.093	JT	58	
FT01A	0.55		8.8		30		0.98		35		42		35		0.24		30		0.24	JT	93	
FT02A	0.46		8.6		30		0.66		33		35		20		0.11		30		0.18	JT	79	
FT04A	0.34	U	7.2		26		0.47		26		24		13		0.077		25		0.22	JT	69	
FT05A	0.0041	U	6.1		25		0.43		28		26		12				23		0.12	JT	63	
FT06A	0.0039	U	5.2		24		0.32	JT	28		22		9.1		0.092		23		0.1	JT	60	
FT10A	0.22	JT	4.9		21		0.29	JT	24		18		8.8				22		0.09	JT	48	
FT11A	0.22	JT	5.8		25		0.33		30	JG	22		10		0.076		26		0.11	JT	65	
FT12A															0.03							
FT13A	0.17	JT	4.8		16		0.21	JT	24		15		6.3		0.041		22		0.063	JT	56	
RL01A	0.0027	U	2.1		7.1		0.23	JT	11		6.8		4.2		0.051		12		0.027	JT	21	
RL02A															0.053							
RL03A															0.064							
LP01A	0.0026	U	5.2		14		0.21	JT	17		9.1		4.4		0.021	JT	18		0.048	JT	23	
LP03A	0.0021	U	4.2		14		0.15	JT	14		9.3		3.3		0.16		17		0.032	JT	20	
LP04A	0.0038	U	8.9		12		0.67		17		16		10		0.026	JT	16		0.045	JT	31	
LP05A	1.1	U	14		22		2		34		44		43		0.036	JT	29		0.16	JT	80	
CO01A	0.23	U	2.4		18		0.0036	JT	21		25		7.2		0.016	JT	24		0.039	JT	37	

Table C-4. Concentrations of Metals in Surface Sediments

Station	Antimony (mg/kg)		Arsenic (mg/kg)		Barium (mg/kg)		Cadmium (mg/kg)		Chromium (mg/kg)		Copper (mg/kg)		Lead (mg/kg)		Mercury (mg/kg)		Nickel (mg/kg)		Silver (mg/kg)		Zinc (mg/kg)	
	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
CO02A	0.37	U	7.3		23		0.57		38		35		14		0.06		34		0.086	JT	55	
CO03A	0.0018	U	2.7		11		0.00042	U	27		36		3.2		0.026		33		0.049	JT	41	
CO04A	0.0018	U	2.2		9.3		0.00042	U	37		29		2.6		0.024		43		0.04	JT	37	
CO05A	0.0027	U	4.5		20		0.054	JT	34		31		4.5		0.028		38		0.084	JT	48	
MD01A	0.28	U	6		16		0.51		27		25		8.5		0.09		28		0.073	JT	46	
MD02A	0.39	U	12		27		1.3		37		39		16		0.13		35		0.12	JT	69	
MD03A	0.34	U	9.4		24		1.1		34		36		14		0.18		33		0.13	JT	64	
MD04A	0.34	U	6.9		21		0.48		30		27		11		0.12		29		0.11	JT	53	
MD05A	0.16	U	4.5		9.7		0.2		14		11		4.5		0.07		19		0.047	JT	26	
ED01A	0.29	U	5.7		23		0.26		33		28		10		0.07		32		0.11	JT	58	
ED02A	0.47	U	7.6		27		0.51		41		40		14		0.11		39		0.16	JT	66	
ED03A	0.32	U	9.2		30		1		42		42		14		0.095		40		0.15	JT	72	
ED04A	0.0055	U	11		32		1.5		48		52		16		0.22		45		0.18	JT	83	
ED05A	0.0027	U	4.8		26		0.095	JT	36		30		5.5		0.037		41		0.08	JT	51	
WW01A															0.064							
OH01A	0.25	JT	3.4		3.4		0.067	JT	26		17		5.7		0.073		23		0.044	JT	54	
OH02A	0.17		4.1		18		0.17		25		17		6.2		0.032		22		0.055	JT	58	
OH03A	0.18		4.2		17		0.17		24		17		7		0.03		22		0.056	JT	56	
DO01A	0.0022	U	2.8		13		0.078	JT	19		11		3.3		0.016	JT	20		0.039	JT	29	
DO02A	0.003	U	4.5		18		0.13	JT	23		15		5.3		0.028		22		0.059	JT	44	
DO03A	0.0027	U	3.3		22		0.059	JT	27		17		5.9		0.04		24		0.056	JT	53	
DO04A	0.28	U	3.2		19		0.054	JT	24		16		5.1		0.018	JT	22		0.047	JT	50	
DO05A	0.23	U	3.2		17		0.072	JT	26		16		5.4		0.026		24		0.047	JT	52	
EC01A	0.0021	U	2.8		53		0.00048	U	40		47		3.2		0.02	JT	62		0.057	JT	80	
EC02A	0.0023	U	5.9		21		0.00052	U	33		40		3.2		0.019	JT	43		0.07	JT	45	
EC03A	0.0026	U	5.5		20		0.26		29		29		8.1		0.046		28		0.084	JT	45	
EC04A	0.0023	U	3.9		19		0.027	JT	37		32		4.2		0.026	JT	41		0.08	JT	47	
EC05A	0.16	U	2.8		13		0.00038	U	31		28		3.3		0.049		41		0.041	JT	37	
EE01A	0.16	U	2.8		12		0.00034	U	29		29		2.9		0.0096	U	35		0.039	JT	37	
EE02A	0.0018	U	3.3		14		0.00043	U	31		25		3.6		0.01	U	33		0.058	JT	41	
EE03A	0.002	U	2.1		12		0.00046	U	24		19		3.4		0.011	JT	28		0.044	JT	32	
EE04A	0.0017	U	1.1		6.6		0.00039	U	12		13		1.7		0.014	JT	15		0.024	JT	22	
EE05A	0.0017	U	2.1		7.5		0.00039	U	17		26		2.2		0.0096	U	28		0.037	JT	31	
EI01A	0.0022	U	1.7		10		0.0098	JT	23		10		2.6		0.0095	U	22		0.031	JT	28	
EI02A	0.0023	U	1.9		11		0.0032	JT	18		10		2.7		0.013	JT	21		0.037	JT	28	
EI03A	0.0017	U	2.7		7.4		0.014	JT	38		9.7		2.2		0.018	JT	20		0.02	JT	29	
EI04A	0.0019	U	1.7		12		0.021	JT	25		9.3		2		0.01	U	22		0.029	JT	27	
EI06A	0.0017	U	1.8		12		0.0004	U	24		13		2		0.016	JT	23		0.037	JT	31	
EI07A	0.3		4.2		16		0.024	JT	31		19		3.8		0.024		29		0.05	JT	44	
RF01A	0.1	JT	7.1		8.8		0.14	JT	37		34		4.3		0.012	JT	45		0.035	JT	55	
RF02A	0.11	JT	3.5		8.3		0.12	JT	30		16		3.5		0.013	JT	33		0.029	JT	52	
RF03A	0.2	JT	6.9		25		0.39		41		31		8.3		0.077		40		0.13	JT	70	
SQS	NA		57.00		NA		5.10		260.00		390.00		450.00		0.410		NA		6.10		410.00	
CSL	NA		93.00		NA		6.70		270.00		390.00		530.00		0.590		NA		6.10		960.00	

Note: Exceeds SQS criteria  
Exceeds CSL criteria

Key:  
**Bold** = Analyte was detected  
dw = dry weight  
mg/kg = milligrams per kilogram  
JT = The associated estimated positive result is less than the reporting limit.  
U = Analyte was not detected at or above the reported result.



**Table C-5. Concentrations of Butyl Tins in Surface Sediments**

Station	Butyl Tin ( $\mu\text{g}/\text{kg dw}$ )		Dibutyl Tin ( $\mu\text{g}/\text{kg dw}$ )		Tributyl Tin ( $\mu\text{g}/\text{kg dw}$ )	
	Result	Qualifier	Result	Qualifier	Result	Qualifier
BL01A	4	U	3.1	U	1.7	U
BL02A	4.1	U	3.2	U	1.8	U
BL03A	3.9	U	3.1	U	<b>12</b>	
BL04A	4	U	3.1	U	<b>8.7</b>	
KP01A	3.9	U	3.1	U	<b>40</b>	
KP02A	4	U	3.1	U	<b>9.3</b>	
KP04A	3.7	U	2.9	U	1.6	U
KP05A	3.9	UJG	3	U	<b>5</b>	
KP07A	3.9	UJG	3.1	U	1.7	U
KP08A	4	UJG	3.1	U	<b>9.8</b>	
MA01A	4	U	3.1	U	<b>8.3</b>	
MA02A	4	U	3.1	U	1.7	U
MA03A	3.8	U	<b>5.5</b>		<b>7.1</b>	
MA04A	4	U	3.1	U	1.7	U
MA05A	3.7	U	2.9	U	<b>4</b>	
RF01A	3.8	U	2.9	UJG	1.6	U
RF02A	4	U	3.1	U	1.7	U
RF03A	3.9	U	3.1	U	1.7	U

Key:

**Bold** = detected value

dw = dry weight

U = Analyte was not detected at or above the reported result.

$\mu\text{g}/\text{kg}$  = micrograms per kilogram

UJG = Analyte was not detected at or above the reported estimate with likely low bias.

**Table C-6. Concentrations of TPH Compounds in Surface Sediments**

Station	#2Diesel (mg/kg dw)	Qualifier	Motor Oil (mg/kg dw)	Qualifier	Station	#2Diesel (mg/kg dw)	Qualifier	Motor Oil (mg/kg dw)	Qualifier
EH01A	7.3	U	7.3	U	FT13A	<b>11</b>	JT	<b>17</b>	JT
EH02A	7.8	U	7.8	U	RL01A	<b>13</b>	JT	<b>31</b>	JT
EH03A	8.6	U	8.5	U	RL02A	<b>15</b>	JT	<b>9</b>	JT
FP01A	<b>14</b>	JT	<b>19</b>	JT	CO01A	<b>17</b>	U	<b>150</b>	
FP02A	<b>11</b>	JT	<b>15</b>	JT	CO02A	<b>80</b>		<b>210</b>	
FP03A	<b>11</b>	U	<b>13</b>	JT	CO03A	<b>10</b>	U	<b>16</b>	JT
BA01A	<b>12</b>	U	<b>19</b>	JT	CO04A	<b>6.6</b>	JT	<b>6.4</b>	U
BA02A	<b>12</b>	U	<b>13</b>	JT	CO05A	<b>16</b>	JT	<b>63</b>	JT
IE03A	<b>38</b>	JT	<b>87</b>	JT	MD01A	<b>49</b>		<b>160</b>	
IE04A	<b>69</b>	JT	<b>230</b>		MD02A	<b>42</b>	JT	<b>120</b>	
IE05A	<b>80</b>	JT	<b>320</b>		MD03A	<b>200</b>		<b>290</b>	
IE06A	<b>100</b>		<b>290</b>		MD04A	<b>38</b>	JT	<b>96</b>	
IE07A	<b>58</b>		<b>250</b>		MD05A	<b>14</b>	U	<b>20</b>	JT
IE08A	<b>20</b>	U	<b>70</b>		ED01A	<b>27</b>	U	<b>59</b>	JT
IE09A	<b>120</b>		<b>790</b>		ED02A	<b>52</b>		<b>100</b>	
LA01A	<b>110</b>	JT	<b>330</b>		ED03A	<b>34</b>	JT	<b>140</b>	
LA02A	<b>69</b>	JT	<b>280</b>		ED04A	<b>110</b>		<b>240</b>	
LA03A	<b>93</b>	JT	<b>370</b>		ED05A	<b>19</b>	JT	<b>52</b>	JT
IH01A	<b>320</b>		<b>1700</b>		EC01A	<b>15</b>	U	<b>51</b>	JT
IH02A	<b>87</b>	JT	<b>490</b>		EC02A	<b>6.5</b>	U	<b>6.5</b>	U
IH03A	<b>170</b>		<b>830</b>		EC03A	<b>55</b>	JK	<b>170</b>	JK
IH04A	<b>72</b>		<b>370</b>		EC04A	<b>14</b>	JT	<b>64</b>	
IH05A	<b>25</b>	U	<b>86</b>		EC05A	<b>8.9</b>	U	<b>6.3</b>	U
IH06A	<b>73</b>		<b>280</b>		WW01A	<b>9.8</b>	JTG	<b>7.8</b>	JTG
MA02A	<b>54</b>	JT	<b>160</b>		OH01A	<b>18</b>	JT	<b>8</b>	U
BL01A	<b>83</b>		<b>320</b>		OH02A	<b>8</b>	U	<b>9.4</b>	JT
BL02A	<b>66</b>		<b>280</b>		OH03A	<b>7.7</b>	U	<b>7.6</b>	U
BL03A	<b>50</b>		<b>150</b>		EE01A	<b>6.4</b>	U	<b>6.4</b>	U
BL04A	<b>14</b>	JT	<b>39</b>	JT	EE02A	<b>14</b>	U	<b>24</b>	JT
KP01A	<b>31</b>	U	<b>66</b>	JT	EE03A	<b>8.7</b>	U	<b>11</b>	JT
KP02A	<b>31</b>	U	<b>97</b>	JT	EE04A	<b>6.2</b>	U	<b>6.1</b>	U
KP03A	<b>28</b>	U	<b>120</b>		EE05A	<b>6.2</b>	U	<b>6.2</b>	U
FT01A	<b>62</b>		<b>200</b>		RF01A	<b>7</b>	U	<b>7</b>	U
FT02A	<b>47</b>		<b>110</b>		RF02A	<b>7.9</b>	JT	<b>7.4</b>	U
FT04A	<b>41</b>		<b>140</b>		RF03A	<b>12</b>	JT	<b>10</b>	JT

Key:

**Bold** = Analyte was detected.

dw = dry weight

J = Analyte was positively identified. The reported result is an estimate.

JG = Analyte was positively identified. Value may be greater than the reported estimate.

JK = Analyte was positively identified. Reported result is an estimate with unknown bias.

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.

U = Analyte was not detected at or above the reported result.

mg/kg = milligrams per kilogram

**Table C-7. Concentrations of LPAH and HPAH Compounds in Surface Sediments**  
**Stations are arranged west to east.**

Station	TOC	2-Methylnaphthalene			Acenaphthene			Acenaphthylene			Anthracene			Fluorene			Naphthalene		
	%	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier
IE03A	6.48	8.1	0.13	U	8.2	0.13	U	8.6	0.13	U	7.7	0.12	U	8.9	0.14	U	8.6	0.13	U
IE04A	4.81	8.1	0.17	U	8.1	0.17	U	8.5	0.18	U	7.6	0.16	U	8.8	0.18	U	8.6	0.18	U
IE05A	5.93	8.1	0.14	U	8.2	0.14	U	8.6	0.15	U	7.7	0.13	U	8.9	0.15	U	8.6	0.15	U
IE06A	33.2	8.1	0.02	U	8.1	0.02	U	8.6	0.03	U	7.7	0.02	U	8.9	0.03	U	8.6	0.03	U
IE07A	15.4	8.1	0.05	U	8.1	0.05	U	<b>10</b>	<b>0.06</b>	JT	<b>120</b>	<b>0.78</b>		<b>14</b>	<b>0.09</b>	JT	8.5	0.06	U
IE09A	3.33	<b>11</b>	<b>0.33</b>	JT	8.2	0.25	U	<b>20</b>	<b>0.60</b>		<b>81</b>	<b>2.43</b>		<b>20</b>	<b>0.60</b>		<b>10</b>	<b>0.30</b>	JT
IE13A	8.29	8.2	0.10	U	8.2	0.10	U	8.6	0.10	U	7.7	0.09	U	8.9	0.11	U	8.6	0.10	U
IE14A	2.79	8.1	0.29	U	8.1	0.29	U	8.6	0.31	U	7.6	0.27	U	8.8	0.32	U	8.6	0.31	U
IE15A	2.48	8.1	0.33	U	8.1	0.33	U	8.5	0.34	U	7.6	0.31	U	8.8	0.35	U	<b>23</b>	<b>0.93</b>	
IE16A	4.9	8.1	0.17	U	8.1	0.17	U	8.6	0.18	U	7.7	0.16	U	8.9	0.18	U	8.6	0.18	U
LA01A	11.7	8.1	0.07	U	8.2	0.07	U	8.6	0.07	U	7.7	0.07	U	8.9	0.08	U	<b>15</b>	<b>0.13</b>	JT
LA02A	10.3	<b>14</b>	<b>0.14</b>	JT	<b>12</b>	<b>0.12</b>	JT	<b>16</b>	<b>0.16</b>	JT	<b>26</b>	<b>0.25</b>		<b>17</b>	<b>0.17</b>	JT	<b>84</b>	<b>0.82</b>	
LA03A	9.17	8.2	0.09	U	<b>12</b>	<b>0.13</b>	JT	<b>11</b>	<b>0.12</b>	JT	<b>30</b>	<b>0.33</b>		<b>20</b>	<b>0.22</b>	JT	<b>14</b>	<b>0.15</b>	JT
IH01A	17.2	32	0.19	U	32	0.19	U	34	0.20	U	30	0.17	U	35	0.20	U	34	0.20	U
IH02A	25.4	<b>10</b>	<b>0.04</b>	JT	<b>10</b>	<b>0.04</b>	JT	<b>19</b>	<b>0.07</b>	JT	<b>60</b>	<b>0.24</b>		<b>19</b>	<b>0.07</b>	JT	<b>17</b>	<b>0.07</b>	JT
IH03A	11.7	8	0.07	U	<b>24</b>	<b>0.21</b>		<b>36</b>	<b>0.31</b>		<b>400</b>	<b>3.42</b>		<b>60</b>	<b>0.51</b>		8.5	0.07	U
IH04A	2.91	8.1	0.28	U	8.1	0.28	U	<b>62</b>	<b>2.13</b>		<b>64</b>	<b>2.20</b>		<b>30</b>	<b>1.03</b>		<b>48</b>	<b>1.65</b>	
IH05A	1.8	7.9	0.44	U	7.9	0.44	U	<b>43</b>	<b>2.39</b>		<b>81</b>	<b>4.50</b>		<b>10</b>	<b>0.56</b>	JT	8.3	0.46	U
IH06A	2.09	8	0.38	U	<b>21</b>	<b>1.00</b>		<b>58</b>	<b>2.78</b>		<b>160</b>	<b>7.66</b>		<b>61</b>	<b>2.92</b>		8.5	0.41	U
MA01A	1.13	7.9	0.70	U	7.9	0.70	U	<b>21</b>	<b>1.86</b>		<b>45</b>	<b>3.98</b>		<b>14</b>	<b>1.24</b>	JT	8.3	0.73	U
MA02A	4.02	48	1.19	U	<b>94</b>	<b>2.34</b>	JT	51	1.27	U	<b>59</b>	<b>1.47</b>	JT	53	1.32	U	51	1.27	U
MA03A	2.38	8	0.34	U	8.1	0.34	U	<b>13</b>	<b>0.55</b>	JT	<b>38</b>	<b>1.60</b>		<b>14</b>	<b>0.59</b>	JT	8.5	0.36	U
MA04A	8.49	8.1	0.10	U	<b>59</b>	<b>0.69</b>		8.6	0.10	U	<b>140</b>	<b>1.65</b>		<b>56</b>	<b>0.66</b>		8.6	0.10	U
MA05A	2.46	8.1	0.33	U	8.1	0.33	U	8.5	0.35	U	<b>18</b>	<b>0.73</b>	JT	8.8	0.36	U	<b>15</b>	<b>0.61</b>	JT
BL01A	5.03	8.2	0.16	U	<b>8.2</b>	<b>0.16</b>		8.6	0.17	U	<b>34</b>	<b>0.68</b>		8.9	0.18	U	8.6	0.17	U
BL02A	2.72	<b>13</b>	<b>0.48</b>	JT	<b>11</b>	<b>0.40</b>	JT	8.5	0.31	U	<b>64</b>	<b>2.35</b>		<b>22</b>	<b>0.81</b>		<b>11</b>	<b>0.40</b>	JT
BL03A	2.51	8	0.32	U	8.1	0.32	U	8.5	0.34	U	<b>49</b>	<b>1.95</b>		8.8	0.35	U	8.5	0.34	U
BL04A	0.64	8	1.25	U	8	1.25	U	8.4	1.31	U	7.5	1.17	U	8.7	1.36	U	8.4	1.31	U
BL06A	1.89	8.1	0.43	U	8.1	0.43	U	8.5	0.45	U	<b>22</b>	<b>1.16</b>		8.8	0.47	U	<b>46</b>	<b>2.43</b>	
BL08A	1.46	8	0.55	U	8.1	0.55	U	8.5	0.58	U	7.6	0.52	U	8.8	0.60	U	8.5	0.58	U
KP01A	4.21	8.1	0.19	U	<b>10</b>	<b>0.24</b>	JT	<b>27</b>	<b>0.64</b>		<b>88</b>	<b>2.09</b>		<b>18</b>	<b>0.43</b>	JT	<b>10</b>	<b>0.24</b>	JT
KP02A	5.31	8.2	0.15	U	8.2	0.15	U	<b>17</b>	<b>0.32</b>	JT	<b>45</b>	<b>0.85</b>		<b>11</b>	<b>0.21</b>	JT	8.6	0.16	U
KP03A	1.8	8.1	0.45	U	8.1	0.45	U	8.6	0.48	U	<b>24</b>	<b>1.33</b>		12	0.67	JT	<b>12</b>	<b>0.67</b>	JT
KP04A	1.65	8.1	0.49	U	8.1	0.49	U	<b>10</b>	<b>0.61</b>	JT	<b>24</b>	<b>1.45</b>		8.8	0.53	U	<b>20</b>	<b>1.21</b>	
KP05A	1.09	8.1	0.74	U	8.1	0.74	U	<b>23</b>	<b>2.11</b>		<b>62</b>	<b>5.69</b>		<b>22</b>	<b>2.02</b>		<b>46</b>	<b>4.22</b>	
KP07A	1.65	8	0.48	U	8	0.48	U	8.5	0.52	U	7.6	0.46	U	8.8	0.53	U	<b>19</b>	<b>1.15</b>	JT
KP08A	2.37	8.1	0.34	U	8.1	0.34	U	8.5	0.36	U	<b>36</b>	<b>1.52</b>		8.8	0.37	U	<b>22</b>	<b>0.93</b>	
FT01A	2.44	<b>18</b>	<b>0.74</b>	JT	<b>20</b>	<b>0.82</b>		<b>52</b>	<b>2.13</b>		<b>150</b>	<b>6.15</b>		<b>33</b>	<b>1.35</b>		<b>47</b>	<b>1.93</b>	
FT02A	2.61	<b>18</b>	<b>0.69</b>	JT	<b>29</b>	<b>1.11</b>		<b>87</b>	<b>3.33</b>		<b>240</b>	<b>9.20</b>		<b>57</b>	<b>2.18</b>		<b>42</b>	<b>1.61</b>	
FT04A	1.12	8	0.71	U	<b>16</b>	<b>1.43</b>	JT	8.5	0.76	U	<b>63</b>	<b>5.63</b>		<b>22</b>	<b>1.96</b>		<b>23</b>	<b>2.05</b>	
FT05A	1.85	<b>22</b>	<b>1.19</b>		<b>21</b>	<b>1.14</b>		<b>29</b>	<b>1.57</b>		<b>63</b>	<b>3.41</b>		<b>29</b>	<b>1.57</b>		<b>78</b>	<b>4.22</b>	
FT06A	1.47	8	0.54	U	8.1	0.55	U	8.5	0.58	U	<b>22</b>	<b>1.50</b>		8.8	0.60	U	<b>43</b>	<b>2.93</b>	
FT10A	1.38	7.9	0.57	U	7.9	0.57	U	8.4	0.61	U	7.5	0.54	U	8.7	0.63	U	<b>29</b>	<b>2.10</b>	

Note: The calculations for Total LPAH and Total HPAH follow the methodology of the Washington State Sediment Management Standards. All concentrations are in (µg/Kg Dry Weight).

**Table C-7. Concentrations of LPAH and HPAH Compounds in Surface Sediments**  
**Stations are arranged west to east.**

Station	TOC	2-Methylnaphthalene			Acenaphthene			Acenaphthylene			Anthracene			Fluorene			Naphthalene		
	%	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier
FT11A	2.4	7.9	0.33	U	7.9	0.33	U	8.4	0.35	U	7.5	0.31	U	8.6	0.36	U	41	1.71	
FT13A	0.879	8.2	0.93	U	8.2	0.93	U	8.6	0.98	U	7.7	0.88	U	8.9	1.01	U	8.7	0.99	U
RL01A	0.414	8	1.93	U	8	1.93	U	8.4	2.03	U	7.5	1.81	U	8.7	2.10	U	8.5	2.05	U
LP01A	3.6	8	0.22	U	8	0.22	U	10	0.28	JT	13	0.36	JT	10	0.28	JT	13	0.36	JT
LP03A	1.55	7.9	0.51	U	8	0.52	U	8.4	0.54	U	12	0.77	JT	8.7	0.56	U	14	0.90	JT
LP04A	3.79	14	0.37	JT	26	0.69		12	0.32	JT	53	1.40		25	0.66		49	1.29	
LP05A	3.6	29	0.81		34	0.94		25	0.69		150	4.17		51	1.42		74	2.06	
CO01A	0.588	8	1.36	U	8	1.36	U	8.5	1.45	U	7.6	1.29	U	8.8	1.50	U	8.5	1.45	U
CO02A	2	11	0.55	JT	16	0.80	JT	16	0.80	JT	62	3.10		24	1.20		31	1.55	
CO03A	0.314	8	2.55	U	8	2.55	U	8.4	2.68	U	7.5	2.39	U	8.7	2.77	U	8.4	2.68	U
CO04A	0.182	8	4.40	U	8	4.40	U	8.5	4.67	U	7.6	4.18	U	8.7	4.78	U	8.5	4.67	U
CO05A	0.885	8.1	0.92	U	8.1	0.92	U	8.6	0.97	U	7.6	0.86	U	8.9	1.01	U	8.6	0.97	U
MD01A	2.36	16	0.68	JT	29	1.23		20	0.85		270	11.44		57	2.42		41	1.74	
MD02A	3.62	16	0.44	JT	18	0.50	JT	26	0.72		110	3.04		32	0.88		45	1.24	
MD03A	1.24	14	1.13	JT	14	1.13	JT	26	2.10		170	13.71		25	2.02		34	2.74	
MD04A	2.16	14	0.65	JT	14	0.65	JT	25	1.16		120	5.56		22	1.02		45	2.08	
MD05A	1.45	8.2	0.57	U	8.2	0.57	U	8.6	0.59	U	7.7	0.53	U	8.9	0.61	U	12	0.83	JT
ED01A	1.59	8.1	0.51	U	8.2	0.52	U	8.6	0.54	U	38	2.39		8.9	0.56	U	30	1.89	
ED02A	2.22	8.2	0.37	U	8.2	0.37	U	31	1.40		83	3.74		22	0.99		58	2.61	
ED03A	4.23	8.2	0.19	U	8.2	0.19	U	26	0.61		110	2.60		30	0.71		35	0.83	
ED04A	5.13	8.1	0.16	U	8.1	0.16	U	30	0.58		120	2.34		30	0.58		29	0.57	
ED05A	1.32	8	0.61	U	8	0.61	U	8.4	0.64	U	22	1.67		8.7	0.66	U	8.4	0.64	U
OH01A	0.431	8.1	1.88	U	8.1	1.88	U	8.6	2.00	U	7.7	1.79	U	8.9	2.06	U	8.6	2.00	U
OH02A	0.679	8	1.18	U	8.1	1.19	U	8.5	1.25	U	29	4.27		12	1.77	JT	26	3.83	
OH03A	0.728	8.1	1.11	U	8.2	1.13	U	8.6	1.18	U	7.7	1.06	U	8.9	1.22	U	8.6	1.18	U
DO01A	0.423	8.1	1.91	U	8.1	1.91	U	8.5	2.01	U	7.6	1.80	U	8.8	2.08	U	8.6	2.03	U
DO02A	0.681	8	1.17	U	8	1.17	U	8.5	1.25	U	7.6	1.12	U	8.8	1.29	U	8.5	1.25	U
DO03A	0.542	8	1.48	U	8	1.48	U	8.5	1.57	U	7.6	1.40	U	8.8	1.62	U	8.5	1.57	U
DO04A	0.438	8.2	1.87	U	8.2	1.87	U	8.6	1.96	U	7.7	1.76	U	8.9	2.03	U	8.4	1.92	U
DO05A	0.495	8.1	1.64	U	8.1	1.64	U	8.6	1.74	U	7.7	1.56	U	8.9	1.80	U	8.6	1.74	U
EC01A	0.469	8	1.71	U	8	1.71	U	8.4	1.79	U	7.5	1.60	U	8.7	1.86	U	8.5	1.81	U
EC02A	0.239	8	3.35	U	8.1	3.39	U	8.5	3.56	U	7.6	3.18	U	8.8	3.68	U	8.5	3.56	U
EC03A	1.06	8	0.75	U	8.1	0.76	U	8.5	0.80	U	24	2.26		8.8	0.83	U	8.5	0.80	U
EC04A	1.35	8	0.59	U	8	0.59	U	8.4	0.62	U	7.5	0.56	U	8.7	0.64	U	8.4	0.62	U
EC05A	0.216	8.1	3.75	U	8.2	3.80	U	8.6	3.98	U	7.7	3.56	U	8.9	4.12	U	8.6	3.98	U
EE01A	0.232	8.1	3.49	U	8.1	3.49	U	8.5	3.66	U	7.6	3.28	U	8.8	3.79	U	8.6	3.71	U
EE02A	0.311	8	2.57	U	8	2.57	U	8.4	2.70	U	7.5	2.41	U	8.7	2.80	U	8.4	2.70	U
EE03A	0.176	8	4.55	U	8	4.55	U	8.4	4.77	U	7.5	4.26	U	8.7	4.94	U	8.4	4.77	U
EE04A	0.197	8	4.06	U	8	4.06	U	8.4	4.26	U	7.5	3.81	U	8.7	4.42	U	8.4	4.26	U
EE05A	0.222	8	3.60	U	8	3.60	U	8.5	3.83	U	7.6	3.42	U	8.7	3.92	U	8.5	3.83	U
EI01A	0.198	8	4.04	U	8	4.04	U	8.5	4.29	U	7.6	3.84	U	8.8	4.44	U	8.5	4.29	U
EI02A	0.182	8.1	4.45	U	8.1	4.45	U	8.5	4.67	U	7.6	4.18	U	8.8	4.84	U	8.6	4.73	U
EI03A	0.459	8	1.74	U	8	1.74	U	8.4	1.83	U	7.5	1.63	U	8.7	1.90	U	8.4	1.83	U
EI04A	0.172	8	4.65	U	8	4.65	U	8.5	4.94	U	7.6	4.42	U	8.8	5.12	U	8.5	4.94	U
EI06A	0.162	8.2	5.06	U	8.2	5.06	U	8.6	5.31	U	7.7	4.75	U	8.9	5.49	U	8.6	5.31	U
EI07A	0.628	8.1	1.29	U	8.1	1.29	U	8.5	1.35	U	7.6	1.21	U	8.8	1.40	U	8.5	1.35	U
RF01A	0.213	21	9.86	U	21	9.86	U	22	10.33	U	19	8.92	U	22	10.33	U	22	10.33	U

Note: The calculations for Total LPAH and Total HPAH follow the methodology of the Washington State Sediment Management Standards. All concentrations are in (µg/Kg Dry Weight).

**Table C-7. Concentrations of LPAH and HPAH Compounds in Surface Sediments**  
**Stations are arranged west to east.**

Station	TOC	2-Methylnaphthalene			Acenaphthene			Acenaphthylene			Anthracene			Fluorene			Naphthalene		
	%	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier
RF02A	0.403	7.9	1.96	U	8	1.99	U	8.4	2.08	U	7.5	1.86	U	8.7	2.16	U	8.4	2.08	U
RF03A	1.42	8.2	0.58	U	8.2	0.58	U	8.6	0.61	U	7.7	0.54	U	8.9	0.63	U	8.6	0.61	U
SQS (mg/kg TOC)			38.00			16.00			66.00			220.00			23.00			99.00	
CSL (mg/kg TOC)			64.00			57.00			66.00			1200.00			79.00			170.00	
LAET (µg/kg dw)		670.00			500.00			560.00			960.00			540.00			2100.00		

Key:

- Bold** = Analyte was detected.
- dw = dry weight.
- µg/kg = micrograms per kilogram.
- JT = The associated estimated positive result is less than the reporting limit.
- JG = The associated estimated positive result has a likely low bias.
- JL = The associated estimated positive result has a likely high bias.
- UJG = The associated estimated sample quantitation limit has a likely low bias.
- UJK = The associated estimated sample quantitation limit has a likely unknown bias.
- UJL = The associated estimated sample quantitation limit has a likely high bias.
- U = Analyte was not detected at or above the reported result.
- JTK = The associated estimated positive result is less than the reporting limit with a likely unknown bias.

*Note: The calculations for Total LPAH and Total HPAH follow the methodology of the Washington State Sediment Management Standards. All concentrations are in (µg/Kg Dry Weight).*

**Table C-7. Concentrations of LPAH and HPAH Compounds in Surface Sediments**  
**Stations are arranged west to east.**

Station	TOC	Phenanthrene			Benzo(b)fluoranthene			Benzo(k)fluoranthene			Benz(a)anthracene			Benzo(a)pyrene			Benzo(g,h,i)perylene		
	%	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier
IE03A	6.48	8.3	0.13	U	9.5	0.15	U	9.2	0.14	U	5.9	0.09	U	8.1	0.13	U	6.7	0.10	UJG
IE04A	4.81	8.3	0.17	U	9.4	0.20	U	9.1	0.19	U	5.8	0.12	U	8	0.17	U	6.7	0.14	UJG
IE05A	5.93	40	0.67		41	0.69		31	0.52		23	0.39		23	0.39		6.7	0.11	UJG
IE06A	33.2	26	0.08		47	0.14		30	0.09		32	0.10		21	0.06		6.7	0.02	UJG
IE07A	15.4	200	1.30		100	0.65		110	0.71		60	0.39		80	0.52		39	0.25	
IE09A	3.33	120	3.60		170	5.11		150	4.50		170	5.11		140	4.20		50	1.50	
IE13A	8.29	8.4	0.10	U	9.5	0.11	U	9.2	0.11	U	5.9	0.07	U	8.1	0.10	U	6.7	0.08	UJG
IE14A	2.79	8.3	0.30	U	9.4	0.34	U	9.1	0.33	U	5.8	0.21	U	8.1	0.29	U	6.7	0.24	UJG
IE15A	2.48	29	1.17		20	0.81		9.1	0.37	U	5.8	0.23	U	8	0.32	U	6.7	0.27	UJG
IE16A	4.9	8.3	0.17	U	9.4	0.19	U	9.2	0.19	U	5.9	0.12	U	8.1	0.17	U	6.7	0.14	UJG
LA01A	11.7	31	0.26		24	0.21		24	0.21		20	0.17		20	0.17		11	0.09	JTK
LA02A	10.3	82	0.80		55	0.53		62	0.60		60	0.58		45	0.44		16	0.16	JTK
LA03A	9.17	120	1.31		120	1.31		130	1.42		89	0.97		94	1.03		33	0.36	
IH01A	17.2	63	0.37	JT	37	0.22	U	36	0.21	U	45	0.26	JT	32	0.19	U	26	0.15	U
IH02A	25.4	130	0.51		140	0.55		160	0.63		110	0.43		110	0.43		48	0.19	
IH03A	11.7	200	1.71		330	2.82		330	2.82		220	1.88		230	1.97		60	0.51	
IH04A	2.91	380	13.06		160	5.50		240	8.25		160	5.50		200	6.87		160	5.50	
IH05A	1.8	85	4.72		360	20.00		320	17.78		420	23.33		300	16.67		91	5.06	
IH06A	2.09	470	22.49		660	31.58		450	21.53		690	33.01		360	17.22		120	5.74	
MA01A	1.13	100	8.85		150	13.27		100	8.85		83	7.35		81	7.17		48	4.25	
MA02A	4.02	110	2.74	JT	56	1.39	UJG	55	1.37	UJG	35	0.87	U	48	1.19	UJG	40	1.00	U
MA03A	2.38	110	4.62		150	6.30		94	3.95		120	5.04		82	3.45		28	1.18	
MA04A	8.49	210	2.47		180	2.12		200	2.36		250	2.94		120	1.41		6.7	0.08	UJG
MA05A	2.46	51	2.07		63	2.56		55	2.24		51	2.07		44	1.79		20	0.81	
BL01A	5.03	83	1.65		70	1.39		120	2.39		78	1.55		62	1.23		6.7	0.13	U
BL02A	2.72	87	3.20		96	3.53		100	3.68		100	3.68		75	2.76		26	0.96	
BL03A	2.51	84	3.35		150	5.98		100	3.98		110	4.38		100	3.98		31	1.24	
BL04A	0.64	20	3.13		26	4.06		21	3.28		24	3.75		20	3.13		6.6	1.03	U
BL06A	1.89	69	3.65		47	2.49		38	2.01		33	1.75		27	1.43		6.6	0.35	UJG
BL08A	1.46	44	3.01		28	1.92		29	1.99		25	1.71		8	0.55	U	6.6	0.45	UJG
KP01A	4.21	120	2.85		220	5.23		180	4.28		180	4.28		160	3.80		79	1.88	
KP02A	5.31	84	1.58		130	2.45		100	1.88		100	1.88		98	1.85		64	1.21	
KP03A	1.8	90	5.00		54	3.00		43	2.39		45	2.50		46	2.56		15	0.83	JT
KP04A	1.65	69	4.18		85	5.15		58	3.52		54	3.27		57	3.45		20	1.21	
KP05A	1.09	150	13.76		99	9.08		180	16.51		120	11.01		110	10.09		47	4.31	JG
KP07A	1.65	27	1.64		22	1.33		14	0.85	JT	15	0.91	JT	16	0.97	JT	6.6	0.40	U
KP08A	2.37	54	2.28		120	5.06		85	3.59		67	2.83		78	3.29		24	1.01	JG
FT01A	2.44	240	9.84		690	28.28		390	15.98		310	12.70		400	16.39		75	3.07	
FT02A	2.61	510	19.54		960	36.78		730	27.97		610	23.37		530	20.31		78	2.99	
FT04A	1.12	290	25.89		400	35.71		240	21.43		250	22.32		290	25.89		96	8.57	
FT05A	1.85	290	15.68		200	10.81		140	7.57		120	6.49		120	6.49		39	2.11	JG
FT06A	1.47	76	5.17		81	5.51		40	2.72		47	3.20		45	3.06		20	1.36	JG
FT10A	1.38	54	3.91		42	3.04		32	2.32		28	2.03		26	1.88		6.5	0.47	UJG

Note: The calculations for Total LPAH and Total HPAH follow the methodology of the Washington State Sediment Management Standards. All concentrations are in (µg/Kg Dry Weight).

**Table C-7. Concentrations of LPAH and HPAH Compounds in Surface Sediments**  
**Stations are arranged west to east.**

Station	TOC	Phenanthrene			Benzo(b)fluoranthene			Benzo(k)fluoranthene			Benz(a)anthracene			Benzo(a)pyrene			Benzo(g,h,i)perylene		
	%	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier
FT11A	2.4	56	2.33		26	1.08		34	1.42		26	1.08		21	0.88		6.5	0.27	UJG
FT13A	0.879	20	2.28		13	1.48	JT	9.2	1.05	U	10	1.14	JT	10	1.14	JT	6.7	0.76	U
RL01A	0.414	30	7.25		30	7.25		35	8.45		27	6.52		29	7.00		21	5.07	
LP01A	3.6	30	0.83		46	1.28		38	1.06		25	0.69		23	0.64		6.6	0.18	U
LP03A	1.55	29	1.87		54	3.48		46	2.97		38	2.45		31	2.00		6.5	0.42	U
LP04A	3.79	210	5.54		95	2.51		150	3.96		110	2.90		76	2.01		14	0.37	JT
LP05A	3.6	280	7.78		340	9.44		390	10.83		290	8.06		230	6.39		40	1.11	
CO01A	0.588	32	5.44		19	3.23	JT	14	2.38	JT	14	2.38	JT	15	2.55	JT	6.6	1.12	U
CO02A	2	180	9.00		170	8.50		130	6.50		130	6.50		100	5.00		26	1.30	
CO03A	0.314	20	6.37		9.2	2.93	U	9	2.87	U	5.7	1.82	U	7.9	2.52	U	6.6	2.10	U
CO04A	0.182	8.2	4.51	U	9.3	5.11	U	9	4.95	U	5.8	3.19	U	8	4.40	U	6.6	3.63	U
CO05A	0.885	19	2.15	JT	17	1.92	JT	12	1.36	JT	12	1.36	JT	8.1	0.92	U	6.7	0.76	U
MD01A	2.36	200	8.47		410	17.37		260	11.02		280	11.86		170	7.20		24	1.02	
MD02A	3.62	190	5.25		330	9.12		380	10.50		290	8.01		210	5.80		26	0.72	
MD03A	1.24	150	12.10		440	35.48		300	24.19		330	26.61		220	17.74		28	2.26	
MD04A	2.16	120	5.56		370	17.13		220	10.19		150	6.94		190	8.80		28	1.30	
MD05A	1.45	17	1.17	JT	17	1.17	JT	13	0.90	JT	10	0.69	JT	11	0.76	JT	6.7	0.46	U
ED01A	1.59	84	5.28		130	8.18		84	5.28		97	6.10		87	5.47		23	1.45	
ED02A	2.22	180	8.11		150	6.76		270	12.16		140	6.31		130	5.86		28	1.26	
ED03A	4.23	180	4.26		280	6.62		220	5.20		170	4.02	JL	160	3.78		25	0.59	
ED04A	5.13	200	3.90		250	4.87		290	5.65		160	3.12	JL	170	3.31		28	0.55	
ED05A	1.32	72	5.45		73	5.53		54	4.09		67	5.08		48	3.64		18	1.36	JT
OH01A	0.431	8.3	1.93	U	9.4	2.18	U	9.2	2.13	U	5.9	1.37	U	8.1	1.88	U	6.7	1.55	U
OH02A	0.679	49	7.22		54	7.95		59	8.69		36	5.30		36	5.30		6.6	0.97	U
OH03A	0.728	16	2.20	JT	9.4	1.29	U	9.2	1.26	U	5.9	0.81	U	8.1	1.11	U	6.7	0.92	U
DO01A	0.423	8.3	1.96	U	9.4	2.22	U	9.1	2.15	U	5.8	1.37	U	8	1.89	U	6.7	1.58	U
DO02A	0.681	8.2	1.20	U	9.3	1.37	U	9.1	1.34	U	5.8	0.85	U	8	1.17	U	6.6	0.97	U
DO03A	0.542	8.2	1.51	U	9.3	1.72	U	9.1	1.68	U	5.8	1.07	U	8	1.48	U	6.6	1.22	U
DO04A	0.438	8.4	1.92	U	9.5	2.17	U	9.2	2.10	U	5.9	1.35	U	8.1	1.85	U	6.7	1.53	U
DO05A	0.495	8.3	1.68	U	9.4	1.90	U	9.2	1.86	U	5.9	1.19	U	8.1	1.64	U	6.7	1.35	U
EC01A	0.469	18	3.84	JT	14	2.99	JT	15	3.20	JT	9.5	2.03	JT	12	2.56	JT	6.6	1.41	U
EC02A	0.239	8.2	3.43	U	9.3	3.89	U	9.1	3.81	U	5.8	2.43	U	8	3.35	U	6.6	2.76	U
EC03A	1.06	61	5.75		78	7.36		58	5.47		53	5.00		46	4.34		6.6	0.62	U
EC04A	1.35	8.2	0.61	U	9.2	0.68	U	9	0.67	U	5.7	0.42	U	7.9	0.59	U	6.6	0.49	U
EC05A	0.216	8.3	3.84	U	9.4	4.35	U	9.2	4.26	U	5.9	2.73	U	8.1	3.75	U	6.7	3.10	U
EE01A	0.232	8.3	3.58	U	9.4	4.05	U	9.1	3.92	U	15	6.47	JT	8	3.45	U	6.7	2.89	U
EE02A	0.311	8.1	2.60	U	9.2	2.96	U	9	2.89	U	5.7	1.83	U	7.9	2.54	U	6.6	2.12	U
EE03A	0.176	8.2	4.66	U	9.2	5.23	U	9	5.11	U	5.7	3.24	U	7.9	4.49	U	6.6	3.75	U
EE04A	0.197	8.2	4.16	U	9.3	4.72	U	9	4.57	U	5.8	2.94	U	7.9	4.01	U	6.6	3.35	U
EE05A	0.222	8.2	3.69	U	9.3	4.19	U	9	4.05	U	5.8	2.61	U	8	3.60	U	6.6	2.97	U
EI01A	0.198	19	9.60	JT	9.3	4.70	U	9.1	4.60	U	5.8	2.93	U	8	4.04	U	6.6	3.33	U
EI02A	0.182	8.3	4.56	U	9.4	5.16	U	9.1	5.00	U	5.8	3.19	U	8	4.40	U	6.7	3.68	U
EI03A	0.459	8.1	1.76	U	9.2	2.00	U	9	1.96	U	5.7	1.24	U	7.9	1.72	U	6.6	1.44	U
EI04A	0.172	8.2	4.77	U	9.3	5.41	U	9.1	5.29	U	5.8	3.37	U	8	4.65	U	6.6	3.84	U
EI06A	0.162	8.4	5.19	U	9.5	5.86	U	9.2	5.68	U	5.9	3.64	U	8.1	5.00	U	6.7	4.14	U
EI07A	0.628	8.3	1.32	U	9.4	1.50	U	9.1	1.45	U	5.8	0.92	U	8	1.27	U	6.6	1.05	U
RF01A	0.213	21	9.86	U	24	11.27	U	23	10.80	U	15	7.04	U	20	9.39	U	17	7.98	U

Note: The calculations for Total LPAH and Total HPAH follow the methodology of the Washington State Sediment Management Standards. All concentrations are in (µg/Kg Dry Weight).

**Table C-7. Concentrations of LPAH and HPAH Compounds in Surface Sediments**

*Stations are arranged west to east.*

Station	TOC	Phenanthrene			Benzo(b)fluoranthene			Benzo(k)fluoranthene			Benz(a)anthracene			Benzo(a)pyrene			Benzo(g,h,i)perylene		
	%	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier
RF02A	0.403	<b>16</b>	<b>3.97</b>	JT	9.2	2.28	U	9	2.23	U	5.7	1.41	U	7.9	1.96	U	6.6	1.64	U
RF03A	1.42	8.4	0.59	U	9.5	0.67	U	9.2	0.65	U	5.9	0.42	U	8.1	0.57	U	6.7	0.47	U
SQS (mg/kg TOC)			100.00			NA			NA			110.00			99.00			31.00	
CSL (mg/kg TOC)			480.00			NA			NA			270.00			210.00			78.00	
LAET (µg/kg dw)		1500.00				NA			NA		1300.00			1600.00			670.00		

Key:

**Bold** = Analyte was detected.

dw = dry weight.

µg/kg = micrograms per kilogram.

JT = The associated estimated positive result is less than the reporting limit.

JG = The associated estimated positive result has a likely low bias.

JL = The associated estimated positive result has a likely high bias.

UJG = The associated estimated sample quantitation limit has a likely low bias.

UJK = The associated estimated sample quantitation limit has a likely unknown bias.

UJL = The associated estimated sample quantitation limit has a likely high bias.

U = Analyte was not detected at or above the reported result.

JTK = The associated estimated positive result is less than the reporting limit with a likely unknown bias.



**Table C-7. Concentrations of LPAH and HPAH Compounds in Surface Sediments**  
**Stations are arranged west to east.**

Station	TOC	Chrysene			Dibenzo(a,h)anthracene			Fluoranthene			Indeno(1,2,3-cd)pyrene			Benzo(b + K)fluoranthene			Pyrene		
	%	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier
IE03A	6.48	23	0.35		8.5	0.13	UJG	32	0.49		8.5	0.13	UJG	9.5	0.15	U	25	0.39	
IE04A	4.81	6.5	0.14	U	8.4	0.17	UJG	7.8	0.16	U	8.5	0.18	UJG	9.4	0.20	U	7.6	0.16	U
IE05A	5.93	73	1.23		8.5	0.14	UJG	120	2.02		8.5	0.14	UJG	72	1.21		88	1.48	
IE06A	33.2	70	0.21		8.5	0.03	UJG	120	0.36		8.5	0.03	UJG	77	0.23		88	0.27	
IE07A	15.4	180	1.17		10	0.06	JT	290	1.88		38	0.25		210	1.36		180	1.17	
IE09A	3.33	330	9.91		13	0.39	JT	440	13.21		52	1.56		320	9.61		420	12.61	
IE13A	8.29	6.6	0.08	U	8.5	0.10	UJG	7.9	0.10	U	8.6	0.10	UJG	9.5	0.11	U	7.7	0.09	U
IE14A	2.79	6.6	0.24	U	8.5	0.30	UJG	20	0.72		8.5	0.30	UJG	9.4	0.34	U	7.7	0.28	U
IE15A	2.48	22	0.89		8.4	0.34	UJG	44	1.77		8.5	0.34	UJG	20	0.81		39	1.57	
IE16A	4.9	6.6	0.13	U	8.5	0.17	UJG	23	0.47		8.5	0.17	UJG	9.4	0.19	U	27	0.55	
LA01A	11.7	34	0.29		8.5	0.07	UJK	65	0.56		8.5	0.07	U	48	0.41		58	0.50	
LA02A	10.3	120	1.17		8.5	0.08	UJK	150	1.46		14	0.14	JT	117	1.14		120	1.17	
LA03A	9.17	140	1.53		8.5	0.09	U	200	2.18		30	0.33		250	2.73		180	1.96	
IH01A	17.2	78	0.45		33	0.19	U	180	1.05		34	0.20	U	37	0.22	U	130	0.76	
IH02A	25.4	230	0.91		20	0.08		290	1.14		48	0.19		300	1.18		270	1.06	
IH03A	11.7	390	3.33	JL	28	0.24		1000	8.55		71	0.61		660	5.64		390	3.33	
IH04A	2.91	300	10.31		31	1.07		670	23.02		130	4.47		400	13.75		530	18.21	
IH05A	1.8	490	27.22		41	2.28		920	51.11		99	5.50		680	37.78		630	35.00	
IH06A	2.09	890	42.58		67	3.21		2000	95.69		130	6.22		1110	53.11		1100	52.63	
MA01A	1.13	230	20.35		10	0.88	JT	340	30.09		47	4.16		250	22.12		300	26.55	
MA02A	4.02	39	0.97	UJL	50	1.24	U	47	1.17	UJL	51	1.27	U	56	1.39	UJG	46	1.14	U
MA03A	2.38	200	8.40		10	0.42	JT	370	15.55		29	1.22		244	10.25		240	10.08	
MA04A	8.49	300	3.53		8.5	0.10	UJG	930	10.95		24	0.28	JG	380	4.48		530	6.24	
MA05A	2.46	90	3.66		8.4	0.34	U	130	5.28		18	0.73	JT	118	4.80		110	4.47	
BL01A	5.03	140	2.78		8.5	0.17	U	260	5.17		8.6	0.17	U	190	3.78		150	2.98	
BL02A	2.72	140	5.15		8.4	0.31	U	270	9.93		26	0.96		196	7.21		280	10.29	
BL03A	2.51	180	7.17		8.4	0.33	U	280	11.16		37	1.47		250	9.96		200	7.97	
BL04A	0.64	36	5.63		8.3	1.30	U	55	8.59		8.4	1.31	U	47	7.34		52	8.13	
BL06A	1.89	65	3.44		8.4	0.44	UJG	120	6.35		8.5	0.45	UJG	85	4.50		100	5.29	
BL08A	1.46	44	3.01		8.4	0.58	UJG	68	4.66		8.4	0.58	UJG	57	3.90		47	3.22	
KP01A	4.21	330	7.84		25	0.59		340	8.08		82	1.95		400	9.50		370	8.79	
KP02A	5.31	180	3.39		11	0.21	JT	240	4.52		56	1.05		230	4.33		220	4.14	
KP03A	1.8	60	3.33		8.5	0.47	U	120	6.67		14	0.78	JT	97	5.39		120	6.67	
KP04A	1.65	88	5.33		8.5	0.52	U	180	10.91		18	1.09	JT	143	8.67		140	8.48	
KP05A	1.09	190	17.43		8.5	0.78	UJG	360	33.03		46	4.22	JG	279	25.60		320	29.36	
KP07A	1.65	22	1.33		8.4	0.51	U	52	3.15		8.4	0.51	U	36	2.18		38	2.30	
KP08A	2.37	120	5.06		8.4	0.35	UJG	140	5.91		24	1.01	JG	205	8.65		260	10.97	
FT01A	2.44	620	25.41		19	0.78	JT	790	32.38		80	3.28		1080	44.26		660	27.05	
FT02A	2.61	1100	42.15		25	0.96		2500	95.79		94	3.60		1590	60.92		1400	53.64	
FT04A	1.12	370	33.04		24	2.14		690	61.61		100	8.93		640	57.14		490	43.75	
FT05A	1.85	220	11.89		8.5	0.46	UJG	380	20.54		39	2.11	JG	340	18.38		320	17.30	
FT06A	1.47	75	5.10		8.4	0.57	UJG	170	11.56		8.4	0.57	UJG	121	8.23		130	8.84	
FT10A	1.38	44	3.19		8.3	0.60	UJG	100	7.25		8.3	0.60	UJG	74	5.36		79	5.72	

Note: The calculations for Total LPAH and Total HPAH follow the methodology of the Washington State Sediment Management Standards. All concentrations are in (µg/Kg Dry Weight).

**Table C-7. Concentrations of LPAH and HPAH Compounds in Surface Sediments**  
**Stations are arranged west to east.**

Station	TOC	Chrysene			Dibenzo(a,h)anthracene			Fluoranthene			Indeno(1,2,3-cd)pyrene			Benzo(b + K)fluoranthene			Pyrene		
	%	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier
FT11A	2.4	41	1.71		8.3	0.35	UJG	92	3.83		8.3	0.35	UJG	60	2.50		72	3.00	
FT13A	0.879	20	2.28		8.5	0.97	U	29	3.30		8.6	0.98	U	13	1.48	JT	25	2.84	
RL01A	0.414	45	10.87		8.3	2.00	U	87	21.01		19	4.59	JT	65	15.70		72	17.39	
LP01A	3.6	47	1.31		8.3	0.23	U	130	3.61		8.4	0.23	U	84	2.33		69	1.92	
LP03A	1.55	47	3.03		8.3	0.54	U	84	5.42		8.3	0.54	U	100	6.45		47	3.03	
LP04A	3.79	160	4.22		8.4	0.22	U	740	19.53		14	0.37	JT	245	6.46		370	9.76	
LP05A	3.6	520	14.44		21	0.58		770	21.39		42	1.17		730	20.28		520	14.44	
CO01A	0.588	23	3.91		8.4	1.43	U	44	7.48		8.4	1.43	U	33	5.61		23	3.91	
CO02A	2	260	13.00		10	0.50	JT	590	29.50		25	1.25		300	15.00		320	16.00	
CO03A	0.314	12	3.82	JT	8.3	2.64	U	35	11.15		8.3	2.64	U	9.2	2.93	U	20	6.37	
CO04A	0.182	6.5	3.57	U	8.4	4.62	U	11	6.04	JT	8.4	4.62	U	9.3	5.11	U	7.6	4.18	U
CO05A	0.885	18	2.03	JT	8.5	0.96	U	56	6.33		8.5	0.96	U	29	3.28		29	3.28	
MD01A	2.36	640	27.12		17	0.72	JT	560	23.73		30	1.27		670	28.39		460	19.49	
MD02A	3.62	440	12.15		15	0.41	JT	760	20.99		32	0.88		710	19.61		440	12.15	
MD03A	1.24	560	45.16		11	0.89	JT	480	38.71		32	2.58		740	59.68		350	28.23	
MD04A	2.16	410	18.98		10	0.46	JT	350	16.20		34	1.57		590	27.31		310	14.35	
MD05A	1.45	16	1.10	JT	8.5	0.59	U	34	2.34		8.6	0.59	U	30	2.07		28	1.93	
ED01A	1.59	170	10.69		8.5	0.53	U	230	14.47		25	1.57		214	13.46		150	9.43	
ED02A	2.22	310	13.96		8.5	0.38	U	500	22.52		28	1.26		420	18.92		280	12.61	
ED03A	4.23	340	8.04	JL	8.5	0.20	U	590	13.95		29	0.69		500	11.82		300	7.09	JL
ED04A	5.13	380	7.41	JL	8.5	0.17	U	660	12.87		28	0.55		540	10.53		320	6.24	JL
ED05A	1.32	120	9.09		8.3	0.63	U	300	22.73		17	1.29	JT	127	9.62		180	13.64	
OH01A	0.431	6.6	1.53	U	8.5	1.97	U	7.8	1.81	U	8.5	1.97	U	9.4	2.18	U	7.7	1.79	U
OH02A	0.679	55	8.10		8.4	1.24	U	84	12.37		8.4	1.24	U	113	16.64		200	29.46	
OH03A	0.728	6.6	0.91	U	8.5	1.17	U	7.9	1.09	U	8.5	1.17	U	9.4	1.29	U	7.7	1.06	U
DO01A	0.423	6.5	1.54	U	8.4	1.99	U	11	2.60	JT	8.5	2.01	U	9.4	2.22	U	7.6	1.80	U
DO02A	0.681	6.5	0.95	U	8.4	1.23	U	7.8	1.15	U	8.4	1.23	U	9.3	1.37	U	7.6	1.12	U
DO03A	0.542	6.5	1.20	U	8.4	1.55	U	7.8	1.44	U	8.4	1.55	U	9.3	1.72	U	7.6	1.40	U
DO04A	0.438	6.6	1.51	U	8.5	1.94	U	7.9	1.80	U	8.6	1.96	U	9.5	2.17	U	7.7	1.76	U
DO05A	0.495	6.6	1.33	U	8.5	1.72	U	7.9	1.60	U	8.5	1.72	U	9.4	1.90	U	7.7	1.56	U
EC01A	0.469	16	3.41	JT	8.3	1.77	U	30	6.40		8.4	1.79	U	29	6.18	JT	23	4.90	
EC02A	0.239	6.5	2.72	U	8.4	3.51	U	7.8	3.26	U	8.4	3.51	U	9.3	3.89	U	7.6	3.18	U
EC03A	1.06	110	10.38		8.4	0.79	U	190	17.92		8.4	0.79	U	136	12.83		100	9.43	
EC04A	1.35	21	1.56		8.3	0.61	U	50	3.70		8.3	0.61	U	9.2	0.68	U	30	2.22	
EC05A	0.216	6.6	3.06	U	8.5	3.94	U	7.9	3.66	U	8.5	3.94	U	9.4	4.35	U	7.7	3.56	U
EE01A	0.232	17	7.33	JT	8.4	3.62	U	41	17.67		8.5	3.66	U	9.4	4.05	U	26	11.21	
EE02A	0.311	6.4	2.06	U	8.3	2.67	U	13	4.18	JT	8.3	2.67	U	9.2	2.96	U	10	3.22	JT
EE03A	0.176	6.4	3.64	U	8.3	4.72	U	7.7	4.38	U	8.3	4.72	U	9.2	5.23	U	7.5	4.26	U
EE04A	0.197	6.5	3.30	U	8.3	4.21	U	7.7	3.91	U	8.4	4.26	U	9.3	4.72	U	7.5	3.81	U
EE05A	0.222	6.5	2.93	U	8.4	3.78	U	7.7	3.47	U	8.4	3.78	U	9.3	4.19	U	7.6	3.42	U
EI01A	0.198	6.5	3.28	U	8.4	4.24	U	19	9.60	JT	8.4	4.24	U	9.3	4.70	U	10	5.05	JT
EI02A	0.182	6.5	3.57	U	8.4	4.62	U	7.8	4.29	U	8.5	4.67	U	9.4	5.16	U	7.6	4.18	U
EI03A	0.459	6.4	1.39	U	8.3	1.81	U	7.7	1.68	U	8.3	1.81	U	9.2	2.00	U	7.5	1.63	U
EI04A	0.172	6.5	3.78	U	8.4	4.88	U	7.7	4.48	U	8.4	4.88	U	9.3	5.41	U	7.6	4.42	U
EI06A	0.162	6.6	4.07	U	8.5	5.25	U	7.9	4.88	U	8.6	5.31	U	9.5	5.86	U	7.7	4.75	U
EI07A	0.628	6.5	1.04	U	8.4	1.34	U	7.8	1.24	U	8.5	1.35	U	9.4	1.50	U	7.6	1.21	U
RF01A	0.213	17	7.98	U	21	9.86	U	20	9.39	U	22	10.33	U	24	11.27	U	19	8.92	U

Note: The calculations for Total LPAH and Total HPAH follow the methodology of the Washington State Sediment Management Standards. All concentrations are in (µg/Kg Dry Weight).

**Table C-7. Concentrations of LPAH and HPAH Compounds in Surface Sediments**  
**Stations are arranged west to east.**

Station	TOC	Chrysene			Dibenzo(a,h)anthracene			Fluoranthene			Indeno(1,2,3-cd)pyrene			Benzo(b + K)fluoranthene			Pyrene		
	%	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier	Result (µg/kg)	TOC-Norm (mg/kg OC)	Qualifier
RF02A	0.403	6.4	1.59	U	8.3	2.06	U	7.7	1.91	U	8.3	2.06	U	9.2	2.28	U	7.5	1.86	U
RF03A	1.42	6.6	0.46	U	8.5	0.60	U	7.9	0.56	U	8.6	0.61	U	9.5	0.67	U	7.7	0.54	U
SQS (mg/kg TOC)			110.00			12.00			160.00			34.00			230.00			1000.00	
CSL (mg/kg TOC)			460.00			33.00			1200.00			88.00			450.00			1400.00	
LAET (µg/kg dw)		1400.00			230.00			1700.00			600.00			3200.00			2600.00		

Key:

**Bold** = Analyte was detected.

dw = dry weight.

µg/kg = micrograms per kilogram.

JT = The associated estimated positive result is less than the reporting limit.

JG = The associated estimated positive result has a likely low bias.

JL = The associated estimated positive result has a likely high bias.

UJG = The associated estimated sample quantitation limit has a likely low bias.

UJK = The associated estimated sample quantitation limit has a likely unknown bias.

UJL = The associated estimated sample quantitation limit has a likely high bias.

U = Analyte was not detected at or above the reported result.

JTK = The associated estimated positive result is less than the reporting limit with a likely unknown bias.

**Table C-8. Concentrations of LPAH, HPAH, and Total PAH Compounds in Surface Sediment**

Sample ID	Percent TOC	LPAH (µg/kg dw)		LPAH (mg/kg TOC)		HPAH (µg/kg dw)		HPAH (mg/kg TOC)		Total PAHs (µg/kg dw)		Total PAHs (mg/kg TOC)	
BL01A	5.03	125.20		2.49		880.00		17.50		1,005.20		19.98	
BL02A	2.72	195.00		7.17		1,113.00		40.92		1,308.00		48.09	
BL03A	2.51	133.00		5.30		1,188.00		47.33		1,321.00		52.63	
BL04A	0.64	20.00		3.13		234.00		36.56		254.00		39.69	
BL06A	1.89	137.00		7.25		430.00		22.75		567.00		30.00	
BL08A	1.46	44.00		3.01		241.00		16.51		285.00		19.52	
CO01A	0.59	32.00		5.44		152.00		25.85		184.00		31.29	
CO02A	2.00	329.00		16.45		1,761.00		88.05		2,090.00		104.50	
CO03A	0.31	20.00		6.37		67.00		21.34		87.00		27.71	
CO04A	0.18	8.70	U	4.78	U	11.00		6.04		11.00		6.04	
CO05A	0.89	19.00		2.15		144.00		16.27		163.00		18.42	
DO01A	0.42	8.80	U	2.08	U	11.00	JT	2.60	JT	11.00	JT	2.60	JT
DO02A	0.68	8.80	U	1.29	U	9.30	U	1.37	U	9.30	U	1.37	U
DO03A	0.54	8.80	U	1.62	U	9.30	U	1.72	U	9.30	U	1.72	U
DO04A	0.44	8.70	U	2.03	U	9.50	U	2.17	U	9.50	U	2.17	U
DO05A	0.50	8.90	U	1.80	U	9.40	U	1.90	U	9.40	U	1.90	U
EC01A	0.47	18.00		3.84	JT	119.50		25.48		137.50		29.32	
EC02A	0.24	8.80	U	3.68	U	9.30	U	3.89	U	9.30	U	3.89	U
EC03A	1.06	85.00		8.02		635.00		59.91		720.00		67.93	
EC04A	1.35	8.70	U	0.64	U	101.00		7.48		101.00		7.48	
EC05A	0.22	8.90	U	4.12	U	9.40	U	4.35	U	9.40	U	4.35	U
ED01A	1.59	152.00		9.56		996.00		62.64		1,148.00		72.20	
ED02A	2.22	374.00		16.85		1,836.00		82.70		2,210.00		99.55	
ED03A	4.23	381.00		9.01		2,114.00		49.98		2,495.00		58.99	
ED04A	5.13	409.00		7.97		2,286.00		44.56		2,695.00		52.53	
ED05A	1.32	94.00		7.12		877.00		66.44		971.00		73.56	
EE01A	0.23	8.80	U	3.79	U	99.00		42.67		99.00		42.67	
EE02A	0.31	8.70	U	2.80	U	23.00		7.40		23.00		7.40	
EE03A	0.18	8.70	U	4.94	U	9.20	U	5.23	U	9.20	U	5.23	U
EE04A	0.20	8.70	U	4.42	U	9.30	U	4.72	U	9.30	U	4.72	U
EE05A	0.22	8.70	U	3.92	U	9.30	U	4.19	U	9.30	U	4.19	U
EI01A	0.20	19.00		9.60		29.00		14.65		48.00		24.24	
EI02A	0.18	8.80	U	4.84	U	9.40	U	5.16	U	9.40	U	5.16	U
EI03A	0.46	8.70	U	1.90	U	9.20	U	2.00	U	9.20	U	2.00	U
EI04A	0.17	8.80	U	5.12	U	9.30	U	5.41	U	9.30	U	5.41	U
EI06A	0.16	8.90	U	5.49	U	8.60	U	5.86	U	8.90	U	5.86	U
EI07A	0.63	8.80	U	1.40	U	9.40	U	1.50	U	9.40	U	1.50	U

Stations are arranged from west to east.  
 Dry weight concentrations are in µg/kg (ppb) and total organic carbon normalized concentrations are in mg/kg (ppm).

**Table C-8. Concentrations of LPAH, HPAH, and Total PAH Compounds in Surface Sediment**

Sample ID	Percent TOC	LPAH (µg/kg dw)		LPAH (mg/kg TOC)		HPAH (µg/kg dw)		HPAH (mg/kg TOC)		Total PAHs (µg/kg dw)		Total PAHs (mg/kg TOC)	
FT01A	2.44	542.00		22.21		4,034.00		165.33		4,576.00		187.54	
FT02A	2.61	965.00		36.97		7,927.00		303.72		8,892.00		340.69	
FT04A	1.12	414.00		36.96		2,950.00		263.39		3,364.00		300.36	
FT05A	1.85	510.00		27.57		1,578.00		85.30		2,088.00		112.87	
FT06A	1.47	141.00		9.59		608.00		41.36		749.00		50.95	
FT10A	1.38	83.00		6.01		351.00		25.43		434.00		31.45	
FT11A	2.40	97.00		4.04		312.00		13.00		409.00		17.04	
FT13A	0.88	20.00		2.28		107.00		12.17		127.00		14.45	
IE03A	6.48	8.90	U	0.14	U	80.00		1.23		80.00		1.23	
IE04A	4.81	8.80	U	0.18	U	9.40	U	0.20	U	9.40	U	0.20	U
IE05A	5.93	40.00		0.67		399.00		6.73		439.00		7.40	
IE06A	33.20	26.00		0.08		408.00		1.23		434.00		1.31	
IE07A	15.40	344.00		2.23		1,087.00		7.06		1,431.00		9.29	
IE09A	3.33	251.00		7.54		1,935.00		58.11		2,186.00		65.65	
IE13A	8.29	8.90	U	0.11	U	9.50	U	0.11	U	9.50	U	0.11	U
IE14A	2.79	8.80	U	0.32	U	20.00		0.72		20.00		0.72	
IE15A	2.48	52.00		2.10		125.00		5.04		177.00		7.14	
IE16A	4.90	8.90	U	0.18	U	50.00		1.02		50.00		1.02	
IH01A	17.20	63.00		0.37		433.00		2.52		496.00		2.89	
IH02A	25.00	255.00		1.00		1,426.00		5.61		1,681.00		6.61	
IH03A	11.70	720.00		6.15		3,049.00		26.06		3,769.00		32.21	
IH04A	2.91	584.00		20.07		2,581.00		88.69		3,165.00		108.76	
IH05A	1.80	219.00		12.17		3,671.00		203.94		3,890.00		216.11	
IH06A	2.09	770.00		36.84		6,467.00		309.43		7,237.00		346.27	
KP01A	4.21	273.00		6.48		1,966.00		46.70		2,239.00		53.18	
KP02A	5.31	157.00		2.96		1,199.00		22.58		1,356.00		25.54	
KP03A	1.80	138.00		7.67		517.00		28.72		655.00		36.39	
KP04A	1.65	123.00		7.45		700.00		42.42		823.00		49.88	
KP05A	1.09	303.00		27.80		1,472.00		135.05		1,775.00		162.84	
KP07A	1.65	46.00		2.79		179.00		10.85		225.00		13.64	
KP08A	2.37	112.00		4.73		918.00		38.73		1,030.00		43.46	
LA01A	11.70	46.00		0.39		256.00		2.19		302.00		2.58	
LA02A	10.30	237.00		2.30		642.00		6.23		879.00		8.53	
LA03A	9.17	207.00		2.26		1,016.00		11.08		1,223.00		13.34	
LP01A	3.60	76.00		2.11		378.00		10.50		454.00		12.61	
LP03A	1.55	55.00		3.55		347.00		22.39		402.00		25.94	
LP04A	3.79	375.00		9.89		1,729.00		45.62		2,104.00		55.51	
LP05A	3.60	614.00		17.06		3,163.00		87.86		3,777.00		104.92	

Stations are arranged from west to east.  
 Dry weight concentrations are in µg/kg (ppb) and total organic carbon normalized concentrations are in mg/kg (ppm).

**Table C-8. Concentrations of LPAH, HPAH, and Total PAH Compounds in Surface Sediment**

Sample ID	Percent TOC	LPAH (µg/kg dw)		LPAH (mg/kg TOC)		HPAH (µg/kg dw)		HPAH (mg/kg TOC)		Total PAHs (µg/kg dw)		Total PAHs (mg/kg TOC)	
MA01A	1.13	<b>180.00</b>		<b>15.93</b>		<b>1,389.00</b>		<b>122.92</b>		<b>1,569.00</b>		<b>138.85</b>	
MA02A	4.02	<b>263.00</b>		<b>6.54</b>		<b>95.00</b>		<b>2.36</b>		<b>358.00</b>		<b>8.90</b>	
MA03A	2.38	<b>175.00</b>		<b>7.35</b>		<b>1,323.00</b>		<b>55.59</b>		<b>1,498.00</b>		<b>62.94</b>	
MA04A	8.49	<b>465.00</b>		<b>5.48</b>		<b>2,534.00</b>		<b>29.85</b>		<b>2,999.00</b>		<b>35.32</b>	
MA05A	2.46	<b>84.00</b>		<b>3.41</b>		<b>581.00</b>		<b>23.62</b>		<b>665.00</b>		<b>27.03</b>	
MD01A	2.36	<b>617.00</b>		<b>26.14</b>		<b>2,851.00</b>		<b>120.81</b>		<b>3,468.00</b>		<b>146.95</b>	
MD02A	3.62	<b>421.00</b>		<b>11.63</b>		<b>2,923.00</b>		<b>80.75</b>		<b>3,344.00</b>		<b>92.38</b>	
MD03A	1.24	<b>419.00</b>		<b>33.79</b>		<b>2,751.00</b>		<b>221.85</b>		<b>3,170.00</b>		<b>256.77</b>	
MD04A	2.16	<b>346.00</b>		<b>16.02</b>		<b>2,072.00</b>		<b>95.93</b>		<b>2,418.00</b>		<b>112.60</b>	
MD05A	1.45	<b>29.00</b>		<b>2.00</b>		<b>129.00</b>		<b>8.90</b>		<b>158.00</b>		<b>10.90</b>	
OH01A	0.43	8.90	U	2.06	U	9.40	U	2.18	U	9.40	U	2.18	U
OH02A	0.68	116.00		<b>17.08</b>		<b>524.00</b>		<b>77.17</b>		<b>640.00</b>		<b>94.25</b>	
OH03A	0.73	<b>16.00</b>		<b>2.20</b>	JT	9.40	U	1.29	U	<b>16.00</b>		<b>2.20</b>	JT
RF01A	0.21	22.00	U	10.33	U	24.00	U	11.27	U	24.00	U	11.27	U
RF02A	0.40	<b>16.00</b>		<b>3.97</b>		9.20	U	2.28	U	<b>16.00</b>		<b>3.97</b>	
RF03A	1.42	8.90	U	0.63	U	9.50	U	0.67	U	9.50	U	0.67	U
RL01A	0.41	<b>30.00</b>		<b>7.25</b>		<b>365.00</b>		<b>88.16</b>		<b>395.00</b>		<b>95.41</b>	
SQS (mg/kg OC)		NA		370.00		NA		960.00		NA		NA	
CSL (mg/kg OC)		NA		780.00		NA		5300.00		NA		NA	
LAET (µg/kg DW)		5200.0		NA		12000.0		NA		NA		NA	

Key:

- Bold** = Analyte was detected.
- HPAH = High molecular weight polycyclic aromatic hydrocarbons
- ID = Identification
- LPAH = Low molecular weight polycyclic aromatic hydrocarbons
- mg/kg = milligrams per kilogram
- PAH = Polycyclic aromatic hydrocarbons
- ppb = parts per billion
- ppm = parts per million
- TOC = Total organic carbon
- U = Analyte was not detected at or above the reported result
- µg/kg = micrograms per kilogram
- JT = The associated estimated positive result is less than the reporting limit

Stations are arranged from west to east.  
 Dry weight concentrations are in µg/kg (ppb) and total organic carbon normalized concentrations are in mg/kg (ppm).

Table C-9. Concentrations of Phenol and Phthalate Compounds in Surface Sediments

Station	% TOC	4-Methylphenol		Phenol		2,4-Dimethylphenol		2-Methylphenol		Pentachlorophenol		Bis(2-Ethylhexyl) phthalate			Butyl benzyl phthalate		
		Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier	Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier
BL01A	5.03	13	U	14	U	15	U	14	U	47	U	140	2.78		11	0.22	U
BL02A	2.72	12	U	13	U	14	U	14	U	46	U	69	2.54		11	0.40	U
BL03A	2.51	13	JT	95		15	U	14	U	47	U	35	1.39		11	0.44	U
BL04A	0.64	12	U	22		14	U	14	U	46	U	13	2.03	JT	11	1.72	U
BL06A	1.89	13	U	47		15	U	14	U	47	U	28	1.48		11	0.58	U
BL08A	1.46	80		40		15	U	14	U	47	U	23	1.58		11	0.75	U
CO01A	0.588	13	U	13	U	14	U	14	U	47	U	14	2.38	JT	11	1.87	U
CO02A	2	120		72		15	U	14	U	47	U	26	1.30		21	1.05	
CO03A	0.314	12	U	13	U	14	U	14	U	46	U	11	3.50	U	11	3.50	U
CO04A	0.182	12	U	13	U	14	U	14	U	46	U	11	6.04	U	11	6.04	U
CO05A	0.885	13	U	14	U	15	U	14	U	47	U	11	1.24	U	11	1.24	U
DO01A	0.423	13	JT	24		15	U	14	U	47	U	11	2.60	U	11	2.60	U
DO02A	0.681	46		36		14	U	14	U	47	U	20	2.94		11	1.62	U
DO03A	0.542	13	U	21		14	U	14	U	47	U	11	2.03	U	11	2.03	U
DO04A	0.438	26		76		15	U	14	U	47	U	11	2.51	U	11	2.51	U
DO05A	0.495	95		110		15	U	14	U	47	U	11	2.22	U	11	2.22	U
EC01A	0.469	12	U	13	U	14	U	14	U	46	U	18	3.84	JT	11	2.35	U
EC02A	0.239	13	U	13	U	15	U	14	U	47	U	11	4.60	U	11	4.60	U
EC03A	1.06	72		13	U	15	U	14	U	47	U	70	6.60		11	1.04	U
EC04A	1.35	12	U	13	U	14	U	14	U	46	U	11	0.81	U	11	0.81	U
EC05A	0.216	13	U	14	U	15	U	14	U	47	U	130	60.19		11	5.09	U
ED01A	1.59	37		42		15	U	14	U	47	U	11	0.69	U	11	0.69	U
ED02A	2.22	110		22		15	U	14	U	47	U	45	2.03		11	0.50	U
ED03A	4.23	400		14	U	15	U	14	U	47	U	47	1.11		11	0.26	UJL
ED04A	5.13	41000		230		15	U	14	U	47	U	270	5.26	JL	11	0.21	UJL
ED05A	1.32	33		19	JT	14	U	14	U	46	U	11	0.83	U	11	0.83	U
EE01A	0.232	13	U	14	U	15	U	14	U	47	U	11	4.74	U	11	4.74	U
EE02A	0.311	12	U	13	U	14	U	14	U	46	U	11	3.54	U	11	3.54	U
EE03A	0.176	12	U	13	U	14	U	14	U	46	U	11	6.25	U	11	6.25	U
EE04A	0.197	12	U	13	U	14	U	14	U	46	U	11	5.58	U	11	5.58	U
EE05A	0.222	12	U	43		14	U	14	U	46	U	11	4.95	U	11	4.95	U
EI01A	0.198	13	U	13	U	14	U	14	U	47	U	11	5.56	U	11	5.56	U
EI02A	0.182	13	U	14	U	15	U	14	U	47	U	11	6.04	U	11	6.04	U
EI03A	0.459	12	U	13	U	14	U	14	U	46	U	11	2.40	U	11	2.40	U
EI04A	0.172	13	U	13	U	14	U	14	U	47	U	11	6.40	U	11	6.40	U
EI06A	0.162	13	U	14	U	15	U	14	U	47	U	11	6.79	U	11	6.79	U
EI07A	0.628	32		56		15	U	14	U	47	U	11	1.75	U	11	1.75	U
FT01A	2.44	15	JT	14	U	15	U	14	U	47	U	130	5.33		11	0.45	U
FT02A	2.61	29		14	JT	15	U	14	U	47	U	200	7.66		38	1.46	
FT04A	1.12	22		13	U	14	U	14	U	47	U	380	33.93		11	0.98	U
FT05A	1.85	13	U	130		15	U	14	U	47	U	73	3.95		11	0.59	U
FT06A	1.47	13	U	190		14	U	14	U	47	U	25	1.70		11	0.75	U
FT10A	1.38	32		110		14	U	14	U	46	U	19	1.38		11	0.80	U
FT11A	2.4	12	U	23		14	U	14	U	46	U	11	0.46	U	11	0.46	U
FT13A	0.879	13	U	20	JT	15	U	14	U	47	U	11	1.25	U	11	1.25	U
IE03A	6.48	13	U	68		15	U	14	U	47	U	24	0.37		11	0.17	U
IE04A	4.81	13	U	14	U	15	U	14	U	47	U	11	0.23	U	11	0.23	U
IE05A	5.93	13	U	24		15	U	14	U	47	U	24	0.40		11	0.19	U
IE06A	33.2	13	U	23		15	U	14	U	47	U	23	0.07		52	0.16	
IE07A	15.4	18	JT	210		15	U	14	U	47	U	11	0.07	U	11	0.07	U
IE09A	3.33	23		16	JT	15	U	14	U	48	U	22	0.66		11	0.33	U
IE13A	8.29	38		66		15	U	14	U	47	U	11	0.13	U	11	0.13	U
IE14A	2.79	13	U	14	U	15	U	14	U	47	U	11	0.39	U	11	0.39	U
IE15A	2.48	13	U	62		15	U	14	U	47	U	11	0.44	U	11	0.44	U
IE16A	4.9	31		14	U	15	U	14	U	47	U	11	0.22	U	11	0.22	U
IH01A	17.2	77	JT	54	U	58	U	55	U	190	U	43	0.25	U	44	0.26	U
IH02A	25	67		51		15	U	14	U	47	U	11	0.04	U	11	0.04	U
IH03A	11.7	31	JK	34		14	U	40	JK	47	U	26	0.22	JL	31	0.26	

SQS exceedances are shaded in gray. SQS and CSL criteria for phenolic compounds are expressed in µg/kg dry weight while phthalate compounds are expressed as mg/kg TOC normalized.

Table C-9. Concentrations of Phenol and Phthalate Compounds in Surface Sediments

Station	% TOC	4-Methylphenol		Phenol		2,4-Dimethylphenol		2-Methylphenol		Pentachlorophenol		Bis(2-Ethylhexyl) phthalate			Butyl benzyl phthalate		
		Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier	Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier
IH04A	2.91	<b>28</b>		<b>71</b>		15	U	14	U	47	U	11	0.38	U	11	0.38	U
IH05A	1.8	<b>26</b>		<b>88</b>		14	U	14	U	46	U	<b>21</b>	<b>1.17</b>		11	0.61	U
IH06A	2.09	<b>30</b>		<b>86</b>		14	U	14	U	47	U	<b>37</b>	<b>1.77</b>		<b>12</b>	<b>0.57</b>	JT
KP01A	4.21	<b>33</b>		<b>44</b>		15	U	14	U	47	U	<b>48</b>	<b>1.14</b>		11	0.26	U
KP02A	5.31	<b>20</b>	JT	<b>20</b>		15	U	14	U	47	U	<b>45</b>	<b>0.85</b>		11	0.21	U
KP03A	1.8	13	U	14	U	15	U	14	U	47	U	<b>33</b>	<b>1.83</b>		11	0.61	U
KP04A	1.65	<b>32</b>		<b>130</b>		15	U	14	U	47	U	<b>29</b>	<b>1.76</b>		11	0.67	U
KP05A	1.09	13	U	<b>36</b>		15	U	14	U	47	U	<b>48</b>	<b>4.40</b>		11	1.01	U
KP07A	1.65	<b>18</b>	JT	<b>15</b>	JT	14	U	14	U	47	U	<b>11</b>	<b>0.67</b>	JT	11	0.67	U
KP08A	2.37	<b>28</b>		<b>57</b>		15	U	14	U	47	U	<b>27</b>	<b>1.14</b>		11	0.46	U
LA01A	11.7	<b>23</b>		<b>31</b>		15	U	14	U	47	U	11	0.09	U	11	0.09	U
LA02A	10.3	<b>150</b>		<b>41</b>		15	U	14	U	47	U	<b>39</b>	<b>0.38</b>		11	0.11	U
LA03A	9.17	<b>25</b>		28	U	15	U	14	U	47	U	<b>41</b>	<b>0.45</b>		<b>73</b>	<b>0.80</b>	
LP01A	3.6	<b>26</b>		<b>70</b>		14	U	14	U	46	U	<b>20</b>	<b>0.56</b>		11	0.31	U
LP03A	1.55	12	U	<b>15</b>	JT	14	U	14	U	46	U	<b>14</b>	<b>0.90</b>	JT	11	0.71	U
LP04A	3.79	<b>68</b>		13	U	14	U	14	U	47	U	<b>25</b>	<b>0.66</b>		<b>27</b>	<b>0.71</b>	NJ
LP05A	3.6	<b>280</b>		<b>100</b>		15	U	14	U	47	U	<b>75</b>	<b>2.08</b>		11	0.31	U
MA01A	1.13	12	U	<b>14</b>	JT	14	U	14	U	46	U	<b>560</b>	<b>49.56</b>		11	0.97	U
MA02A	4.02	76	U	81	UJL	87	UJL	84	UJL	280	U	65	1.62	UJG	66	1.64	U
MA03A	2.38	<b>67</b>		<b>610</b>		15	U	14	U	47	U	<b>41</b>	<b>1.72</b>		11	0.46	U
MA04A	8.49	<b>50</b>		<b>740</b>		15	U	14	UJL	47	U	<b>44</b>	<b>0.52</b>		<b>670</b>	<b>7.89</b>	
MA05A	2.46	<b>16</b>	JT	<b>22</b>		15	U	14	U	47	U	<b>20</b>	<b>0.81</b>		11	0.45	U
MD01A	2.36	<b>52</b>		13	U	14	U	14	U	46	U	<b>25</b>	<b>1.06</b>		11	0.47	U
MD02A	3.62	<b>93</b>		14	U	15	U	14	U	47	U	<b>52</b>	<b>1.44</b>		<b>22</b>	<b>0.61</b>	NJ
MD03A	1.24	<b>71</b>		14	U	15	U	14	U	47	U	<b>28</b>	<b>2.26</b>		11	0.89	U
MD04A	2.16	<b>220</b>		<b>760</b>		15	U	14	U	47	U	<b>20</b>	<b>0.93</b>		11	0.51	U
MD05A	1.45	13	U	<b>17</b>	JT	15	U	14	U	48	U	11	0.76	U	11	0.76	U
OH01A-R	0.431	13	U	<b>27</b>		15	U	14	U	47	U	11	2.55	U	11	2.55	U
OH02A	0.679	<b>20</b>		<b>18</b>	JT	15	U	14	U	47	U	11	1.62	U	11	1.62	U
OH03A	0.728	13	U	<b>19</b>	JT	15	U	14	U	47	U	11	1.51	U	11	1.51	U
RF01A	0.213	32	U	34	U	37	U	36	U	120	U	28	13.15	U	28	13.15	U
RF02A	0.403	<b>49</b>		<b>120</b>		14	U	14	U	46	U	11	2.73	U	11	2.73	U
RF03A	1.42	13	U	<b>21</b>		15	U	14	U	47	U	11	0.77	U	11	0.77	U
RL01A	0.414	12	U	13	U	14	U	14	U	46	U	<b>17</b>	<b>4.11</b>	JT	11	2.66	U
SQS		670		420		29		63		360		47			4.9		
CSL		670		1200		29		63		690		78			64		
LAET		670		420		29		63		360		1300			63		

Exceeds SQS/LAET criteria

Exceeds CSL/2LAET criteria

KEY:

**Bold** = Analyte was detected.

dw = dry weight

µg/kg = micrograms per kilogram

JT = The associated estimated positive result is less than the

JK = The associated estimated positive result has a likely unknown bias.

JL = The associated estimated positive result has a likely high bias.

UJG = The associated estimated sample quantitation limit has a likely low bias.

UJL = The associated estimated sample quantitation limit has a likely high bias.

U = Analyte was not detected at or above the reported result.

NJ = The associated estimated positive result is tentatively identified.

SQS exceedances are shaded in gray. SQS and CSL criteria for phenolic compounds are expressed in µg/kg dry weight while phthalate compounds are expressed as mg/kg TOC normalized.



Table C-9. Concentrations of Phenol and Phthalate Compounds in Surface Sediments

Station	% TOC	Diethyl phthalate			Di-N-butyl phthalate			Dimethyl phthalate			Di-n-Octyl phthalate		
		Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier	Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier	Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier	Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier
BL01A	5.03	16	0.32	U	12	0.24	U	7.7	0.15	U	8.3	0.17	U
BL02A	2.72	16	0.59	U	12	0.44	U	7.6	0.28	U	8.1	0.30	U
BL03A	2.51	16	0.64	U	12	0.48	U	7.6	0.30	U	8.2	0.33	U
BL04A	0.64	16	2.50	U	12	1.88	U	7.5	1.17	U	8.1	1.27	U
BL06A	1.89	16	0.85	U	12	0.63	U	7.6	0.40	U	8.2	0.43	U
BL08A	1.46	16	1.10	U	12	0.82	U	7.6	0.52	U	8.2	0.56	U
CO01A	0.588	16	2.72	U	12	2.04	U	7.6	1.29	U	8.2	1.39	U
CO02A	2	16	0.80	U	24	1.20		7.6	0.38	U	8.2	0.41	U
CO03A	0.314	16	5.10	U	12	3.82	U	7.5	2.39	U	8.1	2.58	U
CO04A	0.182	16	8.79	U	12	6.59	U	7.6	4.18	U	8.1	4.45	U
CO05A	0.885	16	1.81	U	12	1.36	U	7.7	0.87	U	8.2	0.93	U
DO01A	0.423	16	3.78	U	12	2.84	U	7.6	1.80	U	8.2	1.94	U
DO02A	0.681	16	2.35	U	12	1.76	U	7.6	1.12	U	8.2	1.20	U
DO03A	0.542	16	2.95	U	12	2.21	U	7.6	1.40	U	8.2	1.51	U
DO04A	0.438	16	3.65	U	12	2.74	U	7.7	1.76	U	8.3	1.89	U
DO05A	0.495	16	3.23	U	12	2.42	U	7.7	1.56	U	8.3	1.68	U
EC01A	0.469	16	3.41	U	12	2.56	U	7.6	1.62	U	8.1	1.73	U
EC02A	0.239	16	6.69	U	12	5.02	U	7.6	3.18	U	8.2	3.43	U
EC03A	1.06	16	1.51	U	12	1.13	U	26	2.45		8.2	0.77	U
EC04A	1.35	16	1.19	U	12	0.89	U	7.5	0.56	U	8.1	0.60	U
EC05A	0.216	16	7.41	U	12	5.56	U	7.7	3.56	U	8.3	3.84	U
ED01A	1.59	16	1.01	U	12	0.75	U	7.7	0.48	U	8.3	0.52	U
ED02A	2.22	16	0.72	U	12	0.54	U	7.7	0.35	U	8.3	0.37	U
ED03A	4.23	16	0.38	U	12	0.28	U	7.7	0.18	U	8.3	0.20	U
ED04A	5.13	16	0.31	U	12	0.23	U	7.7	0.15	U	88	1.72	JL
ED05A	1.32	16	1.21	U	12	0.91	U	7.5	0.57	U	8.1	0.61	U
EE01A	0.232	16	6.90	U	12	5.17	U	7.7	3.32	U	8.2	3.53	U
EE02A	0.311	16	5.14	U	12	3.86	U	7.5	2.41	U	8.1	2.60	U
EE03A	0.176	16	9.09	U	12	6.82	U	7.5	4.26	U	8.1	4.60	U
EE04A	0.197	16	8.12	U	12	6.09	U	7.5	3.81	U	8.1	4.11	U
EE05A	0.222	16	7.21	U	12	5.41	U	7.6	3.42	U	8.1	3.65	U
EI01A	0.198	16	8.08	U	12	6.06	U	7.6	3.84	U	8.2	4.14	U
EI02A	0.182	16	8.79	U	12	6.59	U	7.6	4.18	U	8.2	4.51	U
EI03A	0.459	16	3.49	U	12	2.61	U	7.5	1.63	U	8.1	1.76	U
EI04A	0.172	16	9.30	U	12	6.98	U	7.6	4.42	U	8.2	4.77	U
EI06A	0.162	16	9.88	U	12	7.41	U	7.7	4.75	U	8.3	5.12	U
EI07A	0.628	16	2.55	U	12	1.91	U	7.6	1.21	U	8.2	1.31	U
FT01A	2.44	16	0.66	U	17	0.70	JT	7.7	0.32	U	8.2	0.34	U
FT02A	2.61	16	0.61	U	12	0.46	U	7.7	0.30	U	28	1.07	
FT04A	1.12	16	1.43	U	15	1.34	JT	7.6	0.68	U	8.2	0.73	U
FT05A	1.85	16	0.86	U	12	0.65	U	7.7	0.42	U	8.2	0.44	U
FT06A	1.47	16	1.09	U	12	0.82	U	7.6	0.52	U	8.2	0.56	U
FT10A	1.38	16	1.16	U	12	0.87	U	7.5	0.54	U	8.1	0.59	U
FT11A	2.4	16	0.67	U	12	0.50	U	7.5	0.31	U	8	0.33	U
FT13A	0.879	16	1.82	U	12	1.37	U	7.7	0.88	U	8.3	0.94	U
IE03A	6.48	16	0.25	U	12	0.19	U	7.7	0.12	U	8.3	0.13	U
IE04A	4.81	16	0.33	U	12	0.25	U	7.6	0.16	U	8.2	0.17	U
IE05A	5.93	20	0.34		12	0.20	U	7.7	0.13	U	8.3	0.14	U
IE06A	33.2	16	0.05	U	12	0.04	U	7.7	0.02	U	8.3	0.03	U
IE07A	15.4	16	0.10	U	12	0.08	U	7.6	0.05	U	8.2	0.05	U
IE09A	3.33	16	0.48	U	12	0.36	U	7.8	0.23	U	8.3	0.25	U
IE13A	8.29	16	0.19	U	12	0.14	U	7.7	0.09	U	8.3	0.10	U
IE14A	2.79	16	0.57	U	12	0.43	U	7.7	0.28	U	8.2	0.29	U
IE15A	2.48	28	1.13		12	0.48	U	7.6	0.31	U	8.2	0.33	U
IE16A	4.9	16	0.33	U	12	0.24	U	7.7	0.16	U	8.3	0.17	U
IH01A	17.2	93	0.54		48	0.28	U	30	0.17	U	33	0.19	U
IH02A	25	16	0.06	U	12	0.05	U	7.7	0.03	U	8.2	0.03	U
IH03A	11.7	16	0.14	U	12	0.10	U	7.6	0.06	U	8.2	0.07	U

SQS exceedances are shaded in gray. SQS and CSL criteria for phenolic compounds are expressed in µg/kg dry weight while phthalate compounds are expressed as mg/kg TOC normalized.

Table C-9. Concentrations of Phenol and Phthalate Compounds in Surface Sediments

Station	% TOC	Diethyl phthalate			Di-N-butyl phthalate			Dimethyl phthalate			Di-n-Octyl phthalate		
		Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier	Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier	Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier	Result (µg/kg dw)	Result (mg/kg TOC)	Qualifier
IH04A	2.91	31	1.07		12	0.41	U	7.7	0.26	U	8.3	0.29	U
IH05A	1.8	19	1.06	JT	12	0.67	U	7.4	0.41	U	8	0.44	U
IH06A	2.09	21	1.00		16	0.77	JT	7.6	0.36	U	8.1	0.39	U
KP01A	4.21	19	0.45	JT	12	0.29	U	7.7	0.18	U	8.2	0.19	U
KP02A	5.31	16	0.30	U	12	0.23	U	7.7	0.15	U	8.3	0.16	U
KP03A	1.8	16	0.89	U	12	0.67	U	7.7	0.43	U	8.2	0.46	U
KP04A	1.65	16	0.97	U	12	0.73	U	7.7	0.47	U	8.2	0.50	U
KP05A	1.09	20	1.83		12	1.10	U	7.7	0.71	U	8.2	0.75	U
KP07A	1.65	16	0.97	U	12	0.73	U	7.6	0.46	U	8.2	0.50	U
KP08A	2.37	16	0.68	U	12	0.51	U	7.6	0.32	U	8.2	0.35	U
LA01A	11.7	16	0.14	U	12	0.10	U	7.7	0.07	U	8.3	0.07	U
LA02A	10.3	16	0.16	U	12	0.12	U	7.7	0.07	U	8.3	0.08	U
LA03A	9.17	19	0.21	JT	12	0.13	U	7.7	0.08	U	8.3	0.09	U
LP01A	3.6	20	0.56		13	0.36	JT	7.6	0.21	U	9.7	0.27	JT
LP03A	1.55	16	1.03	U	12	0.77	U	7.5	0.48	U	8.1	0.52	U
LP04A	3.79	16	0.42	U	40	1.06	NJ	7.6	0.20	U	8.2	0.22	U
LP05A	3.6	16	0.44	U	12	0.33	U	7.7	0.21	U	8.3	0.23	U
MA01A	1.13	16	1.42	U	12	1.06	U	7.4	0.65	U	8	0.71	U
MA02A	4.02	97	2.41	U	73	1.82	UJL	46	1.14	U	49	1.22	UJG
MA03A	2.38	20	0.84		12	0.50	U	7.6	0.32	U	8.2	0.34	U
MA04A	8.49	16	0.19	U	12	0.14	U	7.7	0.09	U	8.3	0.10	U
MA05A	2.46	16	0.65	U	12	0.49	U	7.6	0.31	U	8.2	0.33	U
MD01A	2.36	16	0.68	U	12	0.51	U	7.6	0.32	U	8.1	0.34	U
MD02A	3.62	16	0.44	U	24	0.66		7.7	0.21	U	8.2	0.23	U
MD03A	1.24	16	1.29	U	27	2.18	NJ	7.7	0.62	U	8.3	0.67	U
MD04A	2.16	16	0.74	U	21	0.97	NJ	7.7	0.36	U	8.3	0.38	U
MD05A	1.45	16	1.10	U	12	0.83	U	7.7	0.53	U	8.3	0.57	U
OH01A-R	0.431	16	3.71	U	12	2.78	U	7.7	1.79	U	8.2	1.90	U
OH02A	0.679	16	2.36	U	12	1.77	U	7.6	1.12	U	8.2	1.21	U
OH03A	0.728	16	2.20	U	12	1.65	U	7.7	1.06	U	8.3	1.14	U
RF01A	0.213	41	19.25	U	31	14.55	U	19	8.92	U	21	9.86	U
RF02A	0.403	16	3.97	U	12	2.98	U	7.5	1.86	U	8.1	2.01	U
RF03A	1.42	16	1.13	U	12	0.85	U	7.7	0.54	U	8.3	0.58	U
RL01A	0.414	16	3.86	U	12	2.90	U	7.6	1.84	U	8.1	1.96	U
SQS		61			220			53			58		
CSL		110			1700			53			4500		
LAET		200			1400			71			6200		

SQS exceedances are shaded in gray. SQS and CSL criteria for phenolic compounds are expressed in µg/kg dry weight while phthalate compounds are expressed as mg/kg TOC normalized.

Table C-10. Concentrations of PCB Aroclors in Surface Sediments

Station	% TOC	Aroclor 1016			Aroclor 1221			Aroclor 1232			Aroclor 1242			Aroclor 1248			Aroclor 1254			Aroclor 1260			Total PCBs		
		(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(µg/kg dw)	(mg/kg TOC)	Qualifier
BL01A	5.03	0.012	0.24	UJG	0.012	0.24	UJG	0.012	0.24	UJG	0.012	0.24	UJG	0.012	0.24	UJG	0.003	0.06	UJG	0.003	0.06	UJG	12.00	0.239	UJG
BL02A	2.72	0.011	0.40	UJG	0.011	0.40	UJG	0.011	0.40	UJG	0.011	0.40	UJG	0.011	0.40	UJG	0.003	0.10	UJG	0.003	0.10	UJG	11.00	0.404	UJG
BL03A	2.51	0.012	0.48	U	0.012	0.48	U	0.012	0.48	U	0.012	0.48	U	0.012	0.48	U	0.003	0.12	U	0.003	0.12	U	12.00	0.478	U
BL04A	0.64	0.006	1.00	UJG	0.006	1.00	UJG	0.006	1.00	UJG	0.006	1.00	UJG	0.006	1.00	UJG	0.002	0.27	UJG	0.002	0.27	UJG	6.40	1.000	UJG
BL05A	2.46	0.012	0.49	UJG	0.012	0.49	UJG	0.012	0.49	UJG	0.012	0.49	UJG	0.012	0.49	UJG	0.003	0.13	UJG	0.003	0.13	UJG	12.00	0.488	UJG
BL06A	1.89	0.010	0.53	UJG	0.010	0.53	UJG	0.010	0.53	UJG	0.010	0.53	UJG	0.010	0.53	UJG	0.003	0.14	UJG	0.003	0.14	UJG	10.00	0.529	UJG
BL07A	2.48	0.011	0.44	UJG	0.011	0.44	UJG	0.011	0.44	UJG	0.011	0.44	UJG	0.011	0.44	UJG	0.003	0.12	UJG	0.003	0.12	UJG	11.00	0.444	UJG
BL08A	1.46	0.010	0.68	UJG	0.010	0.68	UJG	0.010	0.68	UJG	0.010	0.68	UJG	0.010	0.68	UJG	0.003	0.18	UJG	0.003	0.18	UJG	10.00	0.685	UJG
CO01A	0.59	0.006	1.02	U	0.006	1.02	U	0.006	1.02	U	0.006	1.02	U	0.006	1.02	U	0.002	0.27	U	0.002	0.27	U	6.00	1.020	U
CO02A	2.00	0.009	0.46	UJG	0.009	0.46	UJG	0.009	0.46	UJG	0.009	0.46	UJG	0.009	0.46	UJG	0.002	0.12	UJG	<b>0.025</b>	<b>1.25</b>	JG	<b>25.00</b>	<b>1.250</b>	JG
CO03A	0.31	0.007	2.07	U	0.007	2.07	U	0.007	2.07	U	0.007	2.07	U	0.007	2.07	U	0.002	0.54	U	<b>0.042</b>	<b>13.38</b>		<b>42.00</b>	<b>13.376</b>	
CO04A	0.18	0.006	3.35	U	0.006	3.35	U	0.006	3.35	U	0.006	3.35	U	0.006	3.35	U	0.002	0.88	U	0.002	0.88	U	6.10	3.352	U
CO05A	0.89	0.007	0.84	U	0.007	0.84	U	0.007	0.84	U	0.007	0.84	U	0.007	0.84	U	0.002	0.21	U	0.002	0.21	U	7.40	0.836	U
EC01A	0.47	0.007	1.39	U	0.007	1.39	U	0.007	1.39	U	0.007	1.39	U	0.007	1.39	U	0.002	0.36	U	0.002	0.36	U	6.50	1.386	U
EC02A	0.24	0.007	2.72	U	0.007	2.72	U	0.007	2.72	U	0.007	2.72	U	0.007	2.72	U	0.002	0.71	U	0.002	0.71	U	6.50	2.720	U
EC03A	1.06	0.009	0.81	UJG	0.009	0.81	UJG	0.009	0.81	UJG	0.009	0.81	UJG	0.009	0.81	UJG	0.002	0.21	UJG	<b>0.055</b>	<b>5.19</b>	JG	<b>55.00</b>	<b>5.189</b>	JG
EC04A	1.35	0.008	0.56	U	0.008	0.56	U	0.008	0.56	U	0.008	0.56	U	0.008	0.56	U	0.002	0.15	U	0.002	0.15	U	7.60	0.563	U
EC05A	0.22	0.006	2.69	U	0.006	2.69	U	0.006	2.69	U	0.006	2.69	U	0.006	2.69	U	0.002	0.69	U	0.002	0.69	U	5.80	2.685	U
ED01A	1.59	0.009	0.57	UJG	0.009	0.57	UJG	0.009	0.57	UJG	0.009	0.57	UJG	0.009	0.57	UJG	0.002	0.14	UJG	<b>0.010</b>	<b>0.63</b>	JTG	<b>10.00</b>	<b>0.629</b>	JTG
ED02A	2.22	0.011	0.50	UJG	0.011	0.50	UJG	0.011	0.50	UJG	0.011	0.50	UJG	0.011	0.50	UJG	0.003	0.13	UJG	0.003	0.13	UJG	11.00	0.495	UTG
ED03A	4.23	0.011	0.26	UJG	0.011	0.26	UJG	0.011	0.26	UJG	0.011	0.26	UJG	0.011	0.26	UJG	<b>0.120</b>	<b>2.84</b>	JG	0.003	0.07	UJG	<b>120.00</b>	<b>2.837</b>	JG
ED04A	5.13	0.018	0.35	U	0.018	0.35	U	0.018	0.35	U	0.018	0.35	U	0.018	0.35	U	0.005	0.09	U	0.005	0.09	U	18.00	0.351	U
ED05A	1.32	0.007	0.55	UJG	0.007	0.55	UJG	0.007	0.55	UJG	0.007	0.55	UJG	0.007	0.55	UJG	0.002	0.14	UJG	0.002	0.14	UJG	7.20	0.545	UJG
EE01A	0.23	0.006	2.59	U	0.006	2.59	U	0.006	2.59	U	0.006	2.59	U	0.006	2.59	U	0.002	0.69	U	0.002	0.69	U	6.00	2.586	U
EE02A	0.31	0.007	2.22	U	0.007	2.22	U	0.007	2.22	U	0.007	2.22	U	0.007	2.22	U	0.002	0.58	U	0.002	0.58	U	6.90	2.219	U
EE03A	0.18	0.007	3.98	U	0.007	3.98	U	0.007	3.98	U	0.007	3.98	U	0.007	3.98	U	0.002	1.02	U	0.002	1.02	U	7.00	3.977	U
EE04A	0.20	0.006	2.94	U	0.006	2.94	U	0.006	2.94	U	0.006	2.94	U	0.006	2.94	U	0.002	0.76	U	0.002	0.76	U	5.80	2.944	U
EE05A	0.22	0.006	2.66	U	0.006	2.66	U	0.006	2.66	U	0.006	2.66	U	0.006	2.66	U	0.002	0.68	U	0.002	0.68	U	5.90	2.658	U
EI01A	0.20	0.007	3.43	U	0.007	3.43	U	0.007	3.43	U	0.007	3.43	U	0.007	3.43	U	0.002	0.91	U	0.002	0.91	U	6.80	3.434	U
EI02A	0.18	0.007	3.68	U	0.007	3.68	U	0.007	3.68	U	0.007	3.68	U	0.007	3.68	U	0.002	0.93	U	0.002	0.93	U	6.70	3.681	U
EI03A	0.46	0.006	1.35	U	0.006	1.35	U	0.006	1.35	U	0.006	1.35	U	0.006	1.35	U	0.002	0.35	U	0.002	0.35	U	6.20	1.351	U
EI04A	0.17	0.007	4.13	U	0.007	4.13	U	0.007	4.13	U	0.007	4.13	U	0.007	4.13	U	0.002	1.05	U	0.002	1.05	U	7.10	4.128	U
EI06A	0.16	0.007	4.14	U	0.007	4.14	U	0.007	4.14	U	0.007	4.14	U	0.007	4.14	U	0.002	1.05	U	0.002	1.05	U	6.70	4.136	U
EI07A	0.63	0.007	1.11	U	0.007	1.11	U	0.007	1.11	U	0.007	1.11	U	0.007	1.11	U	0.002	0.29	U	0.002	0.29	U	7.00	1.115	U
FP01A	1.03	0.007	0.72	U	0.007	0.72	U	0.007	0.72	U	0.007	0.72	U	0.007	0.72	U	0.002	0.18	U	0.002	0.18	U	7.40	0.718	U
FP02A	1.45	0.008	0.55	U	0.008	0.55	U	0.008	0.55	U	0.008	0.55	U	0.008	0.55	U	0.002	0.14	U	0.002	0.14	U	8.00	0.552	U
FP03A	1.90	0.010	0.53	UJG	0.010	0.53	UJG	0.010	0.53	UJG	0.010	0.53	UJG	0.010	0.53	UJG	0.003	0.14	UJG	0.003	0.14	UJG	10.00	0.526	UJG
FT01A	2.44	0.010	0.41	U	0.010	0.41	U	0.010	0.41	U	0.010	0.41	U	0.010	0.41	U	<b>0.048</b>	<b>1.97</b>		0.003	0.11	U	<b>48.00</b>	<b>1.967</b>	
FT02A	2.61	0.011	0.42	UJK	0.011	0.42	U	0.011	0.42	U	0.011	0.42	U	0.011	0.42	U	0.003	0.11	U	0.003	0.11	U	11.00	0.421	U
FT04A	1.12	0.008	0.71	U	0.008	0.71	U	0.008	0.71	U	0.008	0.71	U	0.008	0.71	U	0.002	0.19	U	0.002	0.19	U	8.00	0.714	U
FT06A	1.47	0.010	0.68	UJG	0.010	0.68	UJG	0.010	0.68	UJG	0.010	0.68	UJG	0.010	0.68	UJG	0.003	0.18	UJG	0.003	0.18	UJG	10.00	0.680	UJG
FT10A	1.38	0.009	0.65	UJG	0.009	0.65	UJG	0.009	0.65	UJG	0.009	0.65	UJG	0.009	0.65	UJG	0.002	0.17	UJG	0.002	0.17	UJG	9.00	0.652	UJG
FT11A	2.40	0.009	0.38	UJG	0.009	0.38	UJG	0.009	0.38	UJG	0.009	0.38	UJG	0.009	0.38	UJG	0.002	0.10	UJG	0.002	0.10	UJG	9.00	0.375	UJG
FT13A	0.88	0.007	0.84	U	0.007	0.84	U	0.007	0.84	U	0.007	0.84	U	0.007	0.84	U	0.002	0.22	U	0.002	0.22	U	7.40	0.842	U
IE03A	6.48	0.019	0.29	UJG	0.019	0.29	UJG	0.019	0.29	UJG	0.019	0.29	UJG	0.019	0.29	UJG	0.005	0.08	UJG	0.005	0.08	UJG	19.00	0.293	UJG
IE04A	4.81	0.017	0.35	UJG	0.017	0.35	UJG	0.017	0.35	UJG	0.017	0.35	UJG	0.017	0.35	UJG	0.004	0.09	UJG	0.004	0.09	UJG	17.00	0.353	UJG
IE05A	5.93	0.022	0.37	UJG	0.022	0.37	UJG	0.022	0.37	UJG	0.022	0.37	UJG	0.022	0.37	UJG	0.006	0.09	UJG	0.006	0.09	UJG	22.00	0.371	UJG
IE06A	33.20	0.022	0.07	UJG	0.022	0.07	UJG	0.022	0.07	UJG	0.022	0.07	UJG	0.022	0.07	UJG	0.006	0.02	UJG	0.006	0.02	UJG	22.00	0.066	UJG
IE07A	15.40	0.017	0.11	UJG	0.017	0.11	UJG	0.017	0.11	UJG	0.017	0.11	UJG	0.017	0.11	UJG	0.004	0.03	UJG	0.004	0.03	UJG	17.00	0.110	UJG
IE09A	3.33	0.022	0.66	UJG	0.022	0.66	UJG	0.022	0.66	UJG	0.022	0.66	UJG	0.022	0.66	UJG	0.006	0.17	UJG	0.006	0.17	UJG	22.00	0.661	UJG
IE11A	6.08	0.014	0.23	UJG	0.014	0.23	UJG	0.014	0.23	UJG	0.014	0.23	UJG	0.014	0.23	UJG	0.004	0.06	UJG	0.004	0.06	UJG	14.00	0.230	UJG
IE12A	2.72	0.015	0.55	UJG</																					

Table C-10. Concentrations of PCB Aroclors in Surface Sediments

Station	% TOC	Aroclor 1016			Aroclor 1221			Aroclor 1232			Aroclor 1242			Aroclor 1248			Aroclor 1254			Aroclor 1260			Total PCBs		
		(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(µg/kg dw)	(mg/kg TOC)	Qualifier
IE15A	2.48	0.012	0.48	UJG	0.012	0.48	UJG	0.012	0.48	UJG	0.012	0.48	UJG	0.012	0.48	UJG	0.003	0.13	UJG	0.003	0.13	UJG	12.00	0.484	UJG
IE16A	4.90	0.019	0.39	UJG	0.019	0.39	UJG	0.019	0.39	UJG	0.019	0.39	UJG	0.019	0.39	UJG	0.005	0.10	UJG	0.005	0.10	UJG	19.00	0.388	UJG
IH01A	17.20	0.030	0.17	UJG	0.030	0.17	UJG	0.030	0.17	UJG	0.030	0.17	UJG	0.030	0.17	UJG	0.008	0.04	UJG	0.008	0.04	UJG	30.00	0.174	UJG
IH02A	25.00	0.020	0.08	UJG	0.020	0.08	UJG	0.020	0.08	UJG	0.020	0.08	UJG	0.020	0.08	UJG	0.005	0.02	UJG	0.005	0.02	UJG	20.00	0.080	UJG
IH03A	11.70	0.016	0.14	UJG	0.016	0.14	UJG	0.016	0.14	UJG	0.016	0.14	UJG	0.016	0.14	UJG	0.004	0.04	UJG	0.004	0.04	UJG	16.00	0.137	UJG
IH04A	2.91	0.010	0.34	UJG	0.010	0.34	UJG	0.010	0.34	UJG	0.010	0.34	UJG	0.010	0.34	UJG	0.003	0.09	UJG	0.003	0.09	UJG	10.00	0.344	UJG
IH05A	1.80	0.008	0.46	UJG	0.008	0.46	UJG	0.008	0.46	UJG	0.008	0.46	UJG	0.008	0.46	UJG	0.002	0.12	UJG	0.002	0.12	UJG	8.20	0.456	UJG
IH06A	2.09	0.012	0.57	UJG	0.012	0.57	UJG	0.012	0.57	UJG	0.012	0.57	UJG	0.012	0.57	UJG	0.003	0.15	UJG	0.003	0.15	UJG	12.00	0.574	UJG
KP01A	4.21	0.012	0.29	UJG	0.012	0.29	UJG	0.012	0.29	UJG	0.012	0.29	UJG	0.012	0.29	UJG	0.003	0.07	UJG	0.003	0.07	UJG	12.00	0.285	UJG
KP02A	5.31	0.012	0.23	UJG	0.012	0.23	UJG	0.012	0.23	UJG	0.012	0.23	UJG	0.012	0.23	UJG	0.003	0.06	UJG	0.003	0.06	UJG	12.00	0.226	UJG
KP03A	1.80	0.008	0.47	U	0.008	0.47	U	0.008	0.47	U	0.008	0.47	U	0.008	0.47	U	0.002	0.12	U	0.002	0.12	U	8.40	0.467	U
KP05A	1.09	0.011	1.01	UJG	0.011	1.01	UJG	0.011	1.01	UJG	0.011	1.01	UJG	0.011	1.01	UJG	0.003	0.28	UJG	0.003	0.28	UJG	11.00	1.009	UJG
KP07A	1.65	0.009	0.53	UJG	0.009	0.53	UJG	0.009	0.53	UJG	0.009	0.53	UJG	0.009	0.53	UJG	0.002	0.14	UJG	0.002	0.14	UJG	8.70	0.527	UJG
KP08A	2.37	0.009	0.37	UJG	0.009	0.37	UJG	0.009	0.37	UJG	0.009	0.37	UJG	0.009	0.37	UJG	<b>0.026</b>	<b>1.10</b>		0.002	0.10	UJG	<b>26.00</b>	<b>1.097</b>	
LA01A	11.70	0.027	0.23	UJG	0.027	0.23	UJG	0.027	0.23	UJG	0.027	0.23	UJG	0.027	0.23	UJG	0.007	0.06	UJG	<b>0.019</b>	<b>0.16</b>	JTG	<b>19.00</b>	<b>0.16</b>	JTG
MA01A	1.13	0.009	0.76	UJG	0.009	0.76	UJG	0.009	0.76	UJG	0.009	0.76	UJG	0.009	0.76	UJG	0.002	0.19	UJG	0.002	0.19	UJG	8.60	0.761	UJG
MA02A	4.02	0.016	0.40	U	0.016	0.40	U	0.016	0.40	U	0.016	0.40	U	0.016	0.40	U	0.004	0.10	U	0.004	0.10	U	16.00	0.398	U
MA03A	2.38	0.015	0.63	UJG	0.015	0.63	UJG	0.015	0.63	UJG	0.015	0.63	UJG	0.015	0.63	UJG	0.004	0.16	UJG	0.004	0.16	UJG	15.00	0.630	UJG
MA04A	8.49	0.022	0.26	UJG	0.022	0.26	UJG	0.022	0.26	UJG	0.022	0.26	UJG	0.022	0.26	UJG	0.006	0.07	UJG	0.006	0.07	UJG	22.00	0.259	UJG
MA05A	2.46	0.013	0.53	UJG	0.013	0.53	UJG	0.013	0.53	UJG	0.013	0.53	UJG	0.013	0.53	UJG	0.003	0.13	UJG	0.003	0.13	UJG	13.00	0.528	UJG
MD01A	2.36	0.008	0.35	UJG	0.008	0.35	UJG	0.008	0.35	UJG	0.008	0.35	UJG	0.008	0.35	UJG	0.002	0.09	UJG	0.002	0.09	UJG	8.30	0.352	UJG
MD02A	3.62	0.012	0.33	UJG	0.012	0.33	UJG	0.012	0.33	UJG	0.012	0.33	UJG	0.012	0.33	UJG	0.003	0.09	UJG	<b>0.049</b>	<b>1.35</b>	JG	<b>49.00</b>	1.354	JG
MD03A	1.24	0.011	0.89	UJG	0.011	0.89	UJG	0.011	0.89	UJG	0.011	0.89	UJG	0.011	0.89	UJG	0.003	0.23	UJG	<b>0.017</b>	<b>1.37</b>	JTG	<b>17.00</b>	<b>1.371</b>	JTG
MD04A	2.16	0.010	0.46	UJG	0.010	0.46	UJG	0.010	0.46	UJG	0.010	0.46	UJG	0.010	0.46	UJG	0.003	0.12	UJG	<b>0.045</b>	<b>2.08</b>	JG	<b>45.00</b>	<b>2.083</b>	JG
MD05A	1.45	0.006	0.44	U	0.006	0.44	U	0.006	0.44	U	0.006	0.44	U	0.006	0.44	U	0.002	0.11	U	0.002	0.11	U	6.40	0.441	U
OH01A-R	0.43	0.008	1.79	UJG	0.008	1.79	UJG	0.008	1.79	UJG	0.008	1.79	UJG	0.008	1.79	UJG	0.002	0.46	UJG	0.002	0.46	UJG	7.70	1.787	UJG
OH02A	0.68	0.008	1.10	UJG	0.008	1.10	UJG	0.008	1.10	UJG	0.008	1.10	UJG	0.008	1.10	UJG	0.002	0.28	UJG	0.002	0.28	UJG	7.50	1.105	UJG
OH03A	0.73	0.008	1.06	U	0.008	1.06	U	0.008	1.06	U	0.008	1.06	U	0.008	1.06	U	0.002	0.27	U	0.002	0.27	U	7.70	1.058	U
RF01A	0.21	0.006	3.00	U	0.006	3.00	U	0.006	3.00	U	0.006	3.00	U	0.006	3.00	U	0.002	0.80	U	0.002	0.80	U	6.40	3.005	U
RF02A	0.40	0.007	1.76	U	0.007	1.76	U	0.007	1.76	U	0.007	1.76	U	0.007	1.76	U	0.002	0.45	U	0.002	0.45	U	7.10	1.762	U
RF03A	1.42	0.010	0.69	U	0.010	0.69	UJG	0.010	0.69	UJG	0.010	0.69	UJG	0.010	0.69	UJG	0.003	0.18	UJG	0.003	0.18	UJG	9.80	0.690	U
RL01A	0.41	0.007	1.69	U	0.007	1.69	U	0.007	1.69	U	0.007	1.69	U	0.007	1.69	U	0.002	0.43	U	0.002	0.43	U	7.00	1.691	U

Key:

**Bold** = Analyte was detected.

Shaded = Cells represent stations where the WA SQS was exceeded.

JG = Analyte was positively identified. Value may be greater than the reported estimate.

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

mg/kg = milligrams per kilogram

U = Analyte was not detected at or above the reported result.

SQS = 12 mg/kg TOC

UJG = The associated estimated sample quantitation limit has a likely low bias.

JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.

JG = The associated estimated positive result has a likely low bias.

Total PCB criteria: SQS= 12 mg/kg TOC, CSL= 65 mg/kg TOC, LAET= 130 µg/kg dw

Table C-11. Concentrations of Pesticides in Surface Sediments

Station	4,4'-DDD		4,4'-DDE		4,4'-DDT		Aldrin		alpha-BHC		beta-BHC		cis-Chlordane		delta-BHC		Dieldrin		Endosulfan I		Endosulfan II		Endosulfan Sulfate	
	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier
FP01A	0.36	U	0.31	U	0.35	U	0.14	U	<b>0.54</b>	JT	<b>40</b>		<b>0.22</b>	JT	0.16	U	0.3	U	0.16	U	0.35	U	0.46	U
FP02A	0.36	U	0.3	U	0.35	U	0.14	U	0.15	U	0.17	U	0.16	U	0.16	U	0.3	U	0.16	U	0.35	U	0.46	U
FP03A	0.47	U	0.4	U	0.47	U	0.19	U	0.29	JT	0.23	U	0.21	U	0.21	U	0.39	U	0.21	U	0.47	U	0.6	U
LA01A	1.1	U	1.1	U	1.2	U	<b>2.1</b>	JT	0.51	U	4.5	JTK	0.51	U	<b>2.8</b>	JT	1	U	0.55	U	<b>1.6</b>	JT	1.6	U
BL01A	0.57	UJG	0.48	UJG	0.56	UJG	0.23	UJG	0.23	UJG	0.27	UJG	0.25	UJG	0.25	UJG	0.47	UJG	0.25	UJG	0.56	UJG	0.72	UJG
BL02A	0.48	U	<b>2.5</b>	JTK	<b>6.6</b>	JK	<b>1.1</b>	JTK	0.19	U	<b>2.6</b>	JK	<b>4.4</b>	JK	0.21	U	<b>1.5</b>	JT	0.21	U	0.47	U	0.61	U
KP01A	0.54	UJG	0.46	UJG	0.54	UJG	0.22	UJG	0.22	UJG	0.26	UJG	0.24	UJG	0.24	UJG	0.45	UJG	0.24	UJG	0.85	UJG	0.69	UJG
KP02A	0.57	UJG	0.48	UJG	0.56	UJG	0.23	UJG	0.23	UJG	0.27	UJG	0.25	UJG	0.25	UJG	0.47	UJG	0.25	UJG	0.69	UJG	0.72	UJG
KP03A	0.36	U	<b>1.5</b>	JT	<b>1.3</b>	JTK	<b>0.87</b>	JT	0.15	U	0.17	U	<b>0.34</b>	JTK	0.16	U	<b>1.5</b>	JTK	0.16	U	0.36	U	0.46	U
KP04A	0.39	U	0.34	U	0.39	U	0.16	U	0.86	U	<b>1.1</b>	JT	<b>22</b>	JK	0.18	U	<b>3.3</b>	JK	<b>2.9</b>	JK	0.39	U	0.5	U
KP05A	0.53	UJG	0.46	UJG	0.53	UJG	0.22	UJG	0.22	UJG	0.26	UJG	0.24	UJG	0.24	UJG	0.45	UJG	0.24	UJG	0.72	UJG	0.68	UJG
KP07A	0.39	U	<b>0.42</b>	JTK	0.38	U	<b>0.74</b>	JTK	<b>1.4</b>	JTK	0.19	U	<b>0.53</b>	JTK	<b>0.26</b>	JTK	0.32	U	0.17	U	0.38	U	0.5	U
FT01A	<b>4.7</b>	JG	<b>2.5</b>	JTG	4.4	JG	1.4	UJG	<b>0.93</b>	JTG	0.23	UJG	0.21	UJG	0.21	UJG	0.39	UJG	0.21	UJG	0.47	UJG	0.6	UJG
FT02A	<b>3.5</b>	JTG	<b>1.2</b>	JTK	0.49	UJG	<b>1.9</b>	JG	<b>0.92</b>	JTG	<b>2.7</b>	JK	0.22	UJG	0.22	UJG	0.41	UJG	0.22	UJG	0.49	UJG	0.64	UJG
FT04A	<b>6</b>	JK	<b>2.2</b>	JT	0.37	U	0.15	U	0.15	U	0.86	U	0.17	U	0.17	U	0.32	U	0.17	U	<b>1</b>	JT	<b>1.4</b>	JTK
FT05A	0.47	UJG	0.4	UJG	0.47	UJG	0.19	UJG	0.19	UJG	0.23	UJG	0.21	UJG	0.21	UJG	0.39	UJG	0.21	UJG	0.58	UJG	0.6	UJG
FT06A	0.45	UJG	0.39	UJG	0.45	UJG	0.18	UJG	0.18	UJG	0.22	UJG	0.2	UJG	0.2	UJG	0.38	UJG	0.2	UJG	0.45	UJG	0.58	UJG
FT10A	0.43	UJG	0.37	UJG	0.42	UJG	0.17	UJG	0.17	UJG	0.21	UJG	0.19	UJG	0.19	UJG	0.36	UJG	0.19	UJG	0.42	UJG	0.55	UJG
FT11A	0.41	UJG	0.35	UJG	0.41	UJG	0.17	UJG	0.17	UJG	0.2	UJG	0.18	UJG	0.18	UJG	0.34	UJG	0.18	UJG	0.41	UJG	0.53	UJG
FT13A	0.37	U	<b>0.32</b>	JTK	0.37	U	<b>0.64</b>	JT	<b>0.66</b>	JTK	<b>1.5</b>	JK	<b>1.4</b>	JTK	<b>0.35</b>	JT	0.31	U	0.16	U	0.37	U	0.47	U
RL01A	0.33	U	0.28	U	0.33	U	0.13	U	0.14	U	0.16	U	0.15	U	0.15	U	0.28	U	0.15	U	0.41	U	0.43	U
CO01A	0.29	U	0.25	U	0.28	U	<b>0.25</b>	JT	0.6	U	0.14	U	0.13	U	0.13	U	0.24	U	0.13	U	0.28	U	0.37	U
CO02A	<b>2.2</b>	JT	0.35	U	<b>3.7</b>	JK	0.16	U	<b>1.8</b>	JK	<b>0.93</b>	JT	0.18	U	0.18	U	<b>9.3</b>	JK	0.18	U	0.4	U	0.52	U
CO03A	<b>0.37</b>	JT	0.24	U	0.28	U	<b>1.6</b>		0.12	U	<b>0.38</b>	JT	0.13	U	0.13	U	0.24	U	0.13	U	0.28	U	0.37	U
CO04A	0.29	U	0.24	U	0.28	U	0.12	U	0.12	U	0.14	U	0.13	U	0.13	U	0.24	U	0.13	U	0.28	U	0.37	U
CO05A	<b>1.5</b>	JTK	0.29	U	0.34	U	0.14	U	0.14	U	1	U	0.15	U	0.15	U	0.29	U	0.15	U	<b>0.71</b>	JTK	0.44	U
EC01A	0.31	U	0.26	U	0.3	U	0.73	U	0.12	U	0.51	U	0.14	U	0.14	U	0.25	U	0.14	U	0.3	U	0.39	U
EC02A	0.31	U	0.26	U	0.3	U	<b>0.97</b>	JT	0.77	U	<b>0.25</b>	JT	0.14	U	0.14	U	<b>1.2</b>	JTK	0.14	U	0.3	U	0.39	U
EC03A	<b>6.7</b>	JK	<b>0.75</b>	JTK	<b>10</b>	JK	<b>1.4</b>	JTK	0.48	U	0.18	U	<b>0.53</b>	JTK	0.17	U	0.31	U	<b>0.61</b>	JT	<b>2.8</b>	JK	<b>4.7</b>	JK
EC04A	0.36	U	<b>0.42</b>	JT	0.35	U	0.14	U	0.15	U	0.17	U	0.16	U	0.16	U	0.3	U	0.16	U	0.35	U	0.46	U
EC05A	<b>0.71</b>	JT	0.24	U	0.28	U	<b>0.68</b>	JT	1.1	U	0.14	U	<b>0.19</b>	JTK	0.13	U	0.24	U	0.13	U	0.28	U	0.36	U
EE01A	0.28	U	0.24	U	0.28	U	0.44	U	<b>0.47</b>	JTK	0.46	U	0.13	U	0.13	U	0.24	U	0.13	U	0.28	U	0.36	U
EE02A	<b>0.46</b>	JT	0.26	U	0.3	U	0.12	U	<b>0.55</b>	JTK	0.37	U	0.13	U	0.13	U	0.25	U	0.13	U	0.3	U	0.39	U
EE03A	0.31	U	0.27	U	0.31	U	0.13	U	<b>0.56</b>	JTK	0.15	U	0.14	U	0.14	U	0.26	U	0.14	U	0.31	U	0.4	U
EE04A	0.27	U	0.23	U	0.27	U	0.35	U	0.11	U	0.13	U	0.12	U	0.12	U	0.23	U	0.12	U	0.27	U	0.35	U
EE05A	0.28	U	0.24	U	0.28	U	0.11	U	0.11	U	0.52	U	0.13	U	0.13	U	0.23	U	0.12	U	0.28	U	0.36	U
EI01A	0.32	U	0.27	U	0.32	U	0.13	U	0.13	U	0.4	U	<b>0.22</b>	JTK	0.14	U	0.27	U	0.14	U	0.32	U	0.41	U
EI02A	0.32	U	0.27	U	0.31	U	0.13	U	0.13	U	0.35	U	0.14	U	0.14	U	0.26	U	0.14	U	0.31	U	0.41	U
EI03A	0.29	U	0.25	U	0.29	U	0.56	U	0.12	U	0.22	U	<b>0.22</b>	JTK	0.13	U	0.24	U	0.13	U	0.29	U	0.38	U
EI04A	0.3	U	0.26	U	0.3	U	0.12	U	0.12	U	0.35	U	0.14	U	0.14	U	0.25	U	0.13	U	0.3	U	0.39	U
EI06A	0.33	U	0.28	U	0.33	U	0.13	U	0.13	U	0.34	U	0.15	U	0.15	U	0.28	U	0.15	U	0.33	U	0.42	U
EI07A	<b>1</b>	JT	0.28	U	0.33	U	0.13	U	0.13	U	1.1	U	0.15	U	0.15	U	0.27	U	0.15	U	0.33	U	0.42	U
RF01A	0.31	U	0.27	U	0.31	U	<b>0.36</b>	JTK	0.13	U	0.15	U	<b>0.16</b>	JTK	0.14	U	0.26	U	0.14	U	0.31	U	0.4	U
RF02A	0.32	U	0.28	U	0.32	U	0.13	U	0.13	U	<b>0.96</b>	JTK	<b>0.23</b>	JTK	0.14	U	0.27	U	0.14	U	0.32	U	0.41	U
RF03A	0.48	U	0.41	U	0.47	U	<b>4.9</b>	JK	<b>1.5</b>	JTK	<b>2.2</b>	JK	<b>0.66</b>	JTK	0.21	U	0.4	U	0.21	U	0.47	U	0.61	U
LAET	16		9		34		NA		NA		NA		NA		NA		NA		NA		NA		NA	

Key:

**Bold** = Analyte was detected.

dw = dry weight

µg/kg = micrograms per kilogram

JT = The associated estimated positive result is less than the reporting limit.

JK = The associated estimated positive result has a likely unknown bias.

UJG = The associated estimated sample quantitation limit has a likely low bias.

U = Analyte was not detected at or above the reported result.

JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.

JTK = The associated estimated positive result is less than the reporting limit with a likely unknown bias.

Table C-11. Concentrations of Pesticides in Surface Sediments

Station	Endrin		Endrin Aldehyde		Endrin Ketone		gamma-Chlordane		Heptachlor		Heptachlor Epoxide		Lindane		Methoxychlor		Toxaphene	
	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier
FP01A	0.57	U	<b>0.38</b>	JT	0.34	U	0.16	U	0.18	U	<b>0.31</b>	JT	<b>0.22</b>	JT	1.8	U	13	U
FP02A	0.56	U	0.34	U	0.34	U	0.16	U	0.18	U	0.17	U	0.16	U	1.8	U	13	U
FP03A	0.75	U	0.45	U	0.45	U	0.21	U	0.24	U	0.22	U	0.21	U	2.4	U	18	U
LA01A	2	U	1.1	U	1.2	U	0.56	U	0.63	U	<b>1.8</b>	JT	0.54	U	6.2	U	47	U
BL01A	0.89	UJG	0.53	UJG	0.53	UJG	0.25	UJG	0.28	UJG	0.27	UJG	0.25	UJG	2.8	UJG	21	UJG
BL02A	0.75	U	0.45	U	0.45	U	<b>0.38</b>	JTK	0.24	U	<b>1.4</b>	JT	<b>2</b>	JK	2.4	U	18	U
KP01A	0.86	UJG	0.51	UJG	0.51	UJG	0.24	UJG	0.27	UJG	0.26	UJG	0.24	UJG	2.7	UJG	20	UJG
KP02A	0.9	UJG	0.53	UJG	0.53	UJG	0.25	UJG	0.29	UJG	0.27	UJG	0.25	UJG	2.8	UJG	21	UJG
KP03A	0.57	U	<b>0.52</b>	JT	0.34	U	<b>0.56</b>	JTK	<b>0.95</b>	JTK	<b>0.35</b>	JT	0.16	U	1.8	U	13	U
KP04A	0.62	U	<b>1.1</b>	JTK	0.37	U	0.18	U	0.2	U	0.19	U	<b>8.4</b>	JK	2	U	15	U
KP05A	0.85	UJG	0.5	UJG	0.5	UJG	0.24	UJG	0.27	UJG	0.25	UJG	0.23	UJG	2.7	UJG	20	UJG
KP07A	0.61	U	0.37	U	0.37	U	<b>0.81</b>	JT	<b>0.66</b>	JTK	<b>0.94</b>	JT	<b>2.6</b>	JK	1.9	U	14	U
FT01A	0.75	UJG	0.45	UJG	0.45	UJG	<b>1.4</b>	JTG	0.24	UJG	<b>0.79</b>	JTG	<b>0.58</b>	JTG	2.4	UJG	18	UJG
FT02A	0.79	UJG	0.47	UJG	0.47	UJG	<b>0.87</b>	JTK	<b>0.52</b>	JTG	0.24	UJG	<b>1.5</b>	JTG	2.5	UJG	19	UJG
FT04A	0.6	U	0.36	U	0.36	U	<b>2.3</b>	JK	0.19	U	<b>0.75</b>	JTK	<b>0.82</b>	JTK	1.9	U	14	U
FT05A	0.75	UJG	0.44	UJG	0.44	UJG	0.21	UJG	0.24	UJG	0.22	UJG	0.21	UJG	2.4	UJG	18	UJG
FT06A	0.72	UJG	0.43	UJG	0.43	UJG	0.2	UJG	0.23	UJG	0.21	UJG	0.2	UJG	2.3	UJG	17	UJG
FT10A	0.68	UJG	0.41	UJG	0.41	UJG	0.19	UJG	0.22	UJG	0.2	UJG	0.19	UJG	2.1	UJG	16	UJG
FT11A	0.65	UJG	0.39	UJG	0.39	UJG	0.18	UJG	0.21	UJG	0.2	UJG	0.18	UJG	2.1	UJG	15	UJG
FT13A	0.59	U	0.35	U	0.35	U	<b>0.79</b>	JTK	0.19	U	<b>0.6</b>	JTK	<b>1.1</b>	JTK	1.9	U	14	U
RL01A	0.53	U	0.31	U	0.31	U	0.15	U	0.17	U	0.16	U	0.15	U	1.7	U	12	U
CO01A	0.45	U	0.27	U	0.27	U	0.13	U	0.14	U	<b>0.24</b>	JT	0.13	U	1.4	U	11	U
CO02A	<b>3.6</b>	JK	<b>1.8</b>	JTK	0.39	U	<b>6.6</b>	JK	0.21	U	<b>7</b>	JK	<b>3.6</b>	JK	<b>3.3</b>	JT	15	U
CO03A	0.45	U	0.27	U	0.27	U	0.13	U	0.14	U	0.14	U	0.12	U	1.4	U	11	U
CO04A	0.45	U	0.27	U	0.27	U	0.13	U	0.14	U	0.14	U	0.13	U	1.4	U	11	U
CO05A	0.54	U	0.32	U	0.32	U	0.15	U	<b>0.98</b>	JTK	<b>2.5</b>	JK	<b>0.61</b>	JTK	1.7	U	13	U
EC01A	0.48	U	0.29	U	0.29	U	0.14	U	0.15	U	0.14	U	0.13	U	1.5	U	11	U
EC02A	0.48	U	<b>0.41</b>	JT	0.29	U	0.14	U	<b>0.3</b>	JT	0.15	U	0.13	U	1.5	U	11	U
EC03A	0.59	U	0.35	U	0.35	U	<b>1.9</b>		<b>1.5</b>	JK	<b>2.2</b>		<b>1.7</b>	JK	1.9	U	14	U
EC04A	0.57	U	0.34	U	0.34	U	0.16	U	0.18	U	<b>0.86</b>	JT	0.16	U	1.8	U	13	U
EC05A	0.45	U	0.27	U	0.27	U	<b>0.6</b>	JT	0.14	U	0.14	U	<b>1.1</b>	JK	1.4	U	11	U
EE01A	0.45	U	0.27	U	0.27	U	0.13	U	0.14	U	0.13	U	0.12	U	1.4	U	11	U
EE02A	0.48	U	<b>0.45</b>	JTK	0.28	U	0.13	U	0.15	U	<b>0.67</b>	JTK	<b>0.23</b>	JT	1.5	U	11	U
EE03A	0.5	U	<b>0.84</b>	JT	0.3	U	0.14	U	0.16	U	0.15	U	<b>0.16</b>	JTK	1.6	U	12	U
EE04A	0.43	U	<b>0.57</b>	JT	0.26	U	0.12	U	0.14	U	0.13	U	0.12	U	1.4	U	10	U
EE05A	0.44	U	0.26	U	0.26	U	<b>0.17</b>	JT	<b>0.49</b>	JTK	0.13	U	0.12	U	1.4	U	10	U
EI01A	0.51	U	0.3	U	0.3	U	0.14	U	0.16	U	<b>0.66</b>	JTK	<b>0.22</b>	JT	1.6	U	12	U
EI02A	0.5	U	0.3	U	0.3	U	0.14	U	0.16	U	0.15	U	0.14	U	1.6	U	12	U
EI03A	0.46	U	0.28	U	0.28	U	0.13	U	0.15	U	0.14	U	0.13	U	1.5	U	11	U
EI04A	0.48	U	0.29	U	0.29	U	0.14	U	0.15	U	0.14	U	0.13	U	1.5	U	11	U
EI06A	0.52	U	<b>0.73</b>	JTK	0.31	U	0.15	U	0.17	U	<b>0.26</b>	JTK	0.14	U	1.7	U	12	U
EI07A	0.52	U	0.31	U	<b>0.39</b>	JT	0.15	U	0.17	U	0.16	U	<b>0.62</b>	JT	1.6	U	12	U
RF01A	0.49	U	0.29	U	0.29	U	0.14	U	0.16	U	<b>0.46</b>	JT	0.14	U	1.6	U	12	U
RF02A	0.51	U	0.3	U	0.3	U	0.14	U	0.16	U	<b>0.22</b>	JT	0.14	U	1.6	U	12	U
RF03A	0.75	U	0.45	U	0.45	U	<b>0.74</b>	JTK	0.24	U	<b>0.88</b>	JT	<b>4.1</b>	JK	2.4	U	18	U
LAET	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Key:  
**Bold** = Analyte was detected.  
dw = dry weight.  
µg/kg = micrograms per kilogram.  
JT = The associated estimated positive result is less than the reporting limit.  
JK = The associated estimated positive result has a likely unknown bias.  
UJG = The associated estimated sample quantitation limit has a likely low bias.  
U = Analyte was not detected at or above the reported result.  
JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.  
JTK = The associated estimated positive result is less than the reporting limit with a likely unknown bias.

Table C-12. Concentrations of Resin Acid and Guaiacol Compounds in Surface Sediments

Station	Retene		Abietic Acid		Dehydroabietic Acid		Oleic Acid		Isophorone		12-Chlorodehydroabietic Acid		14-Chlorodehydroabietic Acid		9,10-Dichlorostearic Acid		Dichlorodehydroabietic Acid		Isopimaric Acid		Linolenic Acid		Neoabietic Acid	
	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier
BA01A	8.6	U	98	U	98	U	180				98	U	98	U	98	U	98	U	98	U	98	U	98	REJ
IE03A	8.9	U	6400		5100		500	U			500	U	500	U	500	U	500	U	500	U	500	U	500	REJ
IE04A	8.8	U	1300		1300		200				98	U	98	U	98	U	98	U	100		98	U	98	REJ
IE05A	8.9	U	4400		2200		500	U			500	U	500	U	500	U	500	U	500	U	500	U	500	REJ
IE06A	8.8	U	13000		5400		490	U			490	U	490	U	490	U	490	U	910		490	U	490	REJ
IE07A	38		1700		1100		350	JK			290	U	290	U	290	U	290	U	290	U	290	U	290	REJ
IE08A	49		1800		1100		300	U			300	U	300	U	300	U	300	U	300	U	300	U	300	REJ
IE09A	170		1100		1000		300	U			300	U	300	U	300	U	300	U	300	U	300	U	300	REJ
IE10A	8.8	U	160		100		280				100	U	100	U	100	U	100	U	100	U	100	U	100	REJ
IE11A	8.7	U	640		470		460				99	U	99	U	99	U	99	U	99	U	99	U	99	REJ
IE12A	8.8	U																						
IE13A	33		1200		410		100	U			8.2	U	100	U	100	U	100	U	150		100	U	100	REJ
IE14A	8.8	U	160		140		180				8.2	U	98	U	98	U	98	U	98	U	98	U	98	REJ
IE15A	26		480		320		120				8.2	U	98	U	98	U	98	U	98	U	98	U	98	REJ
IE16A	43		1300		560		160				8.2	U	99	U	99	U	99	U	110		99	U	99	REJ
LA01A	18	JT	4800		5000		500	U			8.2	U	500	U	500	U	500	U	1400		500	U	680	JG
LA02A	110		1200		2200		490	U			8.2	U	490	U	490	U	490	U	490	U	490	U	490	REJ
LA03A	80		1800		2900		500	U			8.2	U	500	U	500	U	500	U	500	U	500	U	500	REJ
IH01A	2000		4200		1800		500				32	U	340	U	340	U	340	U	510		340	U	340	REJ
IH02A	160		1200		620		150				8.2	U	98	U	98	U	98	U	130		98	U	98	REJ
IH03A	70		46000	JL	14000	JL	420	JL			8.1	U	300	U	300	U	300	U	8100	JL	300	U	720	JL
IH04A	89		3500		3700		140				8.2	U	98	U	98	U	98	U	550		110		98	REJ
IH05A	240		670		360		180				7.9	U	97	U	97	U	97	U	110		97	U	97	REJ
IH06A	210		850		310		300	U			8.1	U	300	U	300	U	300	U	300	U	300	U	300	REJ
MA01A	17		320		290	U	650				7.9	U	290	U	290	U	290	U	290	U	290	U	290	REJ
MA02A	53	U	7000		3300		49	U			49	U	98	U	98	U	98	U	1700		380		98	REJ
MA03A	42		210		99	U	99	U			8.1	U	99	U	99	U	99	U	99	U	99	U	99	REJ
MA04A	100		110000	JL	46000		1200				8.2	U	500	U	500	U	500	U	3500		1400		1200	JL
MA05A	32		260		180		100				8.1	U	99	U	99	U	99	U	99	U	99	U	99	REJ
MA06A	54		380		200		140				100	U	100	U	100	U	100	U	100	U	110		100	REJ
BL01A	86		19000	JG	6300	JG	340				8.2	U	300	U	300	U	300	U	1500		300	U	300	U
BL02A	46		1600		2400		490	U			8.1	U	490	U	490	U	490	U	540		490	U	490	U
BL03A	16		99	U	99	U	99	U			8.1	U	99	U	99	U	99	U	99	U	99	U	99	REJ
BL04A																								
BL06A																								
BL08A																								
KP01A	27		840		370		200				8.2	U	98	U	98	U	98	U	98	U	98	U	98	REJ
KP02A	22		550		910		99	U			8.2	U	99	U	99	U	99	U	300		120		99	REJ
KP03A	17		630		890		490	U			8.2	U	490	U	490	U	490	U	490	U	490	U	490	U
KP04A	14		490	U	490	U	490	U			8.2	U	490	U	490	U	490	U	490	U	490	U	490	U
KP05A	47		160	JL	110		99	U			8.2	U	99	U	99	U	99	U	99	U	99	U	99	REJ
KP07A	16		490	U	490	U	490	U			8.1	U	490	U	490	U	490	U	490	U	490	U	490	U
KP08A																								
FT01A	36																							
FT02A	160		150		99	U	160				8.2	U	99	U	99	U	99	U	99	U	99	U	99	REJ
FT04A	31		930		1300		970	NJ			8.1	U	490	U	490	U	490	U	490	U	490	U	490	U
FT05A	83		300		180		220				8.2	U	98	U	98	U	98	U	98	U	98	U	98	REJ
FT06A	38		160		110		400				8.1	U	99	U	99	U	99	U	99	U	99	U	99	REJ
FT09A	69		730		420		180				99	U	99	U	99	U	99	U	99	U	99	U	99	REJ
FT10A	27		96	U	96	U	96	U			8	U	96	U	96	U	96	U	96	U	96	U	96	REJ
FT11A	32		97	U	97	U	120				8	U	97	U	97	U	97	U	97	U	97	U	97	REJ
FT13A	8.9	U	84	JT	110		74	JT			8.3	U	100	U	100	U	100	U	100	U	100	U	100	U
RL01A											8.1	U												

Blank cells indicate that the compound was not analyzed at that station. Concentrations are in µg/kg dry weight.

Table C-12. Concentrations of Resin Acid and Guaiacol Compounds in Surface Sediments

Station	Retene		Abietic Acid		Dehydroabietic Acid		Oleic Acid		Isophorone		12-Chlorodehydroabietic Acid		14-Chlorodehydroabietic Acid		9,10-Dichlorostearic Acid		Dichlorodehydroabietic Acid		Isopimaric Acid		Linolenic Acid		Neoabietic Acid	
	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier
LP01A	<b>70</b>		<b>320</b>		<b>1400</b>		290	U	8.1	U	290	U	290	U	290	U	290	U	290	U	290	U	290	U
LP03A	<b>120</b>		<b>1700</b>		<b>1400</b>		290	U	8	U	290	U	290	U	290	U	290	U	290	U	290	U	290	U
LP04A	<b>690</b>		<b>3600</b>		<b>2900</b>		<b>560</b>	NJ	8.1	U	290	U	290	U	290	U	290	U	290	U	290	U	290	U
LP05A	<b>1100</b>		<b>11000</b>		<b>9500</b>		<b>670</b>	NJ	8.2	U	500	U	500	U	500	U	500	U	<b>510</b>	NJ	500	U	500	U
CO01A	8.7	U	290	U	290	U	290	U	8.1	U	290	U	290	U	290	U	290	U	290	U	290	U	290	U
CO02A	<b>1400</b>		<b>5700</b>		<b>3200</b>		490	U	8.1	U	490	U	490	U	490	U	490	U	<b>510</b>		490	U	490	U
CO03A	8.7	U	290	U	290	U	290	U	8	U	290	U	290	U	290	U	290	U	290	U	290	U	290	U
CO04A	8.7	U	290	U	290	U	290	U	8.1	U	290	U	290	U	290	U	290	U	290	U	290	U	290	U
CO05A	<b>10</b>		490	U	490	U	490	U	8.2	U	490	U	490	U	490	U	490	U	490	U	490	U	490	U
MD01A	<b>160</b>		<b>1700</b>		<b>1200</b>		490	U	8.1	U	490	U	490	U	490	U	490	U	490	U	490	U	490	U
MD02A	<b>670</b>		<b>2300</b>		<b>2400</b>		<b>750</b>	NJ	8.2	U	490	U	490	U	490	U	490	U	490	U	490	U	490	U
MD03A	<b>290</b>		<b>1400</b>		<b>1300</b>		490	U	8.2	U	490	U	<b>490</b>		490	U	490	U	<b>490</b>		490	U	490	U
MD04A	<b>190</b>		<b>1500</b>		<b>1400</b>		<b>990</b>	NJ	8.2	U	500	U	500	U	500	U	500	U	<b>500</b>		500	U	500	U
MD05A	<b>13</b>		300	U	300	U	300	U	8.3	U	300	U	300	U	300	U	300	U	300	U	300	U	300	U
ED01A	<b>87</b>																							
ED02A	<b>130</b>																							
ED03A	<b>130</b>																							
ED04A	<b>150</b>																							
ED05A	<b>21</b>																							
OH01A-R	8.8	U	99	U	99	U	<b>140</b>		8.2	U	99	U	99	U	99	U	99	U	99	U	99	U	99	U
OH02A	<b>47</b>		<b>1500</b>		<b>1100</b>		98	U	8.1	U	<b>72</b>	JT	98	U	98	U	98	U	<b>240</b>		98	U	98	U
OH03A	<b>10</b>		<b>230</b>		<b>190</b>	JT	<b>240</b>		8.2	U	200	U	<b>200</b>		200	U	200	U	200	U	200	U	200	U
DO01A	8.8	U	490	U	490	U	490	U	8.2	U	490	U	490	U	490	U	490	U	490	U	490	U	490	U
DO02A	8.8	U	290	U	290	U	290	U	8.1	U	290	U	290	U	290	U	290	U	290	U	290	U	290	U
DO03A	8.8	U	490	U	490	U	490	U	8.1	U	490	U	490	U	490	U	490	U	490	U	490	U	490	U
DO04A	8.9	U	500	U	500	U	<b>2300</b>		8.3	U	500	U	500	U	500	U	500	U	500	U	500	U	500	U
DO05A	8.9	U	300	U	300	U	<b>690</b>		8.2	U	300	U	300	U	300	U	300	U	300	U	300	U	300	U
EC01A	8.7	U	<b>100</b>		97	U	97	U	7.9	U	97	U	97	U	97	U	97	U	97	U	97	U	97	U
EC02A	8.8	U	98	U	98	U	98	U	8.1	U	98	U	98	U	98	U	98	U	98	U	98	U	98	U
EC03A	<b>140</b>		<b>760</b>		820		490	U	8.1	U	490	U	490	U	490	U	490	U	490	U	490	U	490	U
EC04A	<b>20</b>		480	U	480	U	480	U	8	U	480	U	480	U	480	U	480	U	480	U	480	U	480	U
EC05A	8.9	U	99	U	99	U	99	U	8.2	U	99	U	99	U	99	U	99	U	99	U	99	U	99	U
EE01A	8.8	U																						
EE02A	8.7	U																						
EE03A	8.7	U																						
EE04A	8.7	U																						
EE05A	8.7	U																						
EI01A	8.8	U																						
EI02A	8.8	U																						
EI03A	8.7	U																						
EI04A	8.7	U																						
EI06A	8.9	U																						
EI07A	8.8	U																						
RF01A	22	U	250	UJG	250	U	250	U	21	U	250	U	250	U	250	U	250	U	250	U	250	U	250	U
RF02A	8.7	U	97	U	97	U	97	U	8	U	97	U	97	U	97	U	97	U	97	U	97	U	97	U
RF03A	8.9	U	500	U	500	U	500	U	8.2	U	500	U	500	U	500	U	500	U	<b>500</b>		500	U	500	U

Key:  
**Bold** = Analyte was detected.  
 JG = Analyte was positively identified. Value may be greater than the reported estimate.  
 JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.  
 µg/kg = micrograms per kilogram  
 U = Analyte was not detected at or above the reported result.  
 SQS = 12 mg/kg TOC  
 UJG = The associated estimated sample quantitation limit has a likely low bias.  
 UJK = The associated estimated sample quantitation limit has a likely unknown bias.  
 REJ = Rejected  
 JK = The associated estimated positive result has a likely unknown bias.  
 JL = The associated estimated positive result has a likely high bias.  
 NJ = The associated estimated positive result is tentatively identified.

Blank cells indicate that the compound was not analyzed at that station.  
 Concentrations are in µg/kg dry weight.



Table C-12. Concentrations of Resin Acid and Guaiacol Compounds in Surface Sediments

Station	Palustric Acid		Pimaric Acid		Sandaracopimaric Acid		3,4,5-Trichloroguaiacol		3,4,6-Trichloroguaiacol		3,4-Dichloroguaiacol		4,5,6-Trichloroguaiacol		4,5-Dichloroguaiacol		4,6-Dichloroguaiacol		4-Chloroguaiacol		Guaiacol		Tetrachloroguaiacol	
	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier
BA01A	98	REJ	98	U	98	U	19	U	19	U	19	U	19	U	19	UJG	19	UJK	19	U	19	U	19	U
IE03A	500	REJ	500	U	500	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
IE04A	98	U	98	U	98	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
IE05A	500	REJ	500	U	500	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
IE06A	490	REJ	490	U	570		20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
IE07A	290	REJ	290	U	290	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IE08A	300	REJ	300	U	300	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IE09A	300	REJ	300	U	300	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IE10A	100	REJ	100	U	100	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
IE11A	99	REJ	99	U	99	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
IE12A							20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IE13A	100	REJ	100	U	100	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
IE14A	98	REJ	98	U	98	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
IE15A	98	REJ	98	U	98	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
IE16A	99	REJ	99	U	99	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
LA01A	640	JG	500	U	500	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
LA02A	490	UJG	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
LA03A	500	UJG	500	U	500	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IH01A	340	REJ	340	U	340	U	78	U	78	U	78	U	78	U	78	U	78	U	78	U	78	U	78	U
IH02A	98	REJ	98	U	98	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IH03A	1700	JL	300	U	1000	JL	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IH04A	98	REJ	98	U	150		20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IH05A	97	REJ	97	U	97	U	19	U	19	U					19	U	19	U			19	U	19	U
IH06A	300	REJ	300	U	300	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
MA01A	290	REJ	290	U	290	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U
MA02A	98	REJ	100		370		120	U	120	U	120	U	120	U	120	U	120	UJK	120	U	120	U	120	U
MA03A	99	REJ	99	U	99	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U	20	U
MA04A	1900	JL	500	U	7500		20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
MA05A	99	REJ	99	U	99	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U	20	U
MA06A	100	REJ	100	U	100	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
BL01A	340	JL	300	U	530		20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
BL02A	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
BL03A	99	REJ	99	U	99	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U	20	U
BL04A																								
BL06A																								
BL08A																								
KP01A	98	REJ	98	U	98	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
KP02A	99	REJ	99	U	99	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
KP03A	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
KP04A	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
KP05A	99	REJ	99	U	99	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
KP07A	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
KP08A																								
FT01A																								
FT02A	99	REJ	99	U	99	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
FT04A	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
FT05A	98	REJ	98	U	98	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
FT06A	99	REJ	99	U	99	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
FT09A	99	REJ	99	U	99	U	20	U	20	U	20	U	20	U	20	UJG	20	UJK	20	U	20	U	20	U
FT10A	96	REJ	96	U	96	U	19	U	19	U	19	U	19	U	19	UJG	19	UJK	19	U	19	U	19	U
FT11A	97	REJ	97	U	97	U	19	U	19	U	19	U	19	U	19	UJG	19	U	19	U	19	U	19	U
FT13A	100	U	100	U	100	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
RL01A																								

Blank cells indicate that the compound was not analyzed at that station. Concentrations are in µg/kg dry weight.

Table C-12. Concentrations of Resin Acid and Guaiacol Compounds in Surface Sediments

Station	Palustric Acid		Pimaric Acid		Sandaracopimaric Acid		3,4,5-Trichloroguaiacol		3,4,6-Trichloroguaiacol		3,4-Dichloroguaiacol		4,5,6-Trichloroguaiacol		4,5-Dichloroguaiacol		4,6-Dichloroguaiacol		4-Chloroguaiacol		Guaiacol		Tetrachloroguaiacol	
	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier
LP01A	290	U	290	U	290	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
LP03A	290	U	290	U	290	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U
LP04A	290	U	290	U	290	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
LP05A	500	U	500	U	500	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
CO01A	290	U	290	U	290	U	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK
CO02A	490	U	490	U	490	U	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK
CO03A	290	U	290	U	290	U	19	UJK	19	UJK	19	UJK	19	UJK	19	UJK	19	UJK	19	UJK	19	UJK	19	UJK
CO04A	290	U	290	U	290	U	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK
CO05A	490	U	490	U	490	U	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK
MD01A	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
MD02A	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
MD03A	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
MD04A	500	U	500	U	500	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
MD05A	300	U	300	U	300	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
ED01A							20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
ED02A							20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
ED03A							20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
ED04A							20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
ED05A																								
OH01A-R	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
OH02A	98	U	81	JT	98	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
OH03A	200	U	200	U	200	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
DO01A	490	U	490	U	490	U	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK
DO02A	290	U	290	U	290	U	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK
DO03A	490	U	490	U	490	U	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK
DO04A	500	U	500	U	500	U	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK
DO05A	300	U	300	U	300	U	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK	20	UJK
EC01A	97	U	97	U	97	U	19	UJK	19	UJK	19	UJK	19	UJK	19	UJK	19	UJK	19	UJK	19	UJK	19	UJK
EC02A	98	U	98	U	98	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
EC03A	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
EC04A	480	U	480	U	480	U	19	U	19	U	19	U	19	U	19	U	19	UJK	19	U	19	U	19	U
EC05A	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
EE01A																								
EE02A																								
EE03A																								
EE04A																								
EE05A																								
EI01A																								
EI02A																								
EI03A																								
EI04A																								
EI06A																								
EI07A																								
RF01A	250	U	250	U	250	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
RF02A	97	U	97	U	97	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U
RF03A	500	U	500	U	500	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U

Blank cells indicate that the compound was not analyzed at that station.  
Concentrations are in µg/kg dry weight.

Table C-13. Concentrations of Chlorinated Benzenes, Benzoic Acid, and Benzyl Alcohol in Surface Sediments  
 Stations are arranged from west to east. Dry weight concentrations are in µg/kg (ppb).

Station	% TOC	1,2,4-Trichlorobenzene			1,2-Dichlorobenzene			1,4-Dichlorobenzene			Hexachlorobenzene			Hexachlorobutadiene			Dibenzofuran			Benzoic Acid		Benzyl Alcohol	
		Results	TOC-Norm	Qualifier	Results	TOC-Norm	Qualifier	Results	TOC-Norm	Qualifier	Results	TOC-Norm	Qualifier	Results	TOC-Norm	Qualifier	Results	TOC-Norm	Qualifier	Results	Qualifier	Results	Qualifier
BL01A	5.03	9	0.179	U	7.8	0.155	U	7.3	0.145	U	8	0.159	U	8.1	0.161	U	7.5	0.149	U	110	UJK	14	UJK
BL02A	2.72	8.9	0.327	U	7.7	0.283	U	7.2	0.265	U	7.8	0.287	U	7.9	0.290	U	18	0.662	JT	110	U	14	U
BL03A	2.51	8.9	0.355	U	7.7	0.307	U	7.2	0.287	U	7.9	0.315	U	8	0.319	U	7.4	0.295	U	110	UJK	14	U
BL04A	0.64	8.8	1.375	U	7.7	1.203	U	7.1	1.109	U	7.8	1.219	U	7.9	1.234	U	7.3	1.141	U	110	UJK	14	U
BL06A	1.89	8.9	0.471	U	7.7	0.407	U	7.2	0.381	U	7.9	0.418	U	8	0.423	U	7.4	0.392	U	110	UJG	14	U
BL08A	1.46	8.9	0.610	U	7.7	0.527	U	7.2	0.493	U	7.9	0.541	U	8	0.548	U	7.4	0.507	U	110	UJG	14	U
CO01A	0.588	8.9	1.514	U	7.7	1.310	U	7.2	1.224	U	7.8	1.327	U	7.9	1.344	U	7.4	1.259	U	110	U	14	U
CO02A	2	8.9	0.445	U	7.7	0.385	U	7.2	0.360	U	7.9	0.395	U	8	0.400	U	18	0.900	JT	110	U	14	U
CO03A	0.314	8.8	2.803	U	7.7	2.452	U	7.2	2.293	U	7.8	2.484	U	7.9	2.516	U	7.3	2.325	U	110	U	14	U
CO04A	0.182	8.9	4.890	U	7.7	4.231	U	7.2	3.956	U	7.8	4.286	U	7.9	4.341	U	7.4	4.066	U	110	U	14	U
CO05A	0.885	9	1.017	U	7.8	0.881	U	7.3	0.825	U	7.9	0.893	U	8	0.904	U	7.5	0.847	U	110	U	14	U
DO01A	0.423	9	2.128	U	7.8	1.844	U	7.3	1.726	U	7.9	1.868	U	8	1.891	U	7.5	1.773	U	110	U	14	U
DO02A	0.681	8.9	1.307	U	7.7	1.131	U	7.2	1.057	U	7.9	1.160	U	8	1.175	U	7.4	1.087	U	110	U	14	U
DO03A	0.542	8.9	1.642	U	7.7	1.421	U	7.2	1.328	U	7.9	1.458	U	8	1.476	U	7.4	1.365	U	110	U	14	U
DO04A	0.438	9	2.055	U	7.9	1.804	U	7.3	1.667	U	7.9	1.804	U	8.1	1.849	U	7.5	1.712	U	110	U	14	U
DO05A	0.495	9	1.818	U	7.8	1.576	U	7.3	1.475	U	8	1.616	U	8	1.616	U	7.5	1.515	U	110	U	14	U
EC01A	0.469	8.6	1.834	U	7.7	1.642	U	7.1	1.514	U	7.8	1.663	U	7.9	1.684	U	7.4	1.578	U	110	U	14	U
EC02A	0.239	8.9	3.724	U	7.7	3.222	U	7.2	3.013	U	7.9	3.305	U	8	3.347	U	7.4	3.096	U	110	U	14	U
EC03A	1.06	8.9	0.840	U	7.7	0.726	U	7.2	0.679	U	7.9	0.745	U	8	0.755	U	7.4	0.698	U	110	U	14	U
EC04A	1.35	8.8	0.652	U	7.7	0.570	U	7.1	0.526	U	7.8	0.578	U	7.9	0.585	U	7.3	0.541	U	110	U	14	U
EC05A	0.216	9	4.167	U	7.8	3.611	U	7.3	3.380	U	8	3.704	U	8.1	3.750	U	7.5	3.472	U	110	U	14	U
ED01A	1.59	9	0.566	U	7.8	0.491	U	7.3	0.459	U	8	0.503	U	8.1	0.509	U	7.5	0.472	U	110	U	14	U
ED02A	2.22	9	0.405	U	7.8	0.351	U	7.3	0.329	U	8	0.360	U	8.1	0.365	U	22	0.991	U	110	U	14	U
ED03A	4.23	9	0.213	U	7.9	0.187	U	7.3	0.173	U	8	0.189	U	8.1	0.191	U	7.5	0.177	U	110	U	14	U
ED04A	5.13	9	0.175	U	7.8	0.152	U	7.3	0.142	U	7.9	0.154	U	8	0.156	U	21	0.409	U	110	U	14	U
ED05A	1.32	8.8	0.667	U	7.7	0.583	U	7.1	0.538	U	7.8	0.591	U	7.9	0.598	U	7.3	0.553	U	110	U	14	U
EE01A	0.232	9	3.879	U	7.8	3.362	U	7.3	3.147	U	7.9	3.405	U	8	3.448	U	7.5	3.233	U	110	U	14	U
EE02A	0.311	8.8	2.830	U	7.6	2.444	U	7.1	2.283	U	7.8	2.508	U	7.9	2.540	U	7.3	2.347	U	110	U	14	U
EE03A	0.176	8.8	5.000	U	7.6	4.318	U	7.1	4.034	U	7.8	4.432	U	7.9	4.489	U	7.3	4.148	U	110	U	14	U
EE04A	0.197	8.8	4.467	U	7.7	3.909	U	7.2	3.655	U	7.8	3.959	U	7.9	4.010	U	7.4	3.756	U	110	U	14	U
EE05A	0.222	8.9	4.009	U	7.7	3.468	U	7.2	3.243	U	7.8	3.514	U	7.9	3.559	U	7.4	3.333	U	110	U	14	U
EI01A	0.198	8.9	4.495	U	7.7	3.889	U	7.2	3.636	U	7.9	3.990	U	7.9	3.990	U	7.4	3.737	U	110	U	14	REJ*
EI02A	0.182	9	4.945	U	7.8	4.286	U	7.3	4.011	U	7.9	4.341	U	8	4.396	U	7.5	4.121	U	110	U	14	U
EI03A	0.459	8.8	1.917	U	7.6	1.656	U	7.1	1.547	U	7.8	1.699	U	7.9	1.721	U	7.3	1.590	U	110	U	14	U
EI04A	0.172	8.9	5.174	U	7.7	4.477	U	7.2	4.186	U	7.8	4.535	U	7.9	4.593	U	7.4	4.302	U	110	U	14	U
EI06A	0.162	9	5.556	U	7.9	4.877	U	7.3	4.506	U	8	4.938	U	8.1	5.000	U	7.5	4.630	U	110	U	14	U
EI07A	0.628	8.9	1.417	U	7.7	1.226	U	7.2	1.146	U	7.9	1.258	U	8	1.274	U	7.4	1.178	U	110	U	14	U
FT01A	2.44	9	0.369	U	7.8	0.320	U	7.3	0.299	U	7.9	0.324	U	8	0.328	U	25	1.025	U	110	U	14	U
FT02A	2.61	9	0.345	U	7.8	0.299	U	7.3	0.280	U	8	0.307	U	8.1	0.310	U	34	1.303	U	110	U	14	U
FT04A	1.12	8.9	0.795	U	7.7	0.688	U	7.2	0.643	U	7.8	0.696	U	7.9	0.705	U	15	1.339	JT	110	U	14	U
FT05A	1.85	9	0.486	U	7.8	0.422	U	7.3	0.395	U	7.9	0.427	U	8	0.432	U	26	1.405	U	110	UJG	14	U
FT06A	1.47	8.9	0.605	U	7.7	0.524	U	7.2	0.490	U	7.9	0.537	U	8	0.544	U	7.4	0.503	U	110	UJG	14	U
FT10A	1.38	8.8	0.638	U	7.6	0.551	U	7.1	0.514	U	7.7	0.558	U	7.8	0.565	U	7.3	0.529	U	110	UJG	14	U
FT11A	2.4	8.8	0.367	U	7.6	0.317	U	7.1	0.296	U	7.7	0.321	U	7.8	0.325	U	7.3	0.304	U	110	UJG	14	UJK
FT13A	0.879	9.1	1.035	U	7.9	0.899	U	7.3	0.830	U	8	0.910	U	8.1	0.922	U	7.5	0.853	U	110	U	14	UJK
IE03A	6.48	9	0.139	U	7.8	0.120	U	7.3	0.113	U	8	0.123	U	8.1	0.125	U	7.5	0.116	U	110	UJG	14	U
IE04A	4.81	8.9	0.185	U	7.8	0.162	U	7.3	0.152	U	7.9	0.164	U	8	0.166	U	7.4	0.154	U	110	UJG	14	U
IE05A	5.93	9	0.152	U	7.8	0.132	U	7.3	0.123	U	8	0.135	U	8.1	0.137	U	7.5	0.126	U	110	UJG	14	U
IE06A	33.2	9	0.027	U	7.8	0.023	U	7.3	0.022	U	7.9	0.024	U	8	0.024	U	7.5	0.023	U	110	UJG	14	U
IE07A	15.4	8.9	0.058	U	7.7	0.050	U	7.2	0.047	U	7.9	0.051	U	8	0.052	U	10	0.065	JT	110	UJK	14	U
IE09A	3.33	9.1	0.273	U	7.9	0.237	U	7.4	0.222	U	8	0.240	U	8.1	0.243	U	12	0.360	JT	110	UJK	14	U
IE13A	8.29	9	0.109	U	7.8	0.094	U	7.3	0.088	U	8	0.097	U	8.1	0.098	U	7.5	0.090	U	110	UJG	14	U
IE14A	2.79	9	0.323	U	7.8	0.280	U	7.3	0.262	U	7.9	0.283	U	8	0.287	U	7.5	0.269	U	110	UJG	14	U
IE15A	2.48	9	0.363	U	7.8	0.315	U	7.3	0.294	U	7.9	0.319	U	8	0.323	U	7.5	0.302	U	110	UJG	14	U
IE16A	4.9	9	0.184	U	7.8	0.159	U	7.3	0.149	U	7.9	0.161	U	8	0.163	U	7.5	0.153	U	110	UJG	14	U
IH01A	17.2	35	0.203	U	31	0.180	U	29	0.169	U	31	0.180	U	32	0.186	U	30	0.174	U	450	UJK	57	U
IH02A	25.4	9	0.035	U	7.8	0.031	U	7.3	0.029	U	7.9	0.031	U	8	0.031	U	12	0.047	JT	110	UJK	14	U
IH03A	11.7	8.9	0.076	U	7.7	0.066	U	7.2	0.062	U	7.8	0.067	U	7.9	0.068	U	25	0.214	U	110	UJK	14	U
IH04A	2.91	9	0.309	U	7.8	0.268	U	7.3	0.251	U	7.9	0.271	U	8	0.275	U	7.5	0.258	U	110	UJK	14	U
IH05A	1.8	8.7	0.483	U	7.6	0.422	U	7.1	0.394	U	7.7	0.428	U	7.8	0.433	U	7.3	0.406	U	110	UJK	14	U

Table C-13. Concentrations of Chlorinated Benzenes, Benzoic Acid, and Benzyl Alcohol in Surface Sediments  
 Stations are arranged from west to east. Dry weight concentrations are in µg/kg (ppb).

Station	% TOC	1,2,4-Trichlorobenzene			1,2-Dichlorobenzene			1,4-Dichlorobenzene			Hexachlorobenzene			Hexachlorobutadiene			Dibenzofuran			Benzoic Acid		Benzyl Alcohol	
		Results	TOC-Norm	Qualifier	Results	TOC-Norm	Qualifier	Results	TOC-Norm	Qualifier	Results	TOC-Norm	Qualifier	Results	TOC-Norm	Qualifier	Results	TOC-Norm	Qualifier	Results	Qualifier	Results	Qualifier
IH06A	2.09	8.9	0.426	U	7.7	0.368	U	7.2	0.344	U	7.8	0.373	U	7.9	0.378	U	<b>18</b>	<b>0.861</b>	JT	110	UJK	14	U
KP01A	4.21	9	0.214	U	7.8	0.185	U	7.3	0.173	U	7.9	0.188	U	8	0.190	U	7.5	0.178	U	110	UJK	14	U
KP02A	5.31	9	0.169	U	7.8	0.147	U	7.3	0.137	U	8	0.151	U	8.1	0.153	U	7.5	0.141	U	110	UJK	14	U
KP03A	1.8	9	0.500	U	7.8	0.433	U	7.3	0.406	U	7.9	0.439	U	8	0.444	U	7.5	0.417	U	110	U	14	U
KP04A	1.65	9	0.545	U	7.8	0.473	U	7.3	0.442	U	7.9	0.479	U	8	0.485	U	7.5	0.455	U	110	U	14	U
KP05A	1.09	9	0.826	U	7.8	0.716	U	7.3	0.670	U	7.9	0.725	U	8	0.734	U	7.5	0.688	U	110	UJG	14	UJK
KP07A	1.65	8.9	0.539	U	7.7	0.467	U	7.2	0.436	U	7.8	0.473	U	7.9	0.479	U	7.4	0.448	U	110	U	14	UJK
KP08A	2.37	8.9	0.376	U	7.7	0.325	U	7.2	0.304	U	7.9	0.333	U	8	0.338	U	7.4	0.312	U	110	UJG	14	UJG
LA01A	11.7	9	0.077	U	7.8	0.067	U	7.3	0.062	U	8	0.068	U	8.1	0.069	U	7.5	0.064	U	110	U	14	U
LA02A	10.3	9	0.087	U	7.8	0.076	U	7.3	0.071	U	7.9	0.077	U	8	0.078	U	<b>16</b>	<b>0.155</b>	JT	110	U	14	U
LA03A	9.17	9	0.098	U	7.8	0.085	U	7.3	0.080	U	8	0.087	U	8.1	0.088	U	<b>10</b>	<b>0.109</b>	JT	110	U	14	U
LP01A	3.6	8.8	0.244	U	7.7	0.214	U	7.2	0.200	U	7.8	0.217	U	7.9	0.219	U	<b>10</b>	<b>0.278</b>	JT	110	U	14	UJG
LP03A	1.55	8.8	0.568	U	7.6	0.490	U	7.1	0.458	U	7.8	0.503	U	7.9	0.510	U	7.3	0.471	U	110	U	14	UJG
LP04A	3.79	8.9	0.235	U	7.7	0.203	U	7.2	0.190	U	7.9	0.208	U	7.9	0.208	U	<b>27</b>	<b>0.712</b>		110	U	14	UJG
LP05A	3.6	9	0.250	U	7.8	0.217	U	7.3	0.203	U	8	0.222	U	8.1	0.225	U	<b>39</b>	<b>1.083</b>		110	U	14	UJG
MA01A	1.13	8.7	0.770	U	7.5	0.664	U	7	0.619	U	7.7	0.681	U	7.8	0.690	U	7.2	0.637	U	110	UJK	14	U
MA02A	4.02	54	1.343	U	46	1.144	U	43	1.070	U	47	1.169	U	48	1.194	U	45	1.119	U	680	UJK	86	UJL
MA03A	2.38	8.9	0.374	U	7.7	0.324	U	7.2	0.303	U	7.9	0.332	U	8	0.336	U	7.4	0.311	U	110	UJK	14	U
MA04A	8.49	9	0.106	U	7.8	0.092	U	7.3	0.086	U	8	0.094	U	8.1	0.095	U	<b>32</b>	<b>0.377</b>		110	UJG	14	UJG
MA05A	2.46	8.9	0.362	U	7.7	0.313	U	7.2	0.293	U	7.9	0.321	U	8	0.325	U	7.4	0.301	U	110	UJK	14	U
MD01A	2.36	8.9	0.377	U	7.7	0.326	U	7.2	0.305	U	7.8	0.331	U	7.9	0.335	U	<b>40</b>	<b>1.695</b>		110	U	14	UJG
MD02A	3.62	9	0.249	U	7.8	0.215	U	7.3	0.202	U	7.9	0.218	U	8	0.221	U	<b>27</b>	<b>0.746</b>		110	U	14	UJG
MD03A	1.24	9	0.726	U	7.7	0.621	U	7.8	0.629	U	14	1.129	U	8.1	0.710	U	<b>20</b>	<b>1.613</b>		110	U	14	UJG
MD04A	2.16	9	0.417	U	7.8	0.361	U	7.3	0.338	U	14	0.648	U	8.1	0.407	U	<b>23</b>	<b>1.065</b>		110	U	14	UJG
MD05A	1.45	9.1	0.628	U	7.9	0.545	U	7.3	0.503	U	14	0.966	U	8.1	0.607	U	7.5	0.517	U	110	U	14	UJG
OH01A	0.431	9	2.088	U	7.8	1.810	U	7.3	1.694	U	7.9	3.248	U	8.8	2.042	U	7.5	1.740	U	110	U	14	UJG
OH02A	0.679	8.9	1.311	U	7.7	1.134	U	7.2	1.060	U	7.9	2.062	U	8.7	1.281	U	<b>10</b>	<b>1.473</b>	JT	110	U	14	U
OH03A	0.728	9	1.236	U	7.8	1.058	U	7.3	1.003	U	8	1.923	U	8.8	1.209	U	7.5	1.030	U	110	U	14	U
RF01A	0.213	23	3.850	U	20	9.390	U	18	8.451	U	20	1.784	U	20	9.390	U	19	8.920	U	290	U	36	U
RF02A	0.403	8.8	2.233	U	7.6	1.886	U	7.1	1.762	U	7.8	2.134	U	7.9	1.811	U	7.3	1.811	U	110	U	14	U
RF03A	1.42	9	0.641	U	7.8	0.549	U	7.3	0.514	U	8	0.528	U	8.1	0.775	U	7.5	0.528	U	110	U	14	U
RL01A	0.414	8.8	2.126	U	7.7	1.860	U	7.2	1.739	U	7.8	1.884	U	7.9	1.908	U	7.4	1.787	U	110	UJK	14	U
SQS			0.81			2.300			3.100			0.380			3.900			15.000		650		57	
CSL			1.8			2.300			9.000			2.300			6.200			58.000		650		73	
LAET		31			35			110			22			NA			540		650		57		

\*This result was rejected during data validation

Key:

**Bold** = Analyte was detected.

dw = dry weight.

µg/kg = micrograms per kilogram.

ppb = parts per billion.

JT = The associated estimated positive result is less than the reporting limit.

UJG = The associated estimated sample quantitation limit has a likely low bias.

UJK = The associated estimated sample quantitation limit has a likely unknown bias.

U = Analyte was not detected at or above the reported result.

UJL = The associated estimated sample quantitation limit has a likely high bias.

REJ = Rejected

Table C-14. Concentrations of Dioxin and Furan Congeners in Surface Sediments

Station	1,2,3,4,6,7,8- HpCDD	Detect/ ND Result	1,2,3,4,6,7,8- HpCDD TEQ (ND=1/2DL)	1,2,3,4,6,7,8- HpCDF	Detect/ ND Result	1,2,3,4,6,7,8- HpCDF TEQ (ND=1/2DL)	1,2,3,4,7,8,9- HpCDF	Detect/ ND Result	1,2,3,4,7,8,9- HpCDF TEQ (ND=1/2DL)	1,2,3,4,7,8- HxCDD	Detect/ ND Result	1,2,3,4,7,8- HxCDD TEQ (ND=1/2DL)	1,2,3,4,7,8- HxCDF	Detect/ ND Result	1,2,3,4,7,8- HxCDF TEQ (ND=1/2DL)	1,2,3,6,7,8- HxCDD	Detect/ ND Result
BL01A	116	116	1.16	20.8	20.8	0.208	0.986	0.986	0.00986	1.43	1.43	0.143	1.34	1.34	0.134	7.14	7.14
BL02A	90.7	JG 90.7	0.907	16.1	JG 16.1	0.161	0.747	JG 0.747	0.00747	0.991	JG 0.991	0.0991	0.83	JG 0.83	0.083	4.9	JG 4.9
BL03A	179	JG 179	1.79	24.7	JG 24.7	0.247	1.52	JG 1.52	0.0152	1.56	JG 1.56	0.156	1.73	JG 1.73	0.173	8.4	JG 8.4
BL04A	22.8	JG 22.8	0.228	4.2	JG 4.2	0.042	0.205	JTG 0.205	0.00205	0.262	JTG 0.262	0.0262	0.319	JTG 0.319	0.0319	1.47	JG 1.47
BL06A	81.9	JG 81.9	0.819	23.8	JG 23.8	0.238	1.2	JG 1.2	0.012	1.56	JG 1.56	0.156	1.51	JG 1.51	0.151	7.89	JG 7.89
BL08A	99.8	JG 99.8	0.998	23	JG 23	0.23	1.4	JG 1.4	0.014	2.1	JG 2.1	0.21	1.61	JG 1.61	0.161	8.1	JG 8.1
CO01A	12.5	12.5	0.125	2.2	2.2	0.022	0.156	U 0.078	0.00078	0.482	JT 0.482	0.0482	0.362	JT 0.362	0.0362	0.976	0.976
CO02A	95.9	95.9	0.959	16	16	0.16	0.843	0.843	0.00843	1.76	1.76	0.176	3.63	3.63	0.363	5.29	5.29
CO03A	3.65	3.65	0.0365	0.721	0.721	0.00721	0.0454	U 0.0227	0.000227	0.058	JT 0.058	0.0058	0.158	JT 0.158	0.0158	0.206	JT 0.206
CO04A	2.87	2.87	0.0287	0.321	JT 0.321	0.00321	0.036	JT 0.036	0.00036	0.039	NJ 0.039	0.0039	0.062	JT 0.031	0.0031	0.114	JT 0.114
CO05A	10.1	10.1	0.101	1.81	1.81	0.0181	0.152	JT 0.152	0.00152	0.296	JT 0.296	0.0296	0.376	JT 0.376	0.0376	0.729	0.729
DO01A	10.9	10.9	0.109	2.73	2.73	0.0273	0.18	JT 0.18	0.0018	0.347	JT 0.347	0.0347	0.47	JT 0.47	0.047	1.11	1.11
DO02A	17.8	17.8	0.178	7	7	0.07	0.243	JT 0.243	0.00243	0.456	JT 0.456	0.0456	0.0249	U 0.01245	0.001245	2.2	2.2
DO03A	32.5	32.5	0.325	3.49	3.49	0.0349	0.219	JT 0.219	0.00219	0.491	JT 0.491	0.0491	0.447	JT 0.447	0.0447	2.21	2.21
DO04A	20.1	20.1	0.201	3.88	3.88	0.0388	0.228	JT 0.228	0.00228	0.388	JT 0.388	0.0388	0.447	JT 0.447	0.0447	2.14	2.14
DO05A	12.8	12.8	0.128	2.5	2.5	0.025	0.16	JT 0.16	0.0016	0.345	JT 0.345	0.0345	0.345	JT 0.345	0.0345	1.79	1.79
EC01A	2.1	2.1	0.021	0.33	JT 0.33	0.0033	0.0419	U 0.02095	0.0002095	0.076	JT 0.076	0.0076	0.04	JT 0.04	0.004	0.17	JT 0.17
EC02A	0.754	0.754	0.00754	0.095	JT 0.095	0.00095	0.0252	U 0.0126	0.000126	0.0252	U 0.0126	0.00126	0.0252	U 0.0126	0.00126	0.07	JT 0.07
EC03A	48.6	48.6	0.486	11.7	11.7	0.117	0.984	0.984	0.00984	0.954	0.954	0.0954	2.94	2.94	0.294	2.85	2.85
EC04A	17.1	17.1	0.171	2.47	2.47	0.0247	0.132	JT 0.132	0.00132	0.266	JT 0.266	0.0266	0.227	JT 0.227	0.0227	0.816	0.816
EC05A	1.52	1.52	0.0152	0.444	JT 0.444	0.00444	0.0542	U 0.0271	0.000271	0.045	NJ 0.045	0.0045	0.117	JT 0.117	0.0117	0.111	JT 0.111
ED01A	122	122	1.22	13.2	13.2	0.132	0.74	0.74	0.0074	1.68	1.68	0.168	1.39	1.39	0.139	6.23	6.23
ED02A	147	147	1.47	21	21	0.21	1.13	1.13	0.0113	3.21	3.21	0.321	3.09	3.09	0.309	9.95	9.95
ED03A	145	145	1.45	22	22	0.22	1.05	1.05	0.0105	2.64	2.64	0.264	2.09	2.09	0.209	7.32	7.32
ED04A	212	212	2.12	31.1	31.1	0.311	1.62	1.62	0.0162	3.06	3.06	0.306	2.71	2.71	0.271	10.9	10.9
ED05A	29.5	29.5	0.295	3.6	3.6	0.036	0.351	JT 0.351	0.00351	0.427	JT 0.427	0.0427	0.876	0.876	0.0876	1.47	1.47
EE01A	1.1	1.1	0.011	0.161	U 0.0805	0.00805	0.037	NJ 0.037	0.00037	0.034	JT 0.034	0.0034	0.065	U 0.0325	0.00325	0.081	JT 0.081
EE02A	3.13	3.13	0.0313	0.677	0.677	0.00677	0.05	JT 0.05	0.0005	0.104	JT 0.104	0.0104	0.088	U 0.044	0.0044	0.273	JT 0.273
EE03A	2.44	2.44	0.0244	0.487	JT 0.487	0.00487	0.041	JT 0.041	0.00041	0.062	JT 0.062	0.0062	0.115	U 0.0575	0.00575	0.217	JT 0.217
EE04A	0.753	0.753	0.00753	0.176	JT 0.176	0.00176	0.0241	U 0.01205	0.0001205	0.0241	U 0.01205	0.001205	0.042	U 0.021	0.0021	0.082	JT 0.082
EE05A	0.418	JT 0.418	0.00418	0.11	U 0.055	0.00055	0.0234	U 0.0117	0.000117	0.0234	U 0.0117	0.00117	0.035	U 0.0175	0.00175	0.088	JT 0.088
EI02A	1.94	1.94	0.0194	0.405	JT 0.405	0.00405	0.035	NJ 0.035	0.00035	0.045	JT 0.045	0.0045	0.042	JT 0.042	0.0042	0.225	JT 0.225
EI04A	1.93	1.93	0.0193	0.412	JT 0.412	0.00412	0.051	NJ 0.051	0.00051	0.052	JT 0.052	0.0052	0.06	U 0.03	0.003	0.203	JT 0.203
EI07A	3.96	3.96	0.0396	0.789	0.789	0.00789	0.059	JT 0.059	0.00059	0.129	JT 0.129	0.0129	0.098	U 0.049	0.0049	0.428	JT 0.428
FT01A	248	248	2.48	35.5	35.5	0.355	2.1	2.1	0.021	3.11	3.11	0.311	3.37	3.37	0.337	14.4	14.4
FT04A	66.8	66.8	0.668	7.26	7.26	0.0726	0.44	JT 0.44	0.0044	0.848	0.848	0.0848	0.661	0.661	0.0661	3.17	3.17
FT06A	68.1	JG 68.1	0.681	15.1	JG 15.1	0.151	0.893	JG 0.893	0.00893	1.68	JG 1.68	0.168	1.29	JG 1.29	0.129	7.1	7.1
FT10A	63.7	JG 63.7	0.637	15.3	JG 15.3	0.153	0.877	JG 0.877	0.00877	2.18	JG 2.18	0.218	1.48	JG 1.48	0.148	7.98	JG 7.98
FT12A	14.6	14.6	0.146	3.71	3.71	0.0371	0.207	JT 0.207	0.00207	0.448	JT 0.448	0.0448	0.438	JT 0.438	0.0438	1.7	1.7
FT13A	19.4	JG 19.4	0.194	4.84	JG 4.84	0.0484	0.292	JTG 0.292	0.00292	0.548	JTG 0.548	0.0548	0.475	JTG 0.475	0.0475	2.15	JG 2.15
IE03A	55.2	JG 55.2	0.552	11	JG 11	0.11	0.597	JG 0.597	0.00597	1.23	JG 1.23	0.123	1.02	JG 1.02	0.102	5.56	JG 5.56
IE04A	53.5	JG 53.5	0.535	11.4	JG 11.4	0.114	0.598	JG 0.598	0.00598	1.21	JG 1.21	0.121	1.05	JG 1.05	0.105	6.08	JG 6.08
IE05A	158	JG 158	1.58	31.3	JG 31.3	0.313	1.48	JG 1.48	0.0148	2.56	JG 2.56	0.256	2.55	JG 2.55	0.255	12.4	JG 12.4
IE06A	140	JG 140	1.4	33.1	JG 33.1	0.331	1.57	JG 1.57	0.0157	3.03	JG 3.03	0.303	2.77	JG 2.77	0.277	13.7	JG 13.7
IE07A	118	118	1.18	36.5	36.5	0.365	1.54	1.54	0.0154	2.68	2.68	0.268	2.61	2.61	0.261	10.1	10.1
IE09A	2360	2360	23.6	651	651	6.51	19	19	0.19	6.18	6.18	0.618	18.7	18.7	1.87	103	103
IE12A	104	JG 104	1.04	24.5	JG 24.5	0.245	0.945	JG 0.945	0.00945	1.19	JG 1.19	0.119	1.39	JG 1.39	0.139	7.28	JG 7.28
IE14A	64.5	JG 64.5	0.645	16.9	JG 16.9	0.169	0.775	JG 0.775	0.00775	0.998	JG 0.998	0.0998	1.17	JG 1.17	0.117	5.78	JG 5.78
IE15A	200	JG 200	2	58.5	JG 58.5	0.585	2.55	JG 2.55	0.0255	1.61	JG 1.61	0.161	2.31	JG 2.31	0.231	14.4	JG 14.4
IH01A	5,090	5090	50.9	1,430	1430	14.3	36.7	36.7	0.367	11.9	NJ 11.9	1.19	37.3	37.3	3.73	191	191
IH02A	1,420	1420	14.2	420	420	4.2	13.2	13.2	0.132	5.63	5.63	0.563	11.9	11.9	1.19	72.1	72.1
IH03A	511	511	5.11	128	128	1.28	4.58	4.58	0.0458	3.69	3.69	0.369	4.84	4.84	0.484	38.9	38.9

Table C-14. Concentrations of Dioxin and Furan Congeners in Surface Sediments

Station	1,2,3,4,6,7,8-HpCDD	Detect/ND Result	1,2,3,4,6,7,8-HpCDD TEQ (ND=1/2DL)	1,2,3,4,6,7,8-HpCDF	Detect/ND Result	1,2,3,4,6,7,8-HpCDF TEQ (ND=1/2DL)	1,2,3,4,7,8,9-HpCDF	Detect/ND Result	1,2,3,4,7,8,9-HpCDF TEQ (ND=1/2DL)	1,2,3,4,7,8-HxCDD	Detect/ND Result	1,2,3,4,7,8-HxCDD TEQ (ND=1/2DL)	1,2,3,4,7,8-HxCDF	Detect/ND Result	1,2,3,4,7,8-HxCDF TEQ (ND=1/2DL)	1,2,3,6,7,8-HxCDD	Detect/ND Result	
IH04A	217	217	2.17	61.2	61.2	0.612	2.61	2.61	0.0261	1.73	1.73	0.173	2.65	2.65	0.265	17.9	17.9	
IH05A	117	JK	1.17	21.2	21.2	0.212	0.92	0.92	0.0092	0.954	JK	0.0954	1.07	JK	0.107	6.58	6.58	
IH06A	297	297	2.97	67.8	67.8	0.678	2.66	2.66	0.0266	2.39	2.39	0.239	2.79	2.79	0.279	19.6	19.6	
KP01A	350	350	3.5	52.1	52.1	0.521	2.57	2.57	0.0257	3.32	3.32	0.332	4.42	4.42	0.442	17.4	17.4	
KP02A	190	190	1.9	30.6	30.6	0.306	1.88	1.88	0.0188	2.61	2.61	0.261	2.57	2.57	0.257	10.9	10.9	
KP03A	29.7	29.7	0.297	4.65	4.65	0.0465	0.312	JT	0.00312	0.589	JT	0.0589	0.588	0.588	0.0588	2.28	2.28	
KP04A	72.3	72.3	0.723	15.9	15.9	0.159	0.882	0.882	0.00882	1.55	1.55	0.155	1.4	1.4	0.14	5.44	5.44	
KP05A	145	JG	1.45	27.4	JG	0.274	1.65	JG	0.0165	2.09	JG	0.209	2.28	JG	0.228	9.92	JG	9.92
KP07A	42.4	JG	0.424	10.9	JG	0.109	0.496	JTG	0.00496	1	JG	0.1	0.899	JG	0.0899	4.17	JG	4.17
LA01A	820	820	8.2	262	262	2.62	8.42	JT	0.0842	14.2	14.2	1.42	11.7	JT	1.17	56.5	56.5	
LA02A	854	854	8.54	259	259	2.59	10.4	10.4	0.104	17.6	17.6	1.76	11.9	11.9	1.19	67	67	
LA03A	1,020	1020	10.2	278	278	2.78	9.65	9.65	0.0965	15.3	15.3	1.53	12.5	12.5	1.25	76.1	76.1	
LP01A	34	34	0.34	3.24	3.24	0.0324	0.232	JT	0.00232	0.45	JT	0.045	0.342	JT	0.0342	1.45	1.45	
LP03A	12.8	JK	0.128	2.32	2.32	0.0232	0.161	JT	0.00161	0.31	0.31	0.031	0.318	JG	0.0318	0.881	0.881	
LP04A	39	39	0.39	9.11	9.11	0.0911	0.55	0.55	0.0055	1.01	1.01	0.101	1.61	1.61	0.161	3.12	3.12	
LP05A	298	298	2.98	63.4	63.4	0.634	2.95	2.95	0.0295	5.12	5.12	0.512	5.86	5.86	0.586	15.9	15.9	
MA01A	336	336	3.36	52.5	52.5	0.525	2.44	2.44	0.0244	6.1	6.1	0.61	3.11	3.11	0.311	24.6	24.6	
MA02A	433	433	4.33	86	86	0.86	3.76	3.76	0.0376	2.72	2.72	0.272	3.1	3.1	0.31	18.8	18.8	
MA03A	393	393	3.93	112	112	1.12	5.15	5.15	0.0515	4	4	0.4	4.51	4.51	0.451	26.1	26.1	
MA04A	374	374	3.74	53.8	53.8	0.538	2.38	2.38	0.0238	2.27	2.27	0.227	2.6	2.6	0.26	14.6	14.6	
MA05A	271	271	2.71	82	82	0.82	3.8	3.8	0.038	3.98	3.98	0.398	4.4	4.4	0.44	25.4	25.4	
MD01A	203	203	2.03	16.4	16.4	0.164	0.887	0.887	0.00887	1.73	1.73	0.173	1.59	1.59	0.159	6.16	6.16	
MD02A	222	222	2.22	28.3	28.3	0.283	1.51	1.51	0.0151	2.76	2.76	0.276	2.82	2.82	0.282	8.19	8.19	
MD03A	157	157	1.57	26.9	26.9	0.269	1.47	1.47	0.0147	3.12	3.12	0.312	2.74	2.74	0.274	7.55	7.55	
MD04A	245	245	2.45	52.3	52.3	0.523	2.36	2.36	0.0236	1.84	1.84	0.184	2.81	2.81	0.281	7.25	7.25	
MD05A	12.9	12.9	0.129	2.62	2.62	0.0262	0.156	JT	0.00156	0.469	JT	0.0469	0.303	JT	0.0303	1.38	1.38	
OH01A	12.5	12.5	0.125	2.82	2.82	0.0282	0.171	JT	0.00171	0.371	JT	0.0371	0.382	JT	0.0382	1.73	1.73	
OH02A	8.71	8.71	0.0871	2.03	2.03	0.0203	0.086	JT	0.00086	0.175	JT	0.0175	0.236	JT	0.0236	1.03	1.03	
OH03A	8.82	8.82	0.0882	2.22	2.22	0.0222	0.138	JT	0.00138	0.188	JT	0.0188	0.27	JT	0.027	1	1	
RF01A	0.177	JT	0.00177	0.069	U	0.00345	0.0238	U	0.00119	0.0324	U	0.00162	0.033	U	0.00165	0.057	NJ	0.057
RF02A	0.345	JT	0.00345	0.1	U	0.0005	0.0241	U	0.001205	0.032	JT	0.0032	0.03	U	0.0015	0.075	JT	0.075
RF03A	8.06	8.06	0.0806	1.82	1.82	0.0182	0.111	JT	0.00111	0.191	JT	0.0191	0.224	JT	0.0224	1.01	1.01	
RL01A	12.1	12.1	0.121	2.51	2.51	0.0251	0.212	JT	0.00212	0.325	JT	0.0325	0.235	0.235	0.0235	0.993	0.993	
WW01A	14.4	14.4	0.144	3.26	3.26	0.0326	0.188	JT	0.00188	0.361	JT	0.0361	0.374	JT	0.0374	1.62	1.62	

Key:

- Bold** = Analyte was detected.
- dw = dry weight.
- JG = Analyte was positively identified. Value may be greater than the reported estimate.
- JK = Analyte was positively identified. Reported result is an estimate with unknown bias.
- JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.
- JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.
- JTK = Analyte was positively identified. Reported result is an estimate with unknown bias, below the associated quantitation limit but above the MDL.
- ng/kg = nanograms per kilogram.
- U = Analyte was not detected at or above the reported result.
- UJG = Analyte was not detected at or above the reported estimate with likely low bias.
- NJ = The associated estimated positive result is tentatively identified.

Table C-14. Concentrations of Dioxin and Furan Congeners in Surface Sediments

Station	1,2,3,6,7,8- HxCDD TEQ (ND=1/2DL)	1,2,3,6,7,8- HxCDF	Detect/ ND Result	1,2,3,6,7,8- HxCDF TEQ (ND=1/2DL)	1,2,3,7,8,9- HxCDD	Detect/ ND Result	1,2,3,7,8,9- HxCDD TEQ (ND=1/2DL)	1,2,3,7,8,9- HxCDF	Detect/ ND Result	1,2,3,7,8,9- HxCDF TEQ (ND=1/2DL)	1,2,3,7,8- PeCDD	Detect/ ND Result	1,2,3,7,8- PeCDD TEQ (ND=1/2DL)	1,2,3,7,8- PeCDF	Detect/ ND Result	1,2,3,7,8- PeCDF TEQ (ND=1/2DL)	2,3,4,6,7,8- HxCDF	Detect/ ND Result
BL01A	0.714	0.864		0.864	4.01		4.01	0.401	U	0.0445	0.00445		1.2	1.2		0.629	0.799	0.799
BL02A	0.49	0.607	JG	0.607	2.9	JG	2.9	0.29	JTG	0.046	0.0046		0.829	0.829		0.425	0.582	0.582
BL03A	0.84	1.17	JG	1.17	5.39	JG	5.39	0.539	JTG	0.102	0.0102		1.45	1.45		0.831	1.13	1.13
BL04A	0.147	0.191	JTG	0.191	0.961	JG	0.961	0.0961	UJG	0.0238	0.00238		0.27	0.27		0.162	0.202	0.202
BL06A	0.789	1.03	JG	1.03	4.87	JG	4.87	0.487	JTG	0.099	0.0099		1.66	1.66		0.885	0.922	0.922
BL08A	0.81	0.984	JG	0.984	5.34	JG	5.34	0.534	JTG	0.096	0.0096		1.68	1.68		0.882	0.928	0.928
CO01A	0.0976	0.203	JT	0.203	0.921		0.921	0.0921	U	0.0312	0.00312		0.427	0.427		0.306	0.194	0.194
CO02A	0.529	1.22		1.22	3.75		3.75	0.375	JT	0.161	0.0161		1.6	1.6		1.25	1.38	1.38
CO03A	0.0206	0.054	JT	0.054	0.203	JT	0.203	0.0203	U	0.01235	0.001235		0.081	0.081		0.053	0.041	0.041
CO04A	0.0114	0.035	JT	0.035	0.131	JT	0.131	0.0131	U	0.01225	0.001225		0.062	0.062		0.034	0.032	0.032
CO05A	0.0729	0.229	JT	0.229	0.692		0.692	0.0692	NJ	0.035	0.0035		0.347	0.347		0.272	0.178	0.178
DO01A	0.111	0.398	JT	0.398	0.948		0.948	0.0948	JT	0.042	0.0042		0.433	0.433		0.337	0.324	0.324
DO02A	0.22	0.301	JT	0.301	1.44		1.44	0.144	NJ	0.032	0.0032		0.577	0.577		0.326	0.285	0.285
DO03A	0.221	0.228	NJ	0.228	1.61		1.61	0.161	JT	0.028	0.0028		0.488	0.488		0.259	0.268	0.268
DO04A	0.214	0.245	JT	0.245	1.51		1.51	0.151	JT	0.033	0.0033		0.473	0.473		0.267	0.248	0.248
DO05A	0.179	0.204	JT	0.204	1.17		1.17	0.117	U	0.01205	0.001205		0.435	0.435		0.208	0.223	0.223
EC01A	0.017	0.034	JT	0.034	0.258	JT	0.258	0.0258	U	0.01215	0.001215		0.124	0.124		0.031	0.032	0.032
EC02A	0.007	0.0252	U	0.0126	0.075	JT	0.075	0.0075	U	0.0126	0.00126		0.045	0.045		0.0252	0.0252	0.0252
EC03A	0.285	0.839		0.839	2.26		2.26	0.226	JT	0.064	0.0064		0.891	0.891		0.778	1.16	1.16
EC04A	0.0816	0.138	JT	0.138	0.607		0.607	0.0607	U	0.0121	0.00121		0.272	0.272		0.15	0.125	0.125
EC05A	0.0111	0.035	JT	0.035	0.155	JT	0.155	0.0155	U	0.01215	0.001215		0.066	0.066		0.0243	0.031	0.031
ED01A	0.623	0.879		0.879	5.19		5.19	0.519	JT	0.067	0.0067		1.54	1.54		1.14	0.811	0.811
ED02A	0.995	1.67		1.67	7.86		7.86	0.786	JT	0.156	0.0156		2.72	2.72		2.14	1.55	1.55
ED03A	0.732	1.24		1.24	5.62		5.62	0.562	JT	0.094	0.0094		2.23	2.23		1.4	1.11	1.11
ED04A	1.09	1.62		1.62	6.84		6.84	0.684	JT	0.17	0.017		2.78	2.78		1.81	1.5	1.5
ED05A	0.147	0.307	JT	0.307	1.13		1.13	0.113	U	0.0153	0.00153		0.409	0.409		0.31	0.281	0.281
EE01A	0.0081	0.028	NJ	0.028	0.104	JT	0.104	0.0104	U	0.01245	0.001245		0.042	0.042		0.029	0.0249	0.0249
EE02A	0.0273	0.054	JT	0.054	0.265	JT	0.265	0.0265	U	0.01255	0.001255		0.147	0.147		0.058	0.051	0.051
EE03A	0.0217	0.058	NJ	0.058	0.214	JT	0.214	0.0214	U	0.0123	0.00123		0.094	0.094		0.06	0.048	0.048
EE04A	0.0082	0.0241	U	0.01205	0.066	NJ	0.066	0.0066	U	0.01205	0.001205		0.041	0.041		0.0241	0.0241	0.0241
EE05A	0.0088	0.0234	U	0.0117	0.082	JT	0.082	0.0082	U	0.0117	0.00117		0.047	0.047		0.0234	0.0234	0.0234
EI02A	0.0225	0.025	NJ	0.025	0.191	JT	0.191	0.0191	U	0.0124	0.00124		0.072	0.072		0.025	0.0248	0.0248
EI04A	0.0203	0.04	JT	0.04	0.156	JT	0.156	0.0156	U	0.01255	0.001255		0.085	0.085		0.041	0.037	0.037
EI07A	0.0428	0.067	JT	0.067	0.348	JT	0.348	0.0348	U	0.0124	0.00124		0.158	0.158		0.075	0.067	0.067
FT01A	1.44	2.16		2.16	9.26		9.26	0.926	JT	0.209	0.0209		3.27	3.27		1.86	2.06	2.06
FT04A	0.317	0.508	JT	0.508	2.42		2.42	0.242	NJ	0.041	0.0041		0.867	0.867		0.45	0.468	0.468
FT06A	0.71	0.863	JG	0.863	4.84	JG	4.84	0.484	JTG	0.085	0.0085		1.6	1.6		0.795	0.858	0.858
FT10A	0.798	1.1	JG	1.1	5.96	JG	5.96	0.596	JTG	0.103	0.0103		2.23	2.23		1.25	1.07	1.07
FT12A	0.17	0.28	JT	0.28	1.2		1.2	0.12	JT	0.029	0.0029		0.496	0.496		0.291	0.274	0.274
FT13A	0.215	0.303	JTG	0.303	1.57	JG	1.57	0.157	JTG	0.037	0.0037		0.644	0.644		0.317	0.312	0.312
IE03A	0.556	0.697	JG	0.697	4.07	JG	4.07	0.407	NJ	0.057	0.0057		1.54	1.54		0.692	0.639	0.639
IE04A	0.608	0.625	JG	0.625	4.17	JG	4.17	0.417	JTG	0.072	0.0072		1.52	1.52		0.643	0.62	0.62
IE05A	1.24	1.75	JG	1.75	8.28	JG	8.28	0.828	JTG	0.153	0.0153		2.69	2.69		1.54	1.96	1.96
IE06A	1.37	1.82	JG	1.82	7.74	JG	7.74	0.774	JT	0.158	0.0158		2.72	2.72		1.37	1.98	1.98
IE07A	1.01	1.64		1.64	6.16		6.16	0.616		0.152	0.0152		2.39	2.39		1.23	1.67	1.67
IE09A	10.3	8.85		8.85	23.8		23.8	2.38	NJ	1.05	0.105		5.19	5.19		3.55	8.7	8.7
IE12A	0.728	0.718	JG	0.718	4.6	JG	4.6	0.46	JTG	0.079	0.0079		1.39	1.39		0.696	0.888	0.888
IE14A	0.578	0.677	JG	0.677	3.65	JG	3.65	0.365	JTG	0.066	0.0066		1.15	1.15		0.538	0.652	0.652
IE15A	1.44	1.35	JG	1.35	6.71	JG	6.71	0.671	JTG	0.15	0.015		1.96	1.96		0.978	1.33	1.33
IH01A	19.1	15.1		15.1	31.9		31.9	3.19	JT	1.25	0.125		7.44	7.44		5.96	15.9	15.9
IH02A	7.21	6.31		6.31	21.5		21.5	2.15		1.88	0.188		5.44	5.44		2.96	5.8	5.8
IH03A	3.89	3.07		3.07	12.9		12.9	1.29	NJ	0.341	0.0341		2.91	2.91		1.59	3.42	3.42

Table C-14. Concentrations of Dioxin and Furan Congeners in Surface Sediments

Station	1,2,3,6,7,8- HxCDD TEQ (ND=1/2DL)	1,2,3,6,7,8- HxCDF	Detect/ ND Result	1,2,3,6,7,8- HxCDF TEQ (ND=1/2DL)	1,2,3,7,8,9- HxCDD	Detect/ ND Result	1,2,3,7,8,9- HxCDD TEQ (ND=1/2DL)	1,2,3,7,8,9- HxCDF	Detect/ ND Result	1,2,3,7,8,9- HxCDF TEQ (ND=1/2DL)	1,2,3,7,8- PeCDD	Detect/ ND Result	1,2,3,7,8- PeCDD TEQ (ND=1/2DL)	1,2,3,7,8- PeCDF	Detect/ ND Result	1,2,3,7,8- PeCDF TEQ (ND=1/2DL)	2,3,4,6,7,8- HxCDF	Detect/ ND Result
IH04A	1.79	<b>1.69</b>	1.69	0.169	<b>6.78</b>	6.78	0.678	<b>0.24</b> JT	0.24	0.024	<b>1.88</b>	1.88	1.88	<b>0.991</b>	0.991	0.02973	<b>1.81</b>	1.81
IH05A	0.658	<b>0.644</b> JK	0.644	0.0644	<b>3.4</b>	3.4	0.34	<b>0.077</b> JT	0.077	0.0077	<b>0.854</b> JK	0.854	0.854	<b>0.444</b> JTK	0.444	0.01332	<b>0.59</b> JK	0.59
IH06A	1.96	<b>1.71</b>	1.71	0.171	<b>8.91</b>	8.91	0.891	<b>0.138</b> JT	0.138	0.0138	<b>2.12</b>	2.12	2.12	<b>0.908</b>	0.908	0.02724	<b>1.69</b>	1.69
KP01A	1.74	<b>2.71</b>	2.71	0.271	<b>11.4</b>	11.4	1.14	<b>0.271</b> JT	0.271	0.0271	<b>3.48</b>	3.48	3.48	<b>2.27</b>	2.27	0.0681	<b>2.69</b>	2.69
KP02A	1.09	<b>1.99</b>	1.99	0.199	<b>8.09</b>	8.09	0.809	<b>0.259</b> NJ	0.259	0.0259	<b>2.88</b>	2.88	2.88	<b>2</b>	2	0.06	<b>2.2</b>	2.2
KP03A	0.228	<b>0.49</b> JT	0.49	0.049	<b>1.67</b>	1.67	0.167	<b>0.053</b> JT	0.053	0.0053	<b>0.705</b>	0.705	0.705	<b>0.5</b> JT	0.5	0.015	<b>0.541</b> JT	0.541
KP04A	0.544	<b>1.07</b>	1.07	0.107	<b>4.07</b>	4.07	0.407	<b>0.097</b> JT	0.097	0.0097	<b>1.42</b>	1.42	1.42	<b>0.876</b>	0.876	0.02628	<b>1.03</b>	1.03
KP05A	0.992	<b>1.34</b> JG	1.34	0.134	<b>6.92</b> JG	6.92	0.692	<b>0.149</b> JTG	0.149	0.0149	<b>2.29</b> JG	2.29	2.29	<b>1.26</b> JG	1.26	0.0378	<b>1.42</b> JG	1.42
KP07A	0.417	<b>0.584</b> JG	0.584	0.0584	<b>2.59</b> JG	2.59	0.259	<b>0.058</b> JTG	0.058	0.0058	<b>1.04</b> JG	1.04	1.04	<b>0.565</b> JG	0.565	0.01695	<b>0.566</b> JTG	0.566
LA01A	5.65	<b>10.5</b> JT	10.5	1.05	<b>32.9</b>	32.9	3.29	<b>0.769</b> JT	0.769	0.0769	<b>11.3</b>	11.3	11.3	<b>3.41</b>	3.41	0.1023	<b>11.4</b> JT	11.4
LA02A	6.7	<b>9.19</b>	9.19	0.919	<b>38.5</b>	38.5	3.85	<b>0.07</b> NJ	0.07	0.007	<b>12.7</b>	12.7	12.7	<b>5.04</b>	5.04	0.1512	<b>10.1</b>	10.1
LA03A	7.61	<b>9.25</b>	9.25	0.925	<b>37.2</b>	37.2	3.72	<b>0.966</b> JT	0.966	0.0966	<b>14.4</b>	14.4	14.4	<b>4.17</b>	4.17	0.1251	<b>10.7</b>	10.7
LP01A	0.145	<b>0.218</b> JT	0.218	0.0218	<b>1.13</b>	1.13	0.113	<b>0.026</b> JT	0.026	0.0026	<b>0.425</b> JT	0.425	0.425	<b>0.279</b> JT	0.279	0.00837	<b>0.21</b> JT	0.21
LP03A	0.0881	<b>0.189</b> JT	0.189	0.0189	<b>0.631</b>	0.631	0.0631	0.0243 U	0.01215	0.001215	<b>0.343</b> JT	0.343	0.343	<b>0.247</b> JT	0.247	0.00741	<b>0.158</b> JT	0.158
LP04A	0.312	<b>0.815</b>	0.815	0.0815	<b>2.4</b>	2.4	0.24	<b>0.076</b> JT	0.076	0.0076	<b>1.25</b>	1.25	1.25	<b>1.11</b>	1.11	0.0333	<b>0.783</b>	0.783
LP05A	1.59	<b>2.75</b>	2.75	0.275	<b>11.8</b>	11.8	1.18	<b>0.308</b> JT	0.308	0.0308	<b>5.21</b>	5.21	5.21	<b>3.56</b>	3.56	0.1068	<b>2.86</b>	2.86
MA01A	2.46	<b>2.19</b>	2.19	0.219	<b>16.2</b>	16.2	1.62	<b>0.187</b> JT	0.187	0.0187	<b>4.14</b>	4.14	4.14	<b>1.05</b>	1.05	0.0315	<b>2.3</b>	2.3
MA02A	1.88	<b>1.73</b>	1.73	0.173	<b>9.84</b>	9.84	0.984	<b>0.152</b> NJ	0.152	0.0152	<b>2.54</b>	2.54	2.54	<b>1.15</b>	1.15	0.0345	<b>1.82</b>	1.82
MA03A	2.61	<b>2.62</b>	2.62	0.262	<b>12.5</b>	12.5	1.25	<b>0.286</b> JT	0.286	0.0286	<b>3.47</b>	3.47	3.47	<b>1.53</b>	1.53	0.0459	<b>2.6</b>	2.6
MA04A	1.46	<b>1.43</b>	1.43	0.143	<b>8.72</b>	8.72	0.872	<b>0.204</b> NJ	0.204	0.0204	<b>1.71</b>	1.71	1.71	<b>0.976</b>	0.976	0.02928	<b>1.51</b>	1.51
MA05A	2.54	<b>2.7</b>	2.7	0.27	<b>12.5</b>	12.5	1.25	<b>0.251</b> JT	0.251	0.0251	<b>3.84</b>	3.84	3.84	<b>1.92</b>	1.92	0.0576	<b>2.54</b>	2.54
MD01A	0.616	<b>0.774</b>	0.774	0.0774	<b>5.7</b>	5.7	0.57	<b>0.101</b> JT	0.101	0.0101	<b>1.18</b>	1.18	1.18	<b>0.918</b>	0.918	0.02754	<b>0.812</b>	0.812
MD02A	0.819	<b>1.37</b>	1.37	0.137	<b>7.17</b>	7.17	0.717	<b>0.147</b> JT	0.147	0.0147	<b>2.72</b>	2.72	2.72	<b>1.9</b>	1.9	0.057	<b>1.32</b>	1.32
MD03A	0.755	<b>1.56</b>	1.56	0.156	<b>6.13</b>	6.13	0.613	<b>0.155</b> JT	0.155	0.0155	<b>2.81</b>	2.81	2.81	<b>1.9</b>	1.9	0.057	<b>1.44</b>	1.44
MD04A	0.725	<b>1.13</b>	1.13	0.113	<b>4.58</b>	4.58	0.458	<b>0.102</b> JT	0.102	0.0102	<b>1.85</b>	1.85	1.85	<b>1.3</b>	1.3	0.039	<b>1.24</b>	1.24
MD05A	0.138	<b>0.227</b> JT	0.227	0.0227	<b>1.02</b>	1.02	0.102	<b>0.03</b> JT	0.03	0.003	<b>0.441</b> JT	0.441	0.441	<b>0.27</b> JT	0.27	0.0081	<b>0.229</b> JT	0.229
OH01A	0.173	<b>0.234</b> JT	0.234	0.0234	<b>1.23</b>	1.23	0.123	<b>0.027</b> NJ	0.027	0.0027	<b>0.393</b> JT	0.393	0.393	<b>0.217</b> JT	0.217	0.00651	<b>0.233</b> JT	0.233
OH02A	0.103	<b>0.128</b> JT	0.128	0.0128	<b>0.79</b>	0.79	0.079	0.0701 U	0.03505	0.003505	<b>0.25</b> JT	0.25	0.25	<b>0.121</b> JT	0.121	0.00363	<b>0.127</b> JT	0.127
OH03A	0.1	<b>0.138</b> JT	0.138	0.0138	<b>0.777</b>	0.777	0.0777	0.0414 U	0.0207	0.00207	<b>0.234</b> JT	0.234	0.234	<b>0.13</b> JT	0.13	0.0039	<b>0.132</b> JT	0.132
RF01A	0.0057	<b>0.024</b> NJ	0.024	0.0024	<b>0.034</b> JT	0.034	0.0034	0.0238 U	0.0119	0.00119	0.0238 U	0.0119	0.0119	0.0238 U	0.0119	0.000357	0.0238 U	0.0119
RF02A	0.0075	0.0241 U	0.01205	0.001205	<b>0.067</b> JT	0.067	0.0067	0.0241 U	0.01205	0.001205	0.0241 U	0.01205	0.01205	0.0241 U	0.01205	0.0003615	0.0241 U	0.01205
RF03A	0.101	<b>0.128</b> JT	0.128	0.0128	<b>0.82</b>	0.82	0.082	0.0256 U	0.0128	0.00128	<b>0.236</b> JT	0.236	0.236	<b>0.106</b> JT	0.106	0.00318	<b>0.125</b> NJ	0.125
RL01A	0.0993	<b>0.151</b>	0.151	0.0151	<b>0.779</b>	0.779	0.0779	0.025 U	0.0125	0.00125	<b>0.323</b> NJ	0.323	0.323	<b>0.146</b>	0.146	0.00438	0.148 U	0.074
WW01A	0.162	<b>0.227</b> JT	0.227	0.0227	<b>1.14</b>	1.14	0.114	0.024 U	0.012	0.0012	<b>0.442</b> JT	0.442	0.442	<b>0.238</b> JT	0.238	0.00714	<b>0.231</b> JT	0.231



Table C-14. Concentrations of Dioxin and Furan Congeners in Surface Sediments

Station	2,3,4,6,7,8-HxCDF TEQ (ND=1/2DL)		Detect/ND Result	2,3,4,7,8-PeCDF TEQ (ND=1/2DL)		Detect/ND Result	2,3,7,8-TCDD TEQ (ND=1/2DL)		2,3,7,8-TCDF	Detect/ND Result	2,3,7,8-TCDF TEQ (ND=1/2DL)		OCDD	Qual	Detect/ND Result	OCDD TEQ (ND=1/2DL)		Detect/ND Result	OCDF TEQ (ND=1/2DL)	Total TCDD TEQ (ND=1/2DL)	
	2,3,4,7,8-PeCDF			2,3,7,8-TCDD			OCDF	Qual													
BL01A	0.0799	<b>0.78</b>	JG	0.78	0.234	<b>0.401</b>	0.401	0.401	<b>1.26</b>	1.26	0.126	<b>1,040</b>	JG	1040	0.312	<b>60.3</b>	JG	60.3	0.01809	5.25	
BL02A	0.0582	<b>0.612</b>	JG	0.612	0.1836	<b>0.355</b>	JG	0.355	0.355	<b>0.756</b>	JG	0.756	723	JG	723	0.2169	<b>54.3</b>	JG	54.3	0.01629	3.85
BL03A	0.113	<b>1.14</b>	JG	1.14	0.342	<b>0.855</b>	JG	0.855	0.855	<b>1.54</b>	JG	1.54	2,060	JG	2060	0.618	<b>89</b>	JG	89	0.0267	7.47
BL04A	0.0202	<b>0.224</b>	JTG	0.224	0.0672	<b>0.18</b>	JG	0.18	0.18	<b>0.336</b>	JG	0.336	177	JG	177	0.0531	<b>9.79</b>	JG	9.79	0.002937	1.23
BL06A	0.0922	<b>1.22</b>	JG	1.22	0.366	<b>0.598</b>	JG	0.598	0.598	<b>2.16</b>	JG	2.16	602	JG	602	0.1806	<b>51.1</b>	JG	51.1	0.01533	5.92
BL08A	0.0928	<b>1.2</b>	JG	1.2	0.36	<b>0.588</b>	JG	0.588	0.588	<b>2.03</b>	JG	2.03	850	JG	850	0.255	<b>108</b>	JG	108	0.0324	6.3
CO01A	0.0194	<b>0.496</b>	JT	0.496	0.1488	<b>0.156</b>	JT	0.156	0.156	<b>0.509</b>	JT	0.509	112	JT	112	0.0336	<b>9.11</b>	JT	9.11	0.002733	1.29
CO02A	0.138	<b>2.14</b>	JT	2.14	0.642	<b>0.717</b>	JT	0.717	0.717	<b>2.91</b>	JT	2.91	949	JT	949	0.2847	<b>72.9</b>	JT	72.9	0.02187	6.44
CO03A	0.0041	<b>0.088</b>	JT	0.088	0.0264	<b>0.065</b>	JT	0.065	0.065	<b>0.118</b>	JT	0.118	31.3	JT	31.3	0.00939	<b>1.41</b>	JT	1.41	0.000423	0.313
CO04A	0.0032	<b>0.06</b>	JT	0.06	0.018	<b>0.059</b>	NJ	0.059	0.059	<b>0.0571</b>	U	0.02855	28.3	JT	28.3	0.00849	<b>0.778</b>	JT	0.778	0.0002334	0.223
CO05A	0.0178	<b>0.32</b>	JT	0.32	0.096	<b>0.147</b>	JT	0.147	0.147	<b>0.465</b>	JT	0.465	75.6	JT	75.6	0.02268	<b>3.5</b>	JT	3.5	0.00105	1.04
DO01A	0.0324	<b>0.424</b>	JT	0.424	0.1272	<b>0.141</b>	JT	0.141	0.141	<b>0.499</b>	JT	0.499	82.7	JT	82.7	0.02481	<b>9.59</b>	JT	9.59	0.002877	1.29
DO02A	0.0285	<b>0.457</b>	JT	0.457	0.1371	<b>0.205</b>	JT	0.205	0.205	<b>0.731</b>	JT	0.731	102	JT	102	0.0306	<b>9.9</b>	JT	9.9	0.00297	1.76
DO03A	0.0268	<b>0.359</b>	JT	0.359	0.1077	<b>0.22</b>	JT	0.22	0.22	<b>0.709</b>	JT	0.709	438	JT	438	0.1314	<b>8.5</b>	JT	8.5	0.00255	1.92
DO04A	0.0248	<b>0.35</b>	JT	0.35	0.105	<b>0.204</b>	JT	0.204	0.204	<b>1.02</b>	JT	1.02	201	JT	201	0.0603	<b>16.7</b>	JT	16.7	0.00501	1.7
DO05A	0.0223	<b>0.338</b>	JT	0.338	0.1014	<b>0.209</b>	JT	0.209	0.209	<b>0.596</b>	JT	0.596	64.7	JT	64.7	0.01941	<b>4.4</b>	JT	4.4	0.00132	1.4
EC01A	0.0032	<b>0.063</b>	JT	0.063	0.0189	<b>0.091</b>	JT	0.091	0.091	<b>0.046</b>	JT	0.046	14.7	JT	14.7	0.00441	0.836	U	0.418	0.0001254	0.331
EC02A	0.00126	<b>0.031</b>	JT	0.031	0.0093	<b>0.044</b>	NJ	0.044	0.044	0.0252	U	0.0126	5.2	JT	5.2	0.00156	0.197	U	0.0985	0.00002955	0.131
EC03A	0.116	<b>1.4</b>	JT	1.4	0.42	<b>0.472</b>	JT	0.472	0.472	<b>2.56</b>	JT	2.56	607	JT	607	0.1821	<b>60.6</b>	JT	60.6	0.01818	3.98
EC04A	0.0125	<b>0.23</b>	JT	0.23	0.069	<b>0.127</b>	JT	0.127	0.127	<b>0.357</b>	JT	0.357	200	JT	200	0.06	<b>26.8</b>	JT	26.8	0.00804	0.992
EC05A	0.0031	<b>0.049</b>	JT	0.049	0.0147	<b>0.101</b>	NJ	0.101	0.101	0.0243	U	0.01215	10.6	JT	10.6	0.00318	0.714	U	0.357	0.0001071	0.257
ED01A	0.0811	<b>1.68</b>	JT	1.68	0.504	<b>0.63</b>	JT	0.63	0.63	<b>2.88</b>	JT	2.88	1,120	JT	1120	0.336	<b>108</b>	JT	108	0.0324	6.35
ED02A	0.155	<b>3.06</b>	JT	3.06	0.918	<b>1.13</b>	JT	1.13	1.13	<b>5.17</b>	JT	5.17	1,200	JT	1200	0.36	<b>84.2</b>	JT	84.2	0.02526	10.2
ED03A	0.111	<b>2.15</b>	JT	2.15	0.645	<b>0.8</b>	JT	0.8	0.8	<b>3.52</b>	JT	3.52	1,340	JT	1340	0.402	<b>75.9</b>	JT	75.9	0.02277	8.19
ED04A	0.15	<b>2.71</b>	JT	2.71	0.813	<b>1.26</b>	JT	1.26	1.26	<b>3.66</b>	JT	3.66	1,680	JT	1680	0.504	<b>78.8</b>	JT	78.8	0.02364	10.9
ED05A	0.0281	<b>0.465</b>	JT	0.465	0.1395	<b>0.219</b>	JT	0.219	0.219	<b>0.935</b>	JT	0.935	263	JT	263	0.0789	<b>9.26</b>	JT	9.26	0.002778	1.74
EE01A	0.001245	<b>0.037</b>	NJ	0.037	0.0111	<b>0.047</b>	NJ	0.047	0.047	<b>0.052</b>	JT	0.052	7.85	JT	7.85	0.002355	<b>0.385</b>	JT	0.385	0.0001155	0.151
EE02A	0.0051	<b>0.09</b>	JT	0.09	0.027	<b>0.092</b>	JT	0.092	0.092	<b>0.105</b>	NJ	0.105	22.3	JT	22.3	0.00669	<b>1.21</b>	JT	1.21	0.000363	0.404
EE03A	0.0048	<b>0.078</b>	JT	0.078	0.0234	<b>0.075</b>	NJ	0.075	0.075	<b>0.082</b>	JT	0.082	13.5	JT	13.5	0.00405	<b>0.887</b>	JT	0.887	0.0002661	0.303
EE04A	0.001205	<b>0.034</b>	JT	0.034	0.0102	<b>0.045</b>	NJ	0.045	0.045	<b>0.076</b>	JT	0.076	6.08	JT	6.08	0.001824	<b>0.429</b>	JT	0.429	0.0001287	0.137
EE05A	0.00117	<b>0.028</b>	JT	0.028	0.0084	<b>0.041</b>	NJ	0.041	0.041	0.0234	U	0.0117	1.68	JT	1.68	0.000504	0.15	U	0.15	0.000045	0.127
EI02A	0.00124	<b>0.054</b>	NJ	0.054	0.0162	<b>0.077</b>	NJ	0.077	0.077	<b>0.067</b>	JT	0.067	13.7	JT	13.7	0.00411	<b>0.882</b>	JT	0.882	0.0002646	0.256
EI04A	0.0037	<b>0.066</b>	JT	0.066	0.0198	<b>0.045</b>	NJ	0.045	0.045	<b>0.082</b>	JT	0.082	14.1	JT	14.1	0.00423	<b>0.839</b>	JT	0.839	0.0002517	0.241
EI07A	0.0067	<b>0.121</b>	JT	0.121	0.0363	<b>0.091</b>	NJ	0.091	0.091	<b>0.177</b>	JT	0.177	26.1	JT	26.1	0.00783	<b>2.05</b>	JT	2.05	0.000615	0.472
FT01A	0.206	<b>2.75</b>	JT	2.75	0.825	<b>0.978</b>	JT	0.978	0.978	<b>3.95</b>	JT	3.95	2,260	JT	2260	0.678	<b>111</b>	JT	111	0.0333	12.5
FT04A	0.0468	<b>0.691</b>	JT	0.691	0.2073	<b>0.343</b>	JT	0.343	0.343	<b>0.956</b>	JT	0.956	589	JT	589	0.1767	<b>21</b>	JT	21	0.0063	3.27
FT06A	0.0858	<b>1.16</b>	JG	1.16	0.348	<b>0.478</b>	JG	0.478	0.478	<b>1.84</b>	JG	1.84	536	JG	536	0.1608	<b>43.5</b>	JG	43.5	0.01305	5.32
FT10A	0.107	<b>1.59</b>	JG	1.59	0.477	<b>0.657</b>	NJ	0.657	0.657	<b>2.69</b>	JG	2.69	408	JG	408	0.1224	<b>36.4</b>	JG	36.4	0.01092	6.59
FT12A	0.0274	<b>0.428</b>	JT	0.428	0.1284	<b>0.208</b>	JT	0.208	0.208	<b>0.694</b>	JT	0.694	95.5	JT	95.5	0.02865	<b>7.21</b>	JT	7.21	0.002163	1.56
FT13A	0.0312	<b>0.472</b>	JTG	0.472	0.1416	<b>0.28</b>	JG	0.28	0.28	<b>0.73</b>	JG	0.73	122	JG	122	0.0366	<b>9.12</b>	JG	9.12	0.002736	1.97
IE03A	0.0639	<b>0.904</b>	JG	0.904	0.2712	<b>0.469</b>	JG	0.469	0.469	<b>1.91</b>	JG	1.91	436	JG	436	0.1308	<b>32.7</b>	JG	32.7	0.00981	4.63
IE04A	0.062	<b>0.815</b>	JG	0.815	0.2445	<b>0.484</b>	JG	0.484	0.484	<b>1.9</b>	JG	1.9	404	JG	404	0.1212	<b>27.3</b>	JG	27.3	0.00819	4.62
IE05A	0.196	<b>2.17</b>	JG	2.17	0.651	<b>0.851</b>	JG	0.851	0.851	<b>3.61</b>	JG	3.61	1,480	JG	1480	0.444	<b>79.1</b>	JG	79.1	0.02373	9.94
IE06A	0.198	<b>2.02</b>	JG	2.02	0.606	<b>0.692</b>	JG	0.692	0.692	<b>3.48</b>	JG	3.48	1,110	JG	1110	0.333	<b>77.1</b>	JG	77.1	0.02313	9.63
IE07A	0.167	<b>1.69</b>	JG	1.69	0.507	<b>0.743</b>	JG	0.743	0.743	<b>2.85</b>	JG	2.85	950	JG	950	0.285	<b>74</b>	JG	74	0.0222	8.33
IE09A	0.87	<b>4.52</b>	JG	4.52	1.356	<b>2.61</b>	JG	2.61	2.61	<b>5.03</b>	JG	5.03	17,300	JG	17300	5.19	<b>2,190</b>	JG	2190	0.657	62.9
IE12A	0.0888	<b>0.973</b>	JG	0.973	0.2919	<b>0.475</b>	JG	0.475	0.475	<b>1.77</b>	JG	1.77	1,070	JG	1070	0.321	<b>88.7</b>	JG	88.7	0.02661	5.61
IE14A	0.0652	<b>0.777</b>	JG	0.777	0.2331	<b>0.383</b>	JG	0.383	0.383	<b>1.64</b>	JG	1.64	583	JG	583	0.1749	<b>60.7</b>	JG	60.7	0.01821	4.26
IE15A	0.133	<b>1.35</b>	JG	1.35	0.405	<b>0.652</b>	JG	0.652	0.652	<b>2.68</b>	JG	2.68	1,830	JG	1830	0.549	<b>284</b>	JG	284	0.0852	9.35
IH01A	1.59	<b>7.18</b>	JG	7.18	2.154	<b>3.72</b>	JG	3.72	3.72	<b>7.18</b>	JG	7.18	24,300	JG	24300	7.29	<b>5,420</b>	JG	5420	1.626	119
IH02A	0.58	<b>3.25</b>	JG	3.25	0.975	<b>1.76</b>	JG	1.76	1.76	<b>5.34</b>	JG	5.34	11,500	JG	11500	3.45	<b>1,220</b>	JG	1220	0.366	43.7
IH03A	0.342	<b>2.15</b>	JG	2.15	0.645	<b>0.915</b>	JG	0.915	0.915	<b>3.95</b>	JG	3.95	4,160	JG	4160	1.248	<b>282</b>	JG	282	0.0846	19.4

Table C-14. Concentrations of Dioxin and Furan Congeners in Surface Sediments

Station	2,3,4,6,7,8-HxCDF TEQ (ND=1/2DL)	2,3,4,7,8-PeCDF	Detect/ ND Result	2,3,4,7,8-PeCDF TEQ (ND=1/2DL)	2,3,7,8-TCDD	Detect/ ND Result	2,3,7,8-TCDD TEQ (ND=1/2DL)	2,3,7,8-TCDF	Detect/ ND Result	2,3,7,8-TCDF TEQ (ND=1/2DL)	OCDD	Qual	Detect/ ND Result	OCDD TEQ (ND=1/2DL)	OCDF	Qual	Detect/ ND Result	OCDF TEQ (ND=1/2DL)	Total TCDD TEQ (ND=1/2DL)
IH04A	0.181	1.2	1.2	0.36	0.53	0.53	0.53	2.34	2.34	0.234	1,950		1950	0.585	278		278	0.0834	9.79
IH05A	0.059	0.531	JK	0.531	0.1593	0.267	0.267	0.923	0.923	0.0923	1,110	JK	1110	0.333	66.4	JK	66.4	0.01992	4.46
IH06A	0.169	1.19	1.19	0.357	0.628	0.628	0.628	2.39	2.39	0.239	2,640		2640	0.792	188		188	0.0564	11.6
KP01A	0.269	3.63	3.63	1.089	1.28	1.28	1.28	4.04	4.04	0.404	2,700		2700	0.81	123		123	0.0369	15.4
KP02A	0.22	3.18	3.18	0.954	1.02	1.02	1.02	3.6	3.6	0.36	2,250		2250	0.675	204		204	0.0612	11.1
KP03A	0.0541	0.821	0.821	0.2463	0.427	0.427	0.427	0.857	0.857	0.0857	226		226	0.0678	11.4		11.4	0.00342	2.52
KP04A	0.103	1.39	1.39	0.417	0.619	0.619	0.619	1.62	1.62	0.162	510		510	0.153	41.2		41.2	0.01236	5.17
KP05A	0.142	1.92	JG	1.92	0.576	0.68	0.68	2.89	2.89	0.289	1,350	JG	1350	0.405	92.3	JG	92.3	0.02769	8.46
KP07A	0.0566	0.844	JG	0.844	0.2532	0.432	0.432	1.48	1.48	0.148	303	JG	303	0.0909	24.8	JG	24.8	0.00744	3.51
LA01A	1.14	4.57	4.57	1.371	20.6	20.6	20.6	6.69	6.69	0.669	8,780		8780	2.634	594		594	0.1782	61.6
LA02A	1.01	6.25	6.25	1.875	10.5	10.5	10.5	10.7	10.7	1.07	6,750		6750	2.025	615		615	0.1845	55.2
LA03A	1.07	4.91	4.91	1.473	44.3	44.3	44.3	8.36	8.36	0.836	8,750		8750	2.625	610		610	0.183	93.2
LP01A	0.021	0.401	JT	0.401	0.1203	0.155	0.155	0.628	0.628	0.0628	323		323	0.0969	15.6		15.6	0.00468	1.63
LP03A	0.0158	0.39	JT	0.39	0.117	0.106	0.106	0.627	0.627	0.0627	166		166	0.0498	14.7		14.7	0.00441	1.09
LP04A	0.0783	1.65	1.65	0.495	0.407	0.407	0.407	2.72	2.72	0.272	329		329	0.0987	24.6		24.6	0.00738	4.03
LP05A	0.286	6.21	6.21	1.863	1.31	1.31	1.31	7.23	7.23	0.723	3,540		3540	1.062	450		450	0.135	18.5
MA01A	0.23	1.09	1.09	0.327	0.43	0.43	0.43	0.955	0.955	0.0955	2,410		2410	0.723	107		107	0.0321	15.2
MA02A	0.182	1.49	1.49	0.447	0.679	0.679	0.679	2.87	2.87	0.287	5,000		5000	1.5	760		760	0.228	14.8
MA03A	0.26	2.09	2.09	0.627	1.02	1.02	1.02	4.37	4.37	0.437	3,590		3590	1.077	420		420	0.126	17.2
MA04A	0.151	1.19	1.19	0.357	0.445	0.445	0.445	1.78	1.78	0.178	4,090		4090	1.227	336		336	0.1008	11.5
MA05A	0.254	2.55	2.55	0.765	1.09	1.09	1.09	4.8	4.8	0.48	1,960		1960	0.588	212		212	0.0636	15.6
MD01A	0.0812	1.18	1.18	0.354	0.371	0.371	0.371	1.87	1.87	0.187	1,690		1690	0.507	82.9		82.9	0.02487	6.54
MD02A	0.132	2.66	2.66	0.798	0.837	0.837	0.837	4.49	4.49	0.449	2,750		2750	0.825	291		291	0.0873	10.7
MD03A	0.144	2.74	2.74	0.822	0.783	0.783	0.783	4.47	4.47	0.447	1,810		1810	0.543	172		172	0.0516	9.64
MD04A	0.124	1.94	1.94	0.582	0.646	0.646	0.646	3.54	3.54	0.354	3,750		3750	1.125	736		736	0.2208	9.71
MD05A	0.0229	0.382	JT	0.382	0.1146	0.145	0.145	0.561	0.561	0.0561	82.3		82.3	0.02469	7.43		7.43	0.002229	1.31
OH01A	0.0233	0.314	JT	0.314	0.0942	0.163	0.163	0.559	0.559	0.0559	69.6		69.6	0.02088	4.36		4.36	0.001308	1.31
OH02A	0.0127	0.198	JT	0.198	0.0594	0.095	0.095	0.386	0.386	0.0386	56.5		56.5	0.01695	3.24		3.24	0.000972	0.825
OH03A	0.0132	0.2	JT	0.2	0.06	0.113	0.113	0.363	0.363	0.0363	58.8		58.8	0.01764	3.87		3.87	0.001161	0.83
RF01A	0.00119	0.034	JT	0.034	0.0102	0.0238	0.0238	0.0446	0.0446	0.00446	0.839	JT	0.839	0.0002517	0.088	U	0.044	0.0000132	0.0562
RF02A	0.001205	0.029	JT	0.029	0.0087	0.0241	0.0241	0.048	0.048	0.0048	1.62		1.62	0.000486	0.158	U	0.079	0.0000237	0.0651
RF03A	0.0125	0.188	JT	0.188	0.0564	0.116	0.116	0.482	0.482	0.0482	53.7		53.7	0.01611	3.02		3.02	0.000906	0.828
RL01A	0.0074	0.238	JT	0.238	0.0714	0.093	0.093	0.385	0.385	0.0385	93.8		93.8	0.02814	8.3		8.3	0.00249	0.966
WW01A	0.0231	0.37	JT	0.37	0.111	0.165	0.165	0.528	0.528	0.0528	91.7		91.7	0.02751	6.73		6.73	0.002019	1.38

**Table C-15. Total Dioxin TEQs in Surface Sediments**

Station	Total Dioxin TEQ	Qualifier	Station	Total Dioxin TEQ	Qualifier
IE03A	4.63		LP03A	1.09	
IE04A	4.62		LP04A	4.03	
IE05A	9.94		LP05A	18.5	
IE06A	9.63		CO01A	1.29	
IE07A	8.33		CO02A	6.44	
IE09A	62.9		CO03A	0.313	
IE12A	5.61		CO04A	0.223	
IE14A	4.26		CO05A	1.04	
IE15A	9.35		MD01A	6.54	
LA01A	61.6		MD02A	10.7	
LA02A	55.2		MD03A	9.64	
LA03A	93.2		MD04A	9.71	
IH01A	119		MD05A	1.31	
IH02A	43.7		ED01A	6.35	
IH03A	19.4		ED02A	10.2	
IH04A	9.79		ED03A	8.19	
IH05A	4.46		ED04A	10.9	
IH06A	11.6		ED05A	1.74	
MA01A	15.2		WW01A	1.38	
MA02A	14.8		OH01A-R	1.31	
MA03A	17.2		OH02A	0.825	
MA04A	11.5		OH03A	0.83	
MA05A	15.6		DO01A	1.29	
BL01A	5.25		DO02A	1.76	
BL02A	3.85	JG	DO03A	1.92	
BL03A	7.47		DO04A	1.7	
BL04A	1.23		DO05A	1.4	
BL06A	5.92		EC01A	0.131	
BL08A	6.3		EC02A	0.12	
KP01A	15.4		EC03A	3.98	
KP02A	11.1		EC04A	0.992	
KP03A	2.52		EC05A	0.257	
KP04A	5.17		EE01A	0.151	
KP05A	8.46		EE02A	0.404	
KP07A	3.51		EE03A	0.303	
FT01A	12.5		EE04A	0.137	
FT04A	3.27		EE05A	0.127	
FT06A	5.32		EI02A	0.256	
FT10A	6.59		EI04A	0.241	
FT12A	1.56		EI07A	0.472	
FT13A	1.97	JG	RF01A	0.0562	
RL01A	0.966		RF02A	0.0651	
LP01A	1.63		RF03A	0.828	

Key:

- JG= Value is likely greater than the reported result. Reported result may be biased low.
- Concentrations are in ng/kg dry weight.
- Non-detected values are reported as half of the detection limit.

**Table C-16. WHO 2005 Dioxin Toxic Equivalency Factors**

<b>Chlorinated dibenzo-p-dioxins</b>	<b>TEF</b>
2,3,7,8-TCDD	1
1,2,3,7,8-PeCDD	1
1,2,3,4,7,8-HxCDD	0.1
1,2,3,6,7,8-HxCDD	0.1
1,2,3,7,8,9-HxCDD	0.1
1,2,3,4,6,7,8-HpCDD	0.01
OCDD	0.0003
<b>Chlorinated dibenzo-p-furans</b>	
2,3,7,8-TCDF	0.1
1,2,3,7,8-PeCDF	0.03
2,3,4,7,8-PeCDF	0.3
1,2,3,4,7,8-HxCDF	0.1
1,2,3,6,7,8-HxCDF	0.1
1,2,3,7,8,9-HxCDF	0.1
2,3,4,6,7,8-HxCDF	0.1
1,2,3,4,6,7,8-HpCDF	0.01
1,2,3,4,7,8,9-HpCDF	0.01
OCDF	0.0003

**Table C–B1. Sediment Grain Size in Subsurface “B” Core Sediment Samples**

Station	Sample Interval (inches)	% Fines	% Gravel	% Coarse Sand	% Very Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	% Silt	% Clay
BL02B	36–48	72	3	2.9	2.8	3.8	5.6	9.9	50	22
BL08B	12–24	61	0.3	0.6	0.3	1.1	9.2	27.5	49.7	11.3
CO02B	6–12	7.7	62.4	6.7	8.4	6.6	2.8	5.4	6	1.7
CO03B	24–36	11.8	3.8	7.9	3.8	29.2	30	13.6	8.8	2.9
CO04B	12–24	9.2	35.9	6.8	3.5	25.7	14.2	4.7	6.7	2.6
CO05B	24–36	48.9	1.6	3.3	2.5	5.9	13.2	24.7	41.2	7.7
DO04B	6–12	25.5	0.1	1	0.8	1.3	24.3	46.9	15.1	10.3
DO05B	6–12	22.7	0.8	1.4	0.8	3.3	26.4	44.6	13.8	8.9
EI02B	6–12	9.3	5.8	0.9	0.5	12.6	36.1	34.7	7.8	1.5
EC03B	12–24	60.4	0.6	2.4	2.1	4.1	8.9	21.5	44.1	16.2
EC04B	24–36	33	1.6	2.9	2.2	8.9	20.2	31.2	25.4	7.5
ED01B	12–24	19.4	18.6	14.8	6.9	23.1	10.8	6.3	14.5	4.9
ED02B	6–18	24	0.4	7.9	1.1	26.6	24.6	15.4	19.9	4.1
ED03B	36–48	30.4	43.4	4.4	2.5	7.4	5.6	6.2	21.8	8.5
ED04B	12–24	76.3	3.2	2.2	2.4	2.6	4	9.1	56.6	19.8
ED05B	6–12	23.8	6.6	4.4	4.5	18.3	26.8	15.5	17.5	6.4
EE01B	12–24	0.7	67	8.5	16	6.4	1.2	0.1	0	0
EE02B	6–12	9.9	9.8	11.5	7.7	26.6	22.6	12	7.9	2.2
EE03B	6–12	6.5	1.2	3.9	0.9	37.3	42.7	7.5	4.7	1.8
EE04B	6–12	0.1	75.7	1.6	5.2	5.8	7.8	3.7	0	0
FT04B	12–24	63.1	0.5	2.1	1	4.2	8.9	20.3	52.1	11
FT06B	12–24	24.5	3.3	5.1	1.4	13.6	27.2	24.9	19	5.7
FT12B	6–12	21.9	1.4	0.3	0.6	0.8	29.7	45.3	15.1	6.8
IE01B	30–42	39.2	13.8	6.4	9.4	7	15.6	8.6	22.7	16.6
IE05B	12–24	65.6	7.4	5.3	4.9	6.3	5.3	5.2	39.9	25.7
IE09B	36–48	35.2	18.2	9.8	10.5	10.4	8.5	7.2	16.5	18.7
IE12B	12–24	71.7	11.9	3.1	4	3.4	1.9	4	43.3	28.5
IE14B	12–24	76.7	7.5	2.9	2.2	4.1	1.9	4.5	48.7	28.1
IE16B	12–24	61.7	0.7	0.4	0.2	0.6	3.3	33.1	50.6	11.1
IH02B	12–24	52.7	6	9.1	17.7	7.8	3.9	2.8	29	23.7
IH06B	12–24	34.2	15.7	5.4	12.1	5.3	9.5	17.8	22.9	11.2
KP02B	12–24	55.4	5.5	5.7	8	5.9	7.5	12	37.6	17.7
KP03B	24–36	30.2	0.9	2.7	2.1	15.5	30.8	17.7	22.1	8.1
KP07B	12–24	61.1	0.3	0.3	0.3	0.6	7.2	30.1	49.5	11.5
KP08B	36–48	30.3	13.4	5.2	3.7	15.8	17.7	13.9	19.5	10.8
LA02B	24–36	18.5	9.4	17.9	10.2	29	11.5	3.4	11.1	7.3
LP05B	6–12	35.2	14.7	11.7	9.6	12.8	9.4	6.6	20.4	14.8
MA02B	6–12	60.4	17.6	4.4	6.7	3.7	3.1	4.1	40.2	20.3
MD01B	6–12	13.1	57.3	6.1	6.9	8.4	3.5	4.8	10.7	2.5
MD02B	12–24	60.4	4.5	6.9	5.4	7.2	5.8	9.7	44.2	16.2
MD03B	48–60	25.6	21	10.5	7.3	19	10.8	5.8	18.2	7.4
MD04B	6–18	19.9	37.7	9.1	6.9	14.4	7.2	4.9	13.5	6.5
MD05B	4–10	6.4	20.8	20.6	16.8	22.6	9.6	3.3	4.1	2.3

**Table C–B2. Total Organic Carbon Content of Subsurface “B” Core Sediment Samples**

Station	Sample Interval (inches)	% TOC	Qualifier	Station	Sample Interval (inches)	% TOC	Qualifier
IE01B	30–42	14.8		CO04B	12–24	1.12	
IE05B	12–24	11.7		CO05B	24–36	3.4	JK
IE09B	36–48	78.5		MD01B	6–12	1.88	
IE12B	12–24	5.76		MD02B	12–24	5.12	
IE14B	12–24	3.61		MD03B	48–60	2.86	
IE16B	12–24	0.656		MD04B	6–18	1.22	
LA02B	24–36	4.41		MD05B	4–10	0.803	
IH02B	12–24	23.1		ED01B	24–36	0.712	
IH06B	12–24	4.85		ED02B	12–24	0.548	
MA02B	6–12	5.84		ED03B	6–18	3.46	
BL02B	36–48	3.41		ED04B	36–48	4.21	
BL08B	12–24	0.483		ED05B	12–24	3.71	JK
KP02B	12–24	8.7		DO04B	6–12	0.695	
KP03B	24–36	3.12		DO05B	6–12	0.539	
KP07B	12–24	0.529		EC03B	6–12	2.3	JK
KP08B	36–48	0.749		EC04B	12–24	3.11	JK
FT04B	12–24	1.39		EE01B	6–12	0.25	JK
FT06B	12–24	0.463		EE02B	12–24	0.583	
FT12B	6–12	0.843		EE03B	6–12	0.498	JK
LP05B	6–12	13.9		EE04B	6–12	0.63	
CO02B	6–12	1.27		EI02B	6–12	0.207	
CO03B	24–36	1.27					

Key:

JK = Analyte was positively identified. Reported result is an estimate with unknown bias.

**Table C–B3. Concentrations of Sulfide and Ammonia in Subsurface “B” Core Sediment Samples**

Station	Sample Interval (inches)	Sulfide (mg/kg dw)	Qualifier	Ammonia (mg/kg dw)	Qualifier
BL02B	36–48	496	JG	73.5	
DO04B	6–12	392		3.03	
DO05B	6–12	87.8		2.47	
EI02B	6–12	33.6		0.67	
IE01B	30–42	790		46.2	
IE05B	12–24	1030		46.5	
IE09B	36–48	342		282	
IE12B	12–24	966		63.4	
IE14B	12–24	809		112	
IE16B	12–24	3.62	JK	13.9	
IH02B	12–24	1110		19.7	
IH06B	12–24	494	JG	27	
KP08B	36–48	84.2		3.35	
LA02B	24–36	73.6		25.1	
LP05B	6–12	1050		24.3	
MD01B	6–12	281		2.89	
MD02B	12–24	NA		309	
MD03B	48–60	122		30.8	
MD04B	6–18	177		3.13	
MD05B	4–10	1.22	JK	2.93	

Note: There were no data qualifiers for Ammonia.

Key:

dw = dry weight

JG = The associated estimated positive result has a likely low bias.

JK = Analyte was positively identified. Reported result is an estimate with unknown bias.

mg/kg = milligrams per kilogram

Table C-B4. Concentrations of Metals in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	Arsenic (mg/kg dw)		Antimony (mg/kg dw)		Barium (mg/kg dw)		Cadmium (mg/kg dw)		Chromium (mg/kg dw)		Copper (mg/kg dw)		Lead (mg/kg dw)		Mercury (mg/kg dw)		Nickel (mg/kg dw)		Silver (mg/kg dw)		Zinc (mg/kg dw)	
		Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
BL02B	36-48	6.20		0.48	U	39		1.30		40.00		44.00		17.00		0.370		41		0.16	JT	110.00	
BL08B	12-24	4.90		0.43	JL	24		0.13	JT	28.00		18.00		5.20		0.026	JT	24		0.08	JT	53.00	
CO02B	6-12	2.00		0.0026	U	4.4		0.11	JT	8.90		8.20		2.80		0.029		12		0.02	JT	16.00	
CO03B	24-36	2.30		0.52		15		0.03	JT	28.00		41.00		13.00		0.055		34		0.07	JT	49.00	
CO04B	12-24	4.10		0.24	JT	19		0.0007	U	35.00		34.00		4.80		0.035		40		0.07	JT	48.00	
CO05B	24-36	4.40		0.56		31		0.33	JT	39.00		56.00		32.00		0.079		41		0.15	JT	68.00	
DO04B	6-12	5.30		0.22	JT	20		0.22	JT	25.00		18.00		6.90		0.036		22		0.06	JT	59.00	
DO05B	6-12	4.80		0.19	JT	16		0.22	JT	24.00		14.00		4.60		0.032		21		0.05	JT	51.00	
EC03B	6-12	5.30		0.75		30		0.81		42.00		59.00		33.00		0.320		40		0.20	JT	83.00	
EC04B	12-24	5.20		0.34	JT	26		0.36		38.00		38.00		11.00		0.066		40		0.12	JT	61.00	
ED01B	24-36	14.00		0.31		35		0.0004	U	39.00		41.00		3.00		0.046		50		0.11	JT	49.00	
ED02B	12-24	4.10		0.28		21		0.46		26.00		26.00		3.40		0.027		29		0.07	JT	33.00	
ED03B	6-18	6.40		0.42	U	22		0.72		38.00		40.00		16.00		0.099		38		0.14	JT	64.00	
ED04B	36-48	9.00		0.47	U	34		0.77		51.00		55.00		22.00		0.140		49		0.20	JT	84.00	
ED05B	12-24	4.70		0.31	JT	14		0.31	JT	34.00		36.00		11.00		0.059		35		0.08	JT	53.00	
EE01B	6-12	2.40		0.099	JT	4.9		0.007	JT	23.00		21.00		2.30		0.009	U	26		0.02	JT	23.00	
EE02B	12-24	3.10		0.11	JT	11		0.180	JT	26.00		23.00		4.00		0.015	JT	32		0.05	JT	40.00	
EE03B	6-12	2.20		0.16	JT	7.5		0.024	JT	22.00		20.00		4.30		0.029		25		0.06	JT	33.00	
EE04B	6-12	2.30		0.44		5.1		0.053	JT	17.00		18.00		3.10		0.039		20		0.02	JT	25.00	
EI02B	6-12	2.50		0.0026	U	8.20		0.044	JT	17.00		11.00		2.80		0.036		20		0.03	JT	27.00	
FT04B	12-24	7.10		1.2		34		0.380		31.00		34.00		24.00		0.130		30		0.18	JT	78.00	
FT06B	12-24	4.00		0.19	U	12		0.095	JT	23.00		11.00		3.50		0.028		20		0.05	JT	37.00	
FT12B	6-12	3.50		0.21	JT	12		0.089	JT	20.00		14.00		3.20		0.042		19		0.05	JT	39.00	
IE01B	30-42	5.50		0.44	U	32		1.20		33.00		34.00		17.00		0.160		27		0.16	JT	79.00	
IE05B	12-24	7.60		1.5		37		1.70		36.00		50.00		38.00		0.860		28		0.20	JT	130.00	
IE09B	36-48	4.30		0.011	U	15		0.97	JT	11.00		71.00		38.00		0.250		9		0.15	JT	150.00	
IE12B	12-24	9.90		0.6		47		1.20		42.00		40.00		21.00		0.200		32		0.22	JT	110.00	
IE14B	12-24	6.80		0.41	U	44		0.64		40.00		36.00		16.00		0.130		30		0.21	JT	93.00	
IE16B	12-24	5.10		0.16	JT	25		0.40		26.00		16.00		4.40		0.035		22		0.08	JT	55.00	
IH02B	12-24	9.80		1.3		16		12.00		26.00		130.00		75.00		8.900		19		0.15	JT	1,900.00	
IH06B	12-24	7.80		0.78		16		3.10		32.00		53.00		54.00		0.530		24		0.19	JT	310.00	
KP02B	12-24	6.00		0.32	JT	28		1.30		30.00		37.00		20.00		0.360		27		0.29	JT	100.00	
KP03B	24-36	4.90		0.26		21		0.32		28.00		28.00		13.00		0.063		28		0.10	JT	57.00	
KP07B	12-24	5.20		0.24	U	26		0.12	JT	29.00		18.00		5.10		0.035		25		0.08	JT	56.00	
KP08B	36-48	4.90		0.23	U	21		0.049	JT	35.00		16.00		3.60		0.035		29		0.06	JT	41.00	
LA02B	24-36	5.40		0.26	JT	9.60		1.70		23.00		27.00		6.50		0.083		23		0.07	JT	64.00	
MA02B	6-12	9.20		0.43	JT	35		1.80		38.00		47.00		21.00		0.250		30		0.25	JT	170.00	
SQS		57.00		NA		NA		5.10		260.00		390.00		450.00		0.410		NA		6.10		410.00	
CSL		93.00		NA		NA		6.70		270.00		390.00		530.00		0.590		NA		6.10		960.00	
LAET		57.00		150		NA		5.10		260.00		390.00		450.00		0.410		140		6.10		410.00	

Exceeds SQS criteria

Exceeds CSL criteria

Key:

**Bold** = Analyte was detected.

JT = Analyte was positively identified. Value may be less than the reported estimate.

mg/kg = milligrams per kilogram

SMS = Sediment Management Standards

U = Analyte was not detected at or above the reported result.



**Table C–B5. Concentrations of TPH Compounds in Subsurface B Core Sediment Samples**

Station	Sample Interval (inches)	#2 Diesel (mg/kg DW)		Motor Oil (mg/kg DW)	
		Result	Qualifier	Result	Qualifier
CO02B	6–12	<b>41</b>		<b>37</b>	JT
CO03B	24–36	<b>48</b>		<b>93</b>	
CO04B	12–24	<b>8.7</b>	JT	<b>22</b>	JT
CO05B	24–36	<b>340</b>		<b>810</b>	
EC03B	6–12	<b>300</b>		<b>940</b>	
EC04B	12–24	<b>61</b>		<b>330</b>	
ED01B	24–36	<b>12</b>	JT	<b>24</b>	JT
ED02B	12–24	8.6	U	<b>7.8</b>	JT
ED03B	6–18	<b>63</b>		<b>170</b>	
ED04B	36–48	<b>84</b>		<b>180</b>	
ED05B	12–24	<b>360</b>		<b>820</b>	
EE01B	6–12	<b>15</b>	JT	6.1	U
EE02B	12–24	<b>7.7</b>	JT	<b>17</b>	JT
EE03B	6–12	<b>8.5</b>	JT	<b>14</b>	JT
EE04B	6–12	<b>9</b>	JT	<b>18</b>	JT
FT04B	12–24	<b>100</b>		<b>310</b>	
IE01B	30–42	<b>48</b>	JT	<b>98</b>	JT
IE05B	12–24	<b>75</b>	JT	<b>300</b>	
IE09B	36–48	<b>1,300</b>		<b>3,100</b>	
IH02B	12–24	<b>340</b>		<b>1,600</b>	
IH06B	12–24	<b>260</b>		<b>1,200</b>	
KP02B	12–24	<b>200</b>		<b>1,200</b>	
KP03B	24–36	<b>35</b>	JT	<b>260</b>	
LA02B	24–36	<b>42</b>		<b>200</b>	
MA02B	6–12	<b>260</b>		<b>390</b>	
MD01B	6–12	<b>31</b>	JT	<b>69</b>	
MD02B	12–24	<b>280</b>		<b>830</b>	
MD03B	48–60	33	U	<b>88</b>	
MD04B	6–18	21	U	<b>54</b>	JT
MD05B	4–10	6.6	U	6.6	U

Key:

**Bold** = Analyte was detected

dw = dry weight

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

mg/kg = milligrams per kilogram

U = Analyte was not detected at or above the reported result.

Table C-B6. Concentrations of LPAH and HPAH Compounds in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	% TOC	2-Methylnaphthalene			Acenaphthene			Acenaphthylene			Anthracene			Fluorene			Naphthalene		
			Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier
BL02B	36-48	3.41	11	0.32	JT	8.2	0.24	U	12	0.35	JT	40	1.17		14	0.41	JT	35	1.03	
BL08B	12-24	0.483	8	1.66	U	8	1.66	U	8.5	1.76	U	7.6	1.57	U	8.8	1.82	U	8.5	1.76	U
CO02B	6-12	1.27	8	0.63	U	8	0.63	U	8.5	0.67	U	11	0.87	JT	8.7	0.69	U	8.5	0.67	U
CO03B	24-36	1.27	8.1	0.64	U	160	12.60		8.5	0.67	U	46	3.62		14	1.10	JT	17	1.34	JT
CO04B	12-24	1.12	8	0.71	U	8	0.71	U	8.4	0.75	U	7.5	0.67	U	8.7	0.78	U	8.4	0.75	U
CO05B	24-36	3.4	11	0.32	JT	32	0.94		8.4	0.25	U	21	0.62		29	0.85		20	0.59	
DO04B	6-12	0.695	8.2	1.18	U	8.2	1.18	U	8.6	1.24	U	7.7	1.11	U	8.9	1.28	U	8.7	1.25	U
DO05B	6-12	0.539	8	1.48	U	8	1.48	U	8.5	1.58	U	7.6	1.41	U	8.8	1.63	U	8.5	1.58	U
EC03B	6-12	2.3	510	22.17		1100	47.83		10	0.43	JT	200	8.70		920	40.00		880	38.26	
EC04B	12-24	3.11	7.9	0.25	U	8	0.26	U	8.4	0.27	U	13	0.42	JT	8.7	0.28	U	8.4	0.27	U
ED01B	24-36	0.712	8	1.12	U	8.1	1.14	U	8.5	1.19	U	7.6	1.07	U	8.8	1.24	U	8.5	1.19	U
ED02B	12-24	0.548	8.2	1.50	U	8.2	1.50	U	8.6	1.57	U	7.7	1.41	U	8.9	1.62	U	8.6	1.57	U
ED03B	6-18	3.46	8.2	0.24	U	8.2	0.24	U	22	0.64		120	3.47		25	0.72		42	1.21	
ED04B	36-48	4.21	8	0.19	U	8.1	0.19	U	13	0.31	JT	50	1.19		13	0.31	JT	8.5	0.20	U
ED05B	12-24	3.71	19	0.51	JT	48	1.29		15	0.40	JT	120	3.23		30	0.81		26	0.70	
EE01B	6-12	0.25	8.1	3.24	U	8.1	3.24	U	8.6	3.44	U	7.6	3.04	U	8.8	3.52	U	8.6	3.44	U
EE02B	12-24	0.583	8.1	1.39	U	8.1	1.39	U	8.5	1.46	U	7.6	1.30	U	8.8	1.51	U	8.5	1.46	U
EE03B	6-12	0.498	7.9	1.59	U	8	1.61	U	8.4	1.69	U	7.5	1.51	U	8.7	1.75	U	8.4	1.69	U
EE04B	6-12	0.63	7.9	1.25	U	8	1.27	U	8.4	1.33	U	7.5	1.19	U	8.7	1.38	U	8.4	1.33	U
EI02B	6-12	0.207	8.1	3.91	U	8.1	3.91	U	8.5	4.11	U	7.6	3.67	U	8.8	4.25	U	8.6	4.15	U
FT04B	12-24	1.39	8.2	0.59	U	8.2	0.59	U	8.6	0.62	U	59	4.24		26	1.87		32	2.30	
FT06B	12-24	0.463	8	1.73	U	8	1.73	U	8.5	1.84	U	7.6	1.64	U	8.8	1.90	U	8.5	1.84	U
FT12B	6-12	0.843	8	0.95	U	8	0.95	U	8.4	1.00	U	7.5	0.89	U	8.7	1.03	U	8.4	1.00	U
IE01B	30-42	14.8	14	0.09	JT	8.2	0.06	U	17	0.11	JT	21	0.14		15	0.10	JT	57	0.39	
IE05B	12-24	11.7	39	0.33		23	0.20		31	0.26		49	0.42		33	0.28		260	2.22	
IE09B	36-48	78.5	73	0.09		88	0.11		8.6	0.01	U	130	0.17	JK	110	0.14		110	0.14	
IE12B	12-24	5.76	24	0.42		8.1	0.14	U	15	0.26	JT	25	0.43		19	0.33	JT	25	0.43	
IE14B	12-24	3.61	43	1.19		13	0.36	JT	16	0.44	JT	34	0.94		22	0.61		27	0.75	
IE16B	12-24	0.656	8.2	1.25	U	8.2	1.25	U	8.6	1.31	U	7.7	1.17	U	8.9	1.36	U	8.7	1.33	U
IH02B	12-24	23.1	24	0.10		17	0.07	JT	13	0.06	JT	7.7	0.03	U	20	0.09		64	0.28	
IH06B	12-24	4.85	16	0.33	JT	12	0.25	JT	16	0.33	JT	310	6.39		47	0.97		31	0.64	
KP02B	12-24	8.7	8.1	0.09	U	12	0.14	JT	14	0.16	JT	45	0.52		12	0.14	JT	28	0.32	
KP03B	24-36	3.12	8.2	0.26	U	8.2	0.26	U	19	0.61	JT	50	1.60		11	0.35	JT	8.7	0.28	U
KP07B	12-24	0.529	8.1	1.53	U	8.1	1.53	U	8.6	1.63	U	7.7	1.46	U	8.9	1.68	U	8.6	1.63	U
KP08B	36-48	0.749	8	1.07	U	8	1.07	U	8.5	1.13	U	7.6	1.01	U	8.8	1.17	U	8.5	1.13	U
LA02B	24-36	4.41	8.1	0.18	U	8.1	0.18	U	8.5	0.19	U	7.6	0.17	U	8.8	0.20	U	41	0.93	
LP05B	6-12	13.9	34	0.24		190	1.37		12	0.09	JT	220	1.58		140	1.01		41	0.29	
MA02B	6-12	5.84	18	0.31	JT	18	0.31	JT	21	0.36		91	1.56		28	0.48		20	0.34	
MD01B	6-12	1.88	8	0.43	U	8	0.43	U	8.4	0.45	U	27	1.44		10	0.53	JT	8.4	0.45	U
MD02B	12-24	5.12	28	0.55		56	1.09		18	0.35	JT	68	1.33		49	0.96		89	1.74	
MD03B	48-60	2.86	13	0.45	JT	21	0.73		16	0.56	JT	48	1.68		29	1.01		75	2.62	
MD04B	6-18	1.22	8.1	0.66	U	8.1	0.66	U	8.5	0.70	U	26	2.13		12	0.98	JT	24	1.97	
MD05B	4-10	0.803	8.2	1.02	U	8.2	1.02	U	8.6	1.07	U	7.7	0.96	U	8.9	1.11	U	8.7	1.08	U
SQS (mg/kg OC)				38			16			66			220			23			99	
CSL (mg/kg OC)				64			57			66			1200			79			170	
LAET (ug/kg DW)				670			500			560			960			540			2100	

Exceeds SQS/LAET criteria

Result = Dry weight concentrations are in µg/kg (ppb).

TOC-Norm = concentrations are in mg/kg TOC

Key:

**Bold** = Analyte was detected.

µg/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

JT = The associated estimated positive result is less than the reporting limit.

JK = The associated estimated positive result has a likely unknown bias.

JL = The associated estimated positive result has a likely high bias.

UJK = The associated estimated sample quantitation limit has a likely unknown bias.

UJL = The associated estimated sample quantitation limit has a likely high bias.

U = Analyte was not detected at or above the reported result.

NJ = The associated estimated positive result is tentatively identified.

UJG = The associated estimated sample quantitation limit has a likely low bias.

Table C-B6. Concentrations of LPAH and HPAH Compounds in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	% TOC	Phenanthrene			Benzo(b)fluoranthene			Benzo(k)fluoranthene			Benz[a]anthracene			Benzo(a)pyrene			Benzo(g,h,i)perylene		
			Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier
BL02B	36-48	3.41	61	1.79		62	1.82		64	1.88		53	1.55	JG	45	1.32		6.7	0.20	U
BL08B	12-24	0.483	11	2.28	JT	9.3	1.93	U	9.1	1.88	U	5.8	1.20	U	8	1.66	U	6.6	1.37	U
CO02B	6-12	1.27	30	2.36		24	1.89		14	1.10	JT	17	1.34	JT	12	0.94	JT	6.6	0.52	U
CO03B	24-36	1.27	100	7.87		18	1.42	JT	16	1.26	JT	24	1.89		18	1.42	JT	13	1.02	JT
CO04B	12-24	1.12	8.2	0.73	U	9.2	0.82	U	9	0.80	U	5.7	0.51	U	7.9	0.71	U	6.6	0.59	U
CO05B	24-36	3.4	160	4.71		34	1.00		33	0.97		40	1.18		27	0.79		11	0.32	JT
DO04B	6-12	0.695	18	2.59	JT	9.5	1.37	U	9.2	1.32	U	5.9	0.85	U	8.1	1.17	U	6.7	0.96	UJK
DO05B	6-12	0.539	8.2	1.52	U	9.3	1.73	U	9	1.67	U	5.8	1.08	U	8	1.48	U	6.6	1.22	UJK
EC03B	6-12	2.3	2700	117.39		82	3.57		81	3.52		140	6.09		62	2.70		18	0.78	JT
EC04B	12-24	3.11	26	0.84		41	1.32		37	1.19		30	0.96		28	0.90		13	0.42	JT
ED01B	24-36	0.712	8.2	1.15	U	9.3	1.31	U	9.1	1.28	U	5.8	0.81	U	8	1.12	U	6.6	0.93	U
ED02B	12-24	0.548	8.4	1.53	U	9.5	1.73	U	9.2	1.68	U	5.9	1.08	U	8.1	1.48	U	6.7	1.22	U
ED03B	6-18	3.46	120	3.47		250	7.23		210	6.07		180	5.20	JL	150	4.34		6.7	0.19	U
ED04B	36-48	4.21	55	1.31		130	3.09		87	2.07		96	2.28		75	1.78		17	0.40	JT
ED05B	12-24	3.71	380	10.24		230	6.20		280	7.55		270	7.28		240	6.47		67	1.81	
EE01B	6-12	0.25	8.3	3.32	U	9.4	3.76	U	9.1	3.64	U	5.8	2.32	U	8.1	3.24	U	6.7	2.68	U
EE02B	12-24	0.583	19	3.26	JT	11	1.89	JT	9.1	1.56	U	5.8	0.99	U	8	1.37	U	6.6	1.13	U
EE03B	6-12	0.498	18	3.61	JT	9.2	1.85	U	9	1.81	U	5.7	1.14	U	7.9	1.59	U	6.5	1.31	U
EE04B	6-12	0.63	9.9	1.57	JT	9.2	1.46	U	9	1.43	U	5.7	0.90	U	7.9	1.25	U	6.5	1.03	U
EI02B	6-12	0.207	8.3	4.01	U	9.4	4.54	U	9.1	4.40	U	5.8	2.80	U	8.1	3.91	U	6.7	3.24	U
FT04B	12-24	1.39	200	14.39		150	10.79		140	10.07		130	9.35		110	7.91		30	2.16	
FT06B	12-24	0.463	8.2	1.77	U	9.3	2.01	U	9.1	1.97	U	5.8	1.25	U	8	1.73	U	6.6	1.43	U
FT12B	6-12	0.843	8.1	0.96	U	9.2	1.09	U	9	1.07	U	5.7	0.68	U	7.9	0.94	U	6.6	0.78	U
IE01B	30-42	14.8	88	0.59		44	0.30		32	0.22		32	0.22		41	0.28		19	0.13	JT
IE05B	12-24	11.7	210	1.79		79	0.68		75	0.64		60	0.51		75	0.64		35	0.30	
IE09B	36-48	78.5	440	0.56		51	0.06	JG	36	0.05	JG	27	0.03	JK	20	0.03	JT	6.7	0.01	U
IE12B	12-24	5.76	66	1.15		57	0.99		46	0.80		44	0.76		38	0.66		18	0.31	JT
IE14B	12-24	3.61	62	1.72		53	1.47		37	1.02		41	1.14		38	1.05		12	0.33	JT
IE16B	12-24	0.656	8.4	1.28	U	9.5	1.45	U	9.2	1.40	U	5.9	0.90	U	8.1	1.23	U	6.7	1.02	U
IH02B	12-24	23.1	150	0.65		42	0.18	JL	51	0.22	JL	37	0.16		78	0.34	JL	32	0.14	
IH06B	12-24	4.85	81	1.67		100	2.06		140	2.89		130	2.68	NJ	73	1.51		22	0.45	
KP02B	12-24	8.7	51	0.59		83	0.95		86	0.99		78	0.90		58	0.67		16	0.18	JT
KP03B	24-36	3.12	68	2.18		200	6.41		320	10.26		200	6.41		170	5.45		29	0.93	
KP07B	12-24	0.529	8.3	1.57	U	9.4	1.78	U	9.2	1.74	U	5.9	1.12	U	8.1	1.53	U	6.7	1.27	U
KP08B	36-48	0.749	8.2	1.09	U	9.3	1.24	U	9.1	1.21	U	5.8	0.77	U	8	1.07	U	6.6	0.88	U
LA02B	24-36	4.41	27	0.61		9.4	0.21	U	9.1	0.21	U	5.8	0.13	U	8	0.18	U	6.6	0.15	U
LP05B	6-12	13.9	390	2.81		180	1.29		190	1.37		300	2.16		130	0.94		30	0.22	
MA02B	6-12	5.84	110	1.88		220	3.77		250	4.28		140	2.40	JG	130	2.23		18	0.31	JT
MD01B	6-12	1.88	55	2.93		220	11.70		90	4.79		150	7.98		86	4.57		27	1.44	
MD02B	12-24	5.12	310	6.05		110	2.15		100	1.95		100	1.95		84	1.64		22	0.43	
MD03B	48-60	2.86	150	5.24		80	2.80		65	2.27		61	2.13		62	2.17		14	0.49	JT
MD04B	6-18	1.22	50	4.10		88	7.21		51	4.18		36	2.95		42	3.44		6.6	0.54	U
MD05B	4-10	0.803	8.4	1.05	U	9.5	1.18	U	9.2	1.15	U	5.9	0.73	U	8.1	1.01	U	6.7	0.83	U
SQS (mg/kg OC)				100			NA			NA			110			99			31	
CSL (mg/kg OC)				480			NA			NA			270			210			78	
LAET (ug/kg DW)				1500			NA			NA			1300			1600			670	

Exceeds SQS/LAET criteria

Result = Dry weight concentrations are in µg/kg (ppb).

TOC-Norm = concentrations are in mg/kg TOC

Key:

- Bold** = Analyte was detected.
- µg/kg = micrograms per kilogram
- mg/kg = milligrams per kilogram
- JT = The associated estimated positive result is less than the reporting limit.
- JK = The associated estimated positive result has a likely unknown bias.
- JL = The associated estimated positive result has a likely high bias.
- UJK = The associated estimated sample quantitation limit has a likely unknown bias.
- UJL = The associated estimated sample quantitation limit has a likely high bias.
- U = Analyte was not detected at or above the reported result.
- NJ = The associated estimated positive result is tentatively identified.
- UJG = The associated estimated sample quantitation limit has a likely low bias.

Table C-B6. Concentrations of LPAH and HPAH Compounds in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	% TOC	Chrysene			Dibenzo(a,h)anthracene			Fluoranthene			Indeno(1,2,3-cd)pyrene			Benzo(b + k)fluoranthene			Pyrene		
			Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier
BL02B	36-48	3.41	<b>86</b>	<b>2.52</b>	JG	8.5	0.25	U	<b>200</b>	<b>5.87</b>		8.6	0.25	U	<b>126</b>	<b>3.70</b>		<b>180</b>	<b>5.28</b>	JG
BL08B	12-24	0.483	6.5	1.35	U	8.4	1.74	U	<b>16</b>	<b>3.31</b>	JT	8.4	1.74	U	9.3	1.93	U	<b>16</b>	<b>3.31</b>	JT
CO02B	6-12	1.27	<b>29</b>	<b>2.28</b>		8.4	0.66	U	<b>60</b>	<b>4.72</b>		8.4	0.66	U	<b>38</b>	<b>2.99</b>		<b>55</b>	<b>4.33</b>	
CO03B	24-36	1.27	<b>32</b>	<b>2.52</b>		8.4	0.66	U	<b>120</b>	<b>9.45</b>		8.5	0.67	U	<b>34</b>	<b>2.68</b>		<b>87</b>	<b>6.85</b>	
CO04B	12-24	1.12	6.4	0.57	U	8.3	0.74	U	<b>16</b>	<b>1.43</b>	JT	8.4	0.75	U	9.2	0.82	U	<b>15</b>	<b>1.34</b>	JT
CO05B	24-36	3.4	<b>56</b>	<b>1.65</b>		8.3	0.24	U	<b>180</b>	<b>5.29</b>		<b>10</b>	<b>0.29</b>	JT	<b>67</b>	<b>1.97</b>		<b>160</b>	<b>4.71</b>	
DO04B	6-12	0.695	6.6	0.95	U	8.5	1.22	UJK	<b>15</b>	<b>2.16</b>	JT	8.6	1.24	U	9.5	1.37	U	<b>15</b>	<b>2.16</b>	JT
DO05B	6-12	0.539	6.5	1.21	U	8.4	1.56	UJK	7.7	1.43	U	8.4	1.56	U	9.3	1.73	U	7.6	1.41	U
EC03B	6-12	2.3	<b>160</b>	<b>6.96</b>		8.5	0.37	U	<b>1000</b>	<b>43.48</b>		<b>12</b>	<b>0.52</b>	JT	<b>163</b>	<b>7.09</b>		<b>660</b>	<b>28.70</b>	
EC04B	12-24	3.11	<b>55</b>	<b>1.77</b>		8.3	0.27	U	<b>88</b>	<b>2.83</b>		<b>13</b>	<b>0.42</b>	JT	<b>78</b>	<b>2.51</b>		<b>67</b>	<b>2.15</b>	
ED01B	24-36	0.712	6.5	0.91	U	8.4	1.18	U	7.8	1.10	U	8.4	1.18	U	9.3	1.31	U	7.6	1.07	U
ED02B	12-24	0.548	6.6	1.20	U	8.5	1.55	U	<b>22</b>	<b>4.01</b>		8.6	1.57	U	<b>9.5</b>	<b>1.73</b>		7.7	1.41	U
ED03B	6-18	3.46	<b>280</b>	<b>8.09</b>	JL	8.5	0.25	U	<b>340</b>	<b>9.83</b>		<b>21</b>	<b>0.61</b>		<b>460</b>	<b>13.29</b>		<b>370</b>	<b>10.69</b>	JL
ED04B	36-48	4.21	<b>190</b>	<b>4.51</b>		8.4	0.20	U	<b>270</b>	<b>6.41</b>		<b>18</b>	<b>0.43</b>	JT	<b>217</b>	<b>5.15</b>		<b>220</b>	<b>5.23</b>	
ED05B	12-24	3.71	<b>360</b>	<b>9.70</b>		<b>33</b>	<b>0.89</b>		<b>810</b>	<b>21.83</b>		<b>70</b>	<b>1.89</b>		<b>510</b>	<b>13.75</b>		<b>650</b>	<b>17.52</b>	
EE01B	6-12	0.25	6.6	2.64	U	8.5	3.40	U	<b>10</b>	<b>4.00</b>	JT	8.5	3.40	U	9.4	3.76	U	<b>13</b>	<b>5.20</b>	JT
EE02B	12-24	0.583	<b>12</b>	<b>2.06</b>	JT	8.4	1.44	UJK	<b>23</b>	<b>3.95</b>		8.4	1.44	U	<b>11</b>	<b>1.89</b>	JT	<b>31</b>	<b>5.32</b>	
EE03B	6-12	0.498	<b>12</b>	<b>2.41</b>	JT	8.3	1.67	U	<b>25</b>	<b>5.02</b>		8.3	1.67	U	<b>9.2</b>	<b>1.85</b>		<b>25</b>	<b>5.02</b>	
EE04B	6-12	0.63	6.4	1.02	U	8.3	1.32	U	<b>14</b>	<b>2.22</b>	JT	8.3	1.32	U	9.2	1.46	U	<b>14</b>	<b>2.22</b>	JT
EI02B	6-12	0.207	6.6	3.19	U	8.4	4.06	U	7.8	3.77	U	8.5	4.11	U	9.4	4.54	U	7.7	3.72	U
FT04B	12-24	1.39	<b>210</b>	<b>15.11</b>		8.5	0.61	U	<b>410</b>	<b>29.50</b>		<b>32</b>	<b>2.30</b>		<b>290</b>	<b>20.86</b>		<b>310</b>	<b>22.30</b>	
FT06B	12-24	0.463	6.5	1.40	U	8.4	1.81	U	7.8	1.68	U	8.4	1.81	U	9.3	2.01	U	7.6	1.64	U
FT12B	6-12	0.843	6.4	0.76	U	8.3	0.98	U	7.7	0.91	U	8.3	0.98	U	9.2	1.09	U	7.5	0.89	U
IE01B	30-42	14.8	<b>41</b>	<b>0.28</b>		8.5	0.06	U	<b>120</b>	<b>0.81</b>		<b>14</b>	<b>0.09</b>	JT	<b>76</b>	<b>0.51</b>		<b>130</b>	<b>0.88</b>	
IE05B	12-24	11.7	<b>90</b>	<b>0.77</b>		8.4	0.07	U	<b>220</b>	<b>1.88</b>		<b>24</b>	<b>0.21</b>		<b>154</b>	<b>1.32</b>		<b>280</b>	<b>2.39</b>	
IE09B	36-48	78.5	<b>100</b>	<b>0.13</b>	JK	8.5	0.01	UJG	<b>490</b>	<b>0.62</b>	JK	8.5	0.01	UJG	<b>87</b>	<b>0.11</b>		<b>1100</b>	<b>1.40</b>	JK
IE12B	12-24	5.76	<b>62</b>	<b>1.08</b>		8.5	0.15	U	<b>110</b>	<b>1.91</b>		<b>14</b>	<b>0.24</b>	JT	<b>103</b>	<b>1.79</b>		<b>180</b>	<b>3.13</b>	
IE14B	12-24	3.61	<b>57</b>	<b>1.58</b>		8.4	0.23	U	<b>95</b>	<b>2.63</b>		<b>13</b>	<b>0.36</b>	JT	<b>90</b>	<b>2.49</b>		<b>87</b>	<b>2.41</b>	
IE16B	12-24	0.656	6.6	1.01	U	8.5	1.30	U	7.9	1.20	U	8.6	1.31	U	9.5	1.45	U	7.7	1.17	U
IH02B	12-24	23.1	<b>84</b>	<b>0.36</b>		8.5	0.04	UJL	<b>120</b>	<b>0.52</b>		<b>24</b>	<b>0.10</b>	JL	<b>93</b>	<b>0.40</b>		<b>350</b>	<b>1.52</b>	
IH06B	12-24	4.85	<b>240</b>	<b>4.95</b>	NJ	8.5	0.18	U	<b>540</b>	<b>11.13</b>		<b>17</b>	<b>0.35</b>	JT	<b>240</b>	<b>4.95</b>		<b>590</b>	<b>12.16</b>	JT
KP02B	12-24	8.7	<b>86</b>	<b>0.99</b>		8.4	0.10	U	<b>240</b>	<b>2.76</b>		<b>13</b>	<b>0.15</b>	JT	<b>169</b>	<b>1.94</b>		<b>280</b>	<b>3.22</b>	
KP03B	24-36	3.12	<b>470</b>	<b>15.06</b>		<b>17</b>	<b>0.54</b>	JT	<b>300</b>	<b>9.62</b>		<b>38</b>	<b>1.22</b>		<b>520</b>	<b>16.67</b>		<b>480</b>	<b>15.38</b>	
KP07B	12-24	0.529	6.6	1.25	U	8.5	1.61	U	7.8	1.47	U	8.5	1.61	U	9.4	1.78	U	7.7	1.46	U
KP08B	36-48	0.749	6.5	0.87	U	8.4	1.12	U	7.7	1.03	U	8.4	1.12	U	9.4	1.26	U	7.6	1.01	U
LA02B	24-36	4.41	6.5	0.15	U	8.4	0.19	UJK	<b>28</b>	<b>0.63</b>		8.5	0.19	U	9.4	0.21	U	<b>30</b>	<b>0.68</b>	
LP05B	6-12	13.9	<b>510</b>	<b>3.67</b>		<b>15</b>	<b>0.11</b>	JT	<b>660</b>	<b>4.75</b>		<b>23</b>	<b>0.17</b>		<b>370</b>	<b>2.66</b>		<b>830</b>	<b>5.97</b>	
MA02B	6-12	5.84	<b>300</b>	<b>5.14</b>	JG	8.5	0.15	U	<b>340</b>	<b>5.82</b>		<b>20</b>	<b>0.34</b>		<b>470</b>	<b>8.05</b>		<b>750</b>	<b>12.84</b>	JG
MD01B	6-12	1.88	<b>230</b>	<b>12.23</b>		<b>17</b>	<b>0.90</b>	JT	<b>120</b>	<b>6.38</b>		<b>27</b>	<b>1.44</b>		<b>310</b>	<b>16.49</b>		<b>120</b>	<b>6.38</b>	
MD02B	12-24	5.12	<b>170</b>	<b>3.32</b>		8.5	0.17	U	<b>480</b>	<b>9.38</b>		<b>27</b>	<b>0.53</b>		<b>210</b>	<b>4.10</b>		<b>380</b>	<b>7.42</b>	
MD03B	48-60	2.86	<b>93</b>	<b>3.25</b>		8.5	0.30	U	<b>270</b>	<b>9.44</b>		<b>11</b>	<b>0.38</b>	JT	<b>145</b>	<b>5.07</b>		<b>200</b>	<b>6.99</b>	
MD04B	6-18	1.22	<b>76</b>	<b>6.23</b>		8.4	0.69	U	<b>110</b>	<b>9.02</b>		8.5	0.70	U	<b>139</b>	<b>11.39</b>		<b>120</b>	<b>9.84</b>	
MD05B	4-10	0.803	6.6	0.82	U	8.5	1.06	U	<b>18</b>	<b>2.24</b>	JT	8.6	1.07	U	9.5	1.18	U	<b>13</b>	<b>1.62</b>	JT
SQS (mg/kg OC)				110			12			160			34			NA			1000	
CSL (mg/kg OC)				460			33			1200			88			NA			1400	
LAET (ug/kg DW)				1400			230			1700			600			NA			2600	

Exceeds SQS/LAET criteria

Result = Dry weight concentrations are in µg/kg (ppb).  
TOC-Norm = concentrations are in mg/kg TOC

Key:

- Bold** = Analyte was detected.
- µg/kg = micrograms per kilogram
- mg/kg = milligrams per kilogram
- JT = The associated estimated positive result is less than the reporting limit.
- JK = The associated estimated positive result has a likely unknown bias.
- JL = The associated estimated positive result has a likely high bias.
- UJK = The associated estimated sample quantitation limit has a likely unknown bias.
- UJL = The associated estimated sample quantitation limit has a likely high bias.
- U = Analyte was not detected at or above the reported result.
- NJ = The associated estimated positive result is tentatively identified.
- UJG = The associated estimated sample quantitation limit has a likely low bias.

Table C–B7. Concentrations of LPAH, HPAH, and Total PAH in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	% TOC	Total LPAH (µg/kg dry weight)		Total LPAH (mg/kg TOC Norm)		Total HPAH (µg/kg dry weight)		Total HPAH (mg/kg TOC Norm)		Total PAHs (µg/kg dw)		Total PAHs (mg/kg TOC)	
			Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
BL02B	36–48	3.41	162.0		4.75		690.0		20.23		852.0		24.99	
BL08B	12–24	0.483	11.0		2.28		32.0	JT	6.63	JT	43.0	JT	8.90	JT
CO02B	6–12	1.27	41.0		3.23		211.0		16.61		252.0		19.84	
CO03B	24–36	1.27	337.0		26.54		328.0		25.83		665.0		52.36	
CO04B	12–24	1.12	8.7	U	0.78	U	31.0	JT	2.77	JT	31.0	JT	2.77	JT
CO05B	24–36	3.4	262.0		7.71		551.0		16.21		823.0		24.21	
DO04B	6–12	0.695	18.0		2.59		30.0	JT	4.32	JT	48.0	JT	6.91	JT
DO05B	6–12	0.539	8.8	U	1.63	U	9.3	U	1.73	U	9.3	U	1.73	U
EC03B	6–12	2.3	5,810		252.61		2,215		96.30		8,025		348.91	
EC04B	12–24	3.11	39.0		1.25		372.0		11.96		411.0		13.22	
ED01B	24–36	0.712	8.8	U	1.24	U	9.3	U	1.31	U	9.3	U	1.31	U
ED02B	12–24	0.548	8.9	U	1.62	U	31.5		5.75		31.5		5.75	
ED03B	6–18	3.46	329.0		9.51		1,801		52.05		2,580		74.57	
ED04B	36–48	4.21	131.0		3.11		1,103		26.20		1234.0		29.31	
ED05B	12–24	3.71	619.0		16.68		3,010		81.13		3,648		98.33	
EE01B	6–12	0.25	8.8	U	3.52	U	23.0	JT	9.20	JT	23.0	JT	9.20	JT
EE02B	12–24	0.583	19.0	JT	3.26	JT	77.0		13.21		96.0	JT	16.47	JT
EE03B	6–12	0.498	18.0	JT	3.61	JT	71.2		14.30		89.2		17.91	
EE04B	6–12	0.63	9.9	JT	1.57	JT	28.0	JT	4.44	JT	37.9	JT	6.02	JT
EI02B	6–12	0.207	8.8	U	4.25	U	9.4	U	4.54	U	9.4	U	4.54	U
FT04B	12–24	1.39	317.0		22.81		1,522		109.50		1,839		132.31	
FT06B	12–24	0.463	8.8	U	1.90	U	9.3	U	2.01	U	9.3	U	2.01	U
FT12B	6–12	0.843	8.7	U	1.03	U	9.2	U	1.09	U	9.2	U	1.09	U
IE01B	30–42	14.8	198.0		1.34		473.0		3.20		682.0		4.61	
IE05B	12–24	11.7	606.0		5.18		938.0		8.02		1,572		13.44	
IE09B	36–48	78.5	878.0		1.12		1,824		2.32		2,766		3.52	
IE12B	12–24	5.76	150.0		2.60		569.0		9.88		738.0		12.81	
IE14B	12–24	3.61	174.0		4.82		433.0		11.99		635.0		17.59	
IE16B	12–24	0.656	8.9	U	1.36	U	9.5	U	1.45	U	9.5	U	1.45	U
IH02B	12–24	23.1	264.0		1.14		818.0		3.54		1,096		4.74	
IH06B	12–24	4.85	497.0		10.25		1,852		38.19		2,349		48.43	
KP02B	12–24	8.7	162.0		1.86		940.0		10.80		1,102		12.67	
KP03B	24–36	3.12	148.0		4.74		2,224		71.28		2,372		76.03	
KP07B	12–24	0.529	8.9	U	1.68	U	9.4	U	1.78	U	9.4	U	1.78	U
KP08B	36–48	0.749	8.8	U	1.17	U	9.3	U	1.24	U	9.3	U	1.24	U
LA02B	24–36	4.41	68.0		1.54		58.0		1.32		126.0		2.86	
LP05B	6–12	13.9	993.0		7.14		2,868		20.63		3,950		28.42	
MA02B	6–12	5.84	288.0		4.93		2,168		37.12		2,467		42.24	
MD01B	6–12	1.88	92.0		4.89		1,087		57.82		1,179		62.71	
MD02B	12–24	5.12	590.0		11.52		1,473		28.77		2,063		40.29	
MD03B	48–60	2.86	339.0		11.85		856.0		29.93		1,195		41.78	
MD04B	6–18	1.22	112.0		9.18		523.0		42.87		635.0		52.05	
MD05B	4–10	0.803	8.9	U	1.11	U	31.0	JT	1.62	JT	31.0	JT	1.62	JT
SQS (mg/kg OC)			NA		370.00		NA		960.00		NA		NA	
CSL (mg/kg OC)			NA		780.00		NA		5300.00		NA		NA	
LAET (ug/kg DW)			5200.0		NA		12000.0		NA		NA		NA	

Key:  
 HPAH = High molecular weight polycyclic aromatic hydrocarbons  
 ID = Identification  
 LPAH = Low molecular weight polycyclic aromatic hydrocarbons  
 mg/Kg = milligrams per kilogram  
 PAH = Polycyclic aromatic hydrocarbons  
 ppb = parts per billion  
 ppm = parts per million  
 TOC = Total organic carbon  
 U = Analyte was not detected at or above the reported result.  
 µg/kg = micrograms per kilogram  
 JT = The associated estimated positive result is less than the reporting limit.

Table C-B8. Concentrations of Phenol and Phthalate Compounds in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	% TOC	2,4-Dimethylphenol		2-Methylphenol		4-Methylphenol		Pentachlorophenol		Phenol		bis(2-Ethylhexyl) phthalate		
			Result dw	Qualifier	Result dw	Qualifier	Result dw	Qualifier	Result dw	Qualifier	Result dw	Qualifier	Result dw	TOC-Norm	Qualifier
BL02B	36-48	3.41	15	U	14	U	18	JT	47	U	77		36	1.056	JT
BL08B	12-24	0.483	14	U	14	U	13	U	47	U	13	U	25	5.176	
CO02B	6-12	1.27	14	U	14	U	12	U	46	U	13	U	19	1.496	JT
CO03B	24-36	1.27	15	U	14	U	37		47	U	13	U	11	0.866	U
CO04B	12-24	1.12	14	U	14	U	12	U	46	U	13	U	11	0.982	U
CO05B	24-36	3.4	14	U	14	U	200		46	U	13	U	11	0.324	U
DO04B	6-12	0.695	15	U	14	U	13	JT	47	U	14	U	11	1.583	U
DO05B	6-12	0.539	14	U	14	U	13	U	47	U	13	U	11	2.041	U
EC03B	6-12	2.3	15	U	14	U	690		47	U	14	JT	11	0.478	U
EC04B	12-24	3.11	14	U	14	U	86		46	U	13	U	11	0.354	U
ED01B	24-36	0.712	15	U	14	U	13	U	47	U	13	U	11	1.545	U
ED02B	12-24	0.548	15	U	14	U	13	U	47	U	14	U	11	2.007	U
ED03B	6-18	3.46	15	U	14	U	250		48	U	14	U	73	2.110	
ED04B	36-48	4.21	14	U	14	U	110		47	U	13	U	21	0.673	
ED05B	12-24	3.71	15	U	14	U	63		47	U	19	JT	11	0.296	U
EE01B	6-12	0.25	15	U	14	U	13	U	47	U	14	U	11	4.400	U
EE02B	12-24	0.583	15	U	14	U	13	U	47	U	13	U	11	1.887	U
EE03B	6-12	0.498	14	U	14	U	12	U	46	U	13	U	11	2.209	U
EE04B	6-12	0.63	14	U	14	U	12	U	46	U	39		11	1.746	U
EI02B	6-12	0.207	15	U	14	U	13	U	47	U	19	JT	11	5.314	U
FT04B	12-24	1.39	15	U	14	U	99		48	U	31		160	11.511	
FT06B	12-24	0.463	14	U	14	U	13	U	47	U	150		11	2.376	U
FT12B	6-12	0.843	14	U	14	U	12	U	46	U	40		11	1.305	U
IE01B	30-42	14.8	15	U	14	U	13	U	47	U	37		26	0.176	
IE05B	12-24	11.7	15	U	14	U	22		47	U	38		11	0.094	U
IE09B	36-48	78.5	15	U	14	U	160		47	U	60		11	0.014	U
IE12B	12-24	5.76	15	U	14	U	13	U	47	U	49		16	0.278	JT
IE14B	12-24	3.61	15	U	14	U	25		47	U	49		22	0.609	
IE16B	12-24	0.656	15	U	14	U	13	U	47	U	18	JT	11	1.677	U
IH02B	12-24	23.1	15	U	14	U	65		47	U	68		56	0.242	
IH06B	12-24	4.85	15	U	14	U	36		47	U	34		2800	57.732	JT
KP02B	12-24	8.7	15	U	14	U	13	U	47	U	18	JT	26	0.299	
KP03B	24-36	3.12	15	U	14	U	13	U	48	U	18	JT	34	1.090	
KP07B	12-24	0.529	15	U	14	U	13	U	47	U	14	U	11	2.079	U
KP08B	36-48	0.749	14	U	14	U	13	U	47	U	13	U	11	1.469	U
LA02B	24-36	4.41	15	U	14	U	14	JT	47	U	13	U	11	0.249	U
LP05B	6-12	13.9	15	UJL	14	U	240		47	U	130		11	0.079	U
MA02B	6-12	5.84	15	U	14	U	13	U	47	U	16	JT	69	1.182	
MD01B	6-12	1.88	14	U	14	U	12	U	46	U	13	U	14	0.745	JT
MD02B	12-24	5.12	15	U	14	U	470		47	U	18	JT	52	1.016	
MD03B	48-60	2.86	15	U	14	U	190		47	U	14	U	11	0.385	U
MD04B	6-18	1.22	15	U	14	U	66		47	U	13	U	11	0.902	U
MD05B	4-10	0.803	15	U	14	U	13	U	47	U	14	U	11	1.370	U
SQS			29		63		670		360		420		47		
CSL			29		63		670		690		1200		78		
LAET			29		63		670		360		420		1300		

Phenol concentrations are reported in µg/kg dry weight and phthalate compounds in µg/kg dry weight and normalized to total organic carbon. The WA SQS criteria for phenols are expressed in µg/kg dry weight, while phthalate compounds are in mg/kg normalized to total organic carbon.

- Key:
- Exceeds SQS/LAET criteria
  - Exceeds CSL/2LAET criteria
  - Bold** = Analyte was detected.
  - dw = dry weight
  - JT = The associated estimated positive result is less than the reporting limit.
  - JG = The associated estimated positive result has a likely low bias.
  - UJL = The associated estimated sample quantitation limit has a likely high bias.
  - U = Analyte was not detected at or above the reported result.
  - JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.
  - JK = The associated estimated positive result has a likely unknown bias.

Table C-B8. Concentrations of Phenol and Phthalate Compounds in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	% TOC	Butyl benzyl phthalate			Di-N-butyl phthalate			Diethyl phthalate			Dimethyl phthalate			Di-n-Octyl phthalate		
			Result dw	TOC-Norm	Qualifier	Result dw	TOC-Norm	Qualifier	Result dw	TOC-Norm	Qualifier	Result dw	TOC-Norm	Qualifier	Result dw	TOC-Norm	Qualifier
BL02B	36-48	3.41	<b>30</b>	<b>0.880</b>	JTG	12	0.352	U	16	0.469	U	7.7	0.226	U	8.3	0.243	U
BL08B	12-24	0.483	11	2.277	U	12	2.484	U	16	3.313	U	7.6	1.573	U	8.2	1.698	U
CO02B	6-12	1.27	11	0.866	U	12	0.945	U	16	1.260	U	7.6	0.598	U	8.1	0.638	U
CO03B	24-36	1.27	11	0.866	U	<b>25</b>	<b>1.969</b>		16	1.260	U	7.6	0.598	U	8.2	0.646	U
CO04B	12-24	1.12	11	0.982	U	12	1.071	U	16	1.429	U	7.5	0.670	U	8.1	0.723	U
CO05B	24-36	3.4	11	0.324	U	12	0.353	U	16	0.471	U	<b>12</b>	<b>0.353</b>	JT	8.1	0.238	U
DO04B	6-12	0.695	11	1.583	U	12	1.727	U	16	2.302	U	7.7	1.108	U	8.3	1.194	U
DO05B	6-12	0.539	11	2.041	U	12	2.226	U	16	2.968	U	7.6	1.410	U	8.1	1.503	U
EC03B	6-12	2.3	11	0.478	U	12	0.522	U	<b>25</b>	<b>1.087</b>		7.7	0.335	U	8.3	0.361	U
EC04B	12-24	3.11	11	0.354	U	12	0.386	U	16	0.514	U	7.5	0.241	U	8.1	0.260	U
ED01B	24-36	0.712	11	1.545	U	12	1.685	U	16	2.247	U	7.6	1.067	U	8.2	1.152	U
ED02B	12-24	0.548	11	2.007	U	12	2.190	U	16	2.920	U	7.7	1.405	U	8.3	1.515	U
ED03B	6-18	3.46	11	0.318	UJL	12	0.347	UJL	16	0.462	U	<b>24</b>	<b>0.694</b>		8.3	0.240	U
ED04B	36-48	4.21	<b>12</b>	<b>0.385</b>	JT	12	0.385	U	16	0.513	U	7.6	0.244	U	8.2	0.263	U
ED05B	12-24	3.71	<b>36</b>	<b>0.970</b>		<b>37</b>	<b>0.997</b>		16	0.431	U	7.7	0.208	U	8.3	0.224	U
EE01B	6-12	0.25	11	4.400	U	12	4.800	U	16	6.400	U	7.7	3.080	U	8.2	3.280	U
EE02B	12-24	0.583	11	1.887	U	12	2.058	U	16	2.744	U	7.6	1.304	U	8.2	1.407	U
EE03B	6-12	0.498	11	2.209	U	12	2.410	U	16	3.213	U	7.5	1.506	U	8.1	1.627	U
EE04B	6-12	0.63	11	1.746	U	12	1.905	U	16	2.540	U	7.5	1.190	U	8.1	1.286	U
EI02B	6-12	0.207	11	5.314	U	12	5.797	U	16	7.729	U	7.7	3.720	U	8.2	3.961	U
FT04B	12-24	1.39	11	0.791	U	12	0.863	U	16	1.151	U	7.8	0.561	U	8.3	0.597	U
FT06B	12-24	0.463	11	2.376	U	12	2.592	U	16	3.456	U	7.6	1.641	U	8.2	1.771	U
FT12B	6-12	0.843	11	1.305	U	12	1.423	U	16	1.898	U	7.5	0.890	U	8.1	0.961	U
IE01B	30-42	14.8	11	0.074	U	12	0.081	U	16	0.108	U	7.7	0.052	U	8.3	0.056	U
IE05B	12-24	11.7	11	0.094	U	12	0.103	U	<b>30</b>	<b>0.256</b>		7.6	0.065	U	8.2	0.070	U
IE09B	36-48	78.5	<b>91</b>	<b>0.116</b>	JK	12	0.015	U	16	0.020	U	7.7	0.010	U	8.3	0.011	UJG
IE12B	12-24	5.76	11	0.191	U	12	0.208	U	16	0.278	U	7.7	0.134	U	8.2	0.142	U
IE14B	12-24	3.61	11	0.305	U	<b>30</b>	<b>0.831</b>		16	0.443	U	7.6	0.211	U	8.2	0.227	U
IE16B	12-24	0.656	11	1.677	U	12	1.829	U	16	2.439	U	7.7	1.174	U	8.3	1.265	U
IH02B	12-24	23.1	11	0.048	U	12	0.052	U	16	0.069	U	7.7	0.033	U	8.3	0.036	U
IH06B	12-24	4.85	<b>38</b>	<b>0.784</b>	JT	12	0.247	U	16	0.330	U	7.7	0.159	U	<b>76</b>	<b>1.567</b>	
KP02B	12-24	8.7	11	0.126	U	12	0.138	U	16	0.184	U	7.6	0.087	U	8.2	0.094	U
KP03B	24-36	3.12	11	0.353	U	12	0.385	U	<b>18</b>	<b>0.577</b>	JT	7.7	0.247	U	8.3	0.266	U
KP07B	12-24	0.529	11	2.079	U	12	2.268	U	16	3.025	U	7.7	1.456	U	8.3	1.569	U
KP08B	36-48	0.749	11	1.469	U	12	1.602	U	16	2.136	U	7.6	1.015	U	8.2	1.095	U
LA02B	24-36	4.41	11	0.249	U	12	0.272	U	16	0.363	U	7.6	0.172	U	8.2	0.186	U
LP05B	6-12	13.9	11	0.079	U	12	0.086	U	16	0.115	U	7.7	0.055	U	8.3	0.060	U
MA02B	6-12	5.84	<b>23</b>	<b>0.394</b>	JG	12	0.205	U	16	0.274	U	7.7	0.132	U	8.2	0.140	U
MD01B	6-12	1.88	11	0.585	U	12	0.638	U	16	0.851	U	7.5	0.399	U	8.1	0.431	U
MD02B	12-24	5.12	11	0.215	U	12	0.234	U	16	0.313	U	7.7	0.150	U	8.3	0.162	U
MD03B	48-60	2.86	11	0.385	U	12	0.420	U	16	0.559	U	7.7	0.269	U	8.2	0.287	U
MD04B	6-18	1.22	11	0.902	U	12	0.984	U	16	1.311	U	7.6	0.623	U	8.2	0.672	U
MD05B	4-10	0.803	11	1.370	U	12	1.494	U	16	1.993	U	7.7	0.959	U	8.3	1.034	U
SQS				4.9			220			61			53			58	
CSL				64			1700			110			53			4500	
LAET				63			1400			200			71			6200	

Phenol concentrations are reported in µg/kg dry weight and phthalate compounds in µg/kg dry weight and normalized to total organic carbon.  
The WA SQS criteria for phenols are expressed in µg/kg dry weight, while phthalate compounds are in mg/kg normalized to total organic carbon.

- Key:
- Exceeds SQS/LAET criteria
  - Exceeds CSL/2LAET criteria
  - Bold** = Analyte was detected.
  - dw = dry weight
  - JT = The associated estimated positive result is less than the reporting limit.
  - JG = The associated estimated positive result has a likely low bias.
  - UJL = The associated estimated sample quantitation limit has a likely high bias.
  - U = Analyte was not detected at or above the reported result.
  - JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.
  - JK = The associated estimated positive result has a likely unknown bias.

Table C-B9. Concentrations of PCB Aroclors in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	% TOC	Aroclor 1016			Aroclor 1221			Aroclor 1232			Aroclor 1242			Aroclor 1248			Aroclor 1254			Aroclor 1260			Aroclor 1268			Total PCBs		
			(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(mg/kg dw)	(mg/kg TOC)	Qualifier	(ug/kg dw)	(mg/kg TOC)	Qualifier
BL02B	36-48	3.41	0.0120	0.35	UJG	0.0120	0.35	UJG	0.0120	0.35	UJG	0.0120	0.35	UJG	0.0120	0.35	UJG	0.0031	0.09	UJG	0.0031	0.09	UJG				12.00	0.35	UJG
CO02B	6-12	1.27	0.0069	0.54	U	0.0069	0.54	U	0.0069	0.54	U	0.0069	0.54	U	0.0069	0.54	U	0.0018	0.14	U	0.0018	0.14	U				6.90	0.54	U
CO03B	24-36	1.27	0.0075	0.59	U	0.0075	0.59	U	0.0075	0.59	U	0.0075	0.59	U	0.0075	0.59	U	0.0019	0.15	U	<b>0.1300</b>	<b>10.24</b>					<b>130.00</b>	<b>10.24</b>	
CO04B	12-24	1.12	0.0071	0.63	U	0.0071	0.63	U	0.0071	0.63	U	0.0071	0.63	U	0.0071	0.63	U	0.0018	0.16	U	0.0018	0.16	U				7.10	0.63	U
CO05B	24-36	3.4	0.0099	0.29	U	0.0099	0.29	U	0.0099	0.29	U	0.0099	0.29	U	0.0099	0.29	U	0.0026	0.08	U	<b>0.3300</b>	<b>9.71</b>		0.0026	0.076471	U	<b>330.00</b>	<b>9.71</b>	
EC03B	6-12	2.3	0.0120	0.52	U	0.0120	0.52	U	0.0120	0.52	U	0.0120	0.52	U	0.0120	0.52	U	0.0030	0.13	U	<b>0.3100</b>	<b>13.48</b>		0.003	0.13	U	<b>310.00</b>	<b>13.48</b>	
EC04B	12-24	3.11	0.0100	0.32	U	0.0100	0.32	U	0.0100	0.32	U	0.0100	0.32	U	0.0100	0.32	U	0.0026	0.08	U	<b>0.0690</b>	<b>2.22</b>		0.0026	0.08	U	<b>69.00</b>	<b>2.22</b>	
ED01B	24-36	0.712	0.0079	1.11	UJG	0.0079	1.11	UJG	0.0079	1.11	UJG	0.0079	1.11	UJG	0.0079	1.11	UJG	0.0020	0.28	UJG	0.0020	0.28	UJG				7.90	1.11	UJG
ED02B	12-24	0.548	0.0067	1.22	U	0.0067	1.22	U	0.0067	1.22	U	0.0067	1.22	U	0.0067	1.22	U	0.0017	0.31	U	0.0017	0.31	U				6.70	1.22	U
ED03B	6-18	3.46	0.0100	0.29	U	0.0100	0.29	U	0.0100	0.29	U	0.0100	0.29	U	0.0100	0.29	U	0.0026	0.08	U	<b>0.0420</b>	<b>1.21</b>					<b>42.00</b>	<b>1.21</b>	
ED04B	36-48	4.21	0.0120	0.29	U	0.0120	0.29	U	0.0120	0.29	U	0.0120	0.29	U	0.0120	0.29	U	0.0032	0.08	U	<b>0.0280</b>	<b>0.67</b>					<b>28.00</b>	<b>0.67</b>	
ED05B	12-24	3.71	0.0092	0.25	U	0.0092	0.25	U	0.0092	0.25	U	0.0092	0.25	U	0.0092	0.25	U	0.0024	0.06	U	0.0024	0.06	U	<b>0.25</b>	<b>6.74</b>		<b>250.00</b>	<b>6.74</b>	
EE01B	6-12	0.25	0.0060	2.40	U	0.0060	2.40	U	0.0060	2.40	U	0.0060	2.40	U	0.0060	2.40	U	0.0016	0.64	U	0.0016	0.64	U	0.0016	0.64	U	6.00	2.40	U
EE02B	12-24	0.583	0.0071	1.22	U	0.0071	1.22	U	0.0071	1.22	U	0.0071	1.22	U	0.0071	1.22	U	0.0018	0.31	U	0.0018	0.31	U				7.10	1.22	U
EE03B	6-12	0.498	0.0065	1.31	U	0.0065	1.31	U	0.0065	1.31	U	0.0065	1.31	U	0.0065	1.31	U	0.0017	0.34	U	0.0017	0.34	U	0.0017	0.34	U	6.50	1.31	U
EE04B	6-12	0.63	0.0067	1.06	U	0.0067	1.06	U	0.0067	1.06	U	0.0067	1.06	U	0.0067	1.06	U	0.0017	0.27	U	0.0017	0.27	U				6.70	1.06	U
EI02B	6-12	0.207	0.0069	3.33	UJG	0.0069	3.33	UJG	0.0069	3.33	UJG	0.0069	3.33	UJG	0.0069	3.33	UJG	0.0018	0.87	UJG	0.0018	0.87	UJG				6.90	3.33	UJG
FT04B	12-24	1.39	0.0100	0.72	UJG	0.0100	0.72	UJG	0.0100	0.72	UJG	0.0100	0.72	UJG	0.0100	0.72	UJG	0.0027	0.19	UJG	<b>0.0180</b>	<b>1.29</b>					<b>18.00</b>	<b>1.29</b>	
FT06B	12-24	0.463	0.0068	1.47	U	0.0068	1.47	U	0.0068	1.47	U	0.0068	1.47	U	0.0068	1.47	U	0.0018	0.39	U	0.0018	0.39	U				6.80	1.47	U
IE01B	30-42	14.8	0.0190	0.13	U	0.0190	0.13	U	0.0190	0.13	U	0.0190	0.13	U	0.0190	0.13	U	0.0050	0.03	U	0.0050	0.03	U				19.00	0.13	U
IE05B	12-24	11.7	0.0170	0.15	U	0.0170	0.15	U	0.0170	0.15	U	0.0170	0.15	U	0.0170	0.15	U	0.0043	0.04	U	0.0043	0.04	U				17.00	0.15	U
IE09B	36-48	78.5	0.0390	0.05	UJG	0.0390	0.05	UJG	0.0390	0.05	UJG	0.0390	0.05	UJG	0.0390	0.05	UJG	0.0100	0.01	UJG	0.0100	0.01	UJG				39.00	0.05	UJG
IE12B	12-24	5.76	0.0150	0.26	UJG	0.0150	0.26	UJG	0.0150	0.26	UJG	0.0150	0.26	UJG	0.0150	0.26	UJG	0.0038	0.07	UJG	0.0038	0.07	UJG				15.00	0.26	UJG
IE14B	12-24	3.61	0.0130	0.36	UJG	0.0130	0.36	UJG	0.0130	0.36	UJG	0.0130	0.36	UJG	0.0130	0.36	UJG	0.0034	0.09	UJG	0.0034	0.09	UJG				13.00	0.36	UJG
IE16B	12-24	0.656	0.0079	1.20	UJG	0.0079	1.20	UJG	0.0079	1.20	UJG	0.0079	1.20	UJG	0.0079	1.20	UJG	0.0020	0.30	UJG	0.0020	0.30	UJG				7.90	1.20	UJG
IH02B	12-24	23.1	0.0280	0.12	U	0.0280	0.12	U	0.0280	0.12	U	0.0280	0.12	U	0.0280	0.12	U	0.0073	0.03	U	0.0073	0.03	U				28.00	0.12	U
IH06B	12-24	4.85	0.0160	0.33	UJG	0.0160	0.33	UJG	0.0160	0.33	UJG	0.0160	0.33	UJG	0.0160	0.33	UJG	<b>0.0520</b>	<b>1.07</b>	JG	0.0042	0.09	UJG				52.00	<b>1.07</b>	JG
KP02B	12-24	8.7	0.0140	0.16	UJG	0.0140	0.16	UJG	0.0140	0.16	UJG	0.0140	0.16	UJG	0.0140	0.16	UJG	<b>0.0170</b>	<b>0.20</b>	JTG	0.0037	0.04	UJG				17.00	<b>0.20</b>	JTG
KP03B	24-36	3.12	0.0089	0.29	U	0.0089	0.29	U	0.0089	0.29	U	0.0089	0.29	U	0.0089	0.29	U	0.0023	0.07	U	0.0023	0.07	U				8.90	0.29	U
KP07B	12-24	0.529	0.0074	1.40	UJG	0.0074	1.40	UJG	0.0074	1.40	UJG	0.0074	1.40	UJG	0.0074	1.40	UJG	0.0019	0.36	UJG	0.0019	0.36	UJG				7.40	1.40	UJG
KP08B	36-48	0.749	0.0077	1.03	UJG	0.0077	1.03	UJG	0.0077	1.03	UJG	0.0077	1.03	UJG	0.0077	1.03	UJG	0.0020	0.27	UJG	0.0020	0.27	UJG				7.70	1.03	UJG
LA02B	24-36	4.41	0.0086	0.20	U	0.0086	0.20	U	0.0086	0.20	U	0.0086	0.20	U	0.0086	0.20	U	0.0022	0.05	U	0.0022	0.05	U				8.60	0.20	U
MA02B	6-12	5.84	0.0160	0.27	UJG	0.0160	0.27	UJG	0.0160	0.27	UJG	0.0160	0.27	UJG	0.0160	0.27	UJG	0.0042	0.07	UJG	0.0042	0.07	UJG				16.00	0.27	UJG
MD01B	6-12	1.88	0.0074	0.39	U	0.0074	0.39	U	0.0074	0.39	U	0.0074	0.39	U	0.0074	0.39	U	0.0019	0.10	U	0.0019	0.10	U				7.40	0.39	U
MD02B	12-24	5.12	0.0120	0.23	UJG	0.0120	0.23	UJG	0.0120	0.23	UJG	0.0120	0.23	UJG	0.0120	0.23	UJG	0.0030	0.06	UJG	<b>0.0690</b>	<b>1.35</b>	JG				<b>69.00</b>	<b>1.35</b>	JG
MD03B	48-60	2.86	0.0072	0.25	U	0.0072	0.25	U	0.0072	0.25	U	0.0072	0.25	U	0.0072	0.25	U	0.0019	0.07	U	0.0019	0.07	U				7.20	0.25	U
MD04B	6-18	1.22	0.0070	0.57	UJG	0.0070	0.57	UJG	0.0070	0.57	UJG	0.0070	0.57	UJG	0.0070	0.57	UJG	0.0018	0.15	UJG	<b>0.0170</b>	<b>1.39</b>	JG				<b>17.00</b>	<b>1.39</b>	JG
MD05B	4-10	0.803	0.0066	0.82	U	0.0066	0.82	U	0.0066	0.82	U	0.0066	0.82	U	0.0066	0.82	U	0.0017	0.21	U	0.0017	0.21	U				6.60	0.82	U

Total PCB criteria: SQS= 12 mg/kg TOC, CSL= 65 mg/kg TOC, LAET= 130 ug/kg dw

Key:

**Exceeds** SQS/LAET criteria

**Bold** = Analyte was detected.

mg/kg = milligrams per kilogram

UJG = The associated estimated sample quantitation limit has a likely low bias.

U = Analyte was not detected at or above the reported result.

JG = The associated estimated positive result has a likely low bias.

JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.



Table C-B10. Concentrations of Pesticides in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	4,4'-DDD		4,4'-DDE		4,4'-DDT		Aldrin		alpha-BHC		beta-BHC		cis-Chlordane		delta-BHC		Dieldrin		Endosulfan I		Endosulfan II	
		(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier
BL02B	36-48	0.54	U	0.46	U	0.53	U	0.22	U	0.22	U	0.26	U	0.24	U	0.24	U	0.45	U	0.24	U	0.53	U
CO02B	6-12	<b>0.99</b>	JTK	0.26	U	0.31	U	<b>0.53</b>	JTK	0.13	U	2.3	U	0.14	U	0.14	U	0.26	U	0.14	U	0.31	U
CO03B	24-36	0.34	U	0.29	U	0.34	U	0.14	U	0.14	U	1.3	U	0.15	U	0.15	U	0.28	U	0.15	U	0.34	U
CO04B	12-24	<b>0.55</b>	JTK	0.28	U	<b>1.3</b>	JTK	0.13	U	<b>0.84</b>	JTK	1.8	U	<b>0.59</b>	JT	<b>0.57</b>	JT	0.27	U	<b>0.58</b>	JT	<b>2.1</b>	JTK
CO05B	24-36	<b>0.92</b>	JTK	0.4	U	<b>3.3</b>	JTK	0.19	U	<b>0.59</b>	JTK	1.4	U	<b>0.44</b>	JTK	0.21	U	0.38	U	<b>0.76</b>	JT	<b>4</b>	JK
EC03B	6-12	<b>7.2</b>	JK	<b>3</b>	JTK	<b>3.6</b>	JTK	0.22	U	<b>0.8</b>	JTK	0.69	U	<b>0.52</b>	JTK	0.24	U	0.45	U	0.24	U	<b>4.9</b>	JK
EC04B	12-24	<b>0.73</b>	JTK	<b>0.6</b>	JTK	<b>0.68</b>	JTK	0.19	U	0.19	U	0.22	U	0.21	U	0.21	U	0.38	U	0.2	U	0.45	U
ED05B	12-24	<b>0.69</b>	JTK	<b>0.52</b>	JTK	<b>0.82</b>	JTK	0.16	U	0.16	U	0.43	U	<b>0.26</b>	JTK	0.18	U	0.33	U	0.18	U	<b>1.3</b>	JTK
EE01B	6-12	0.28	U	0.24	U	0.27	U	0.11	U	0.11	U	0.15	U	<b>0.3</b>	JTK	0.12	U	0.23	U	0.12	U	0.27	U
EE02B	12-24	0.33	U	<b>0.37</b>	JT	0.31	U	0.12	U	0.13	U	<b>1.6</b>	JK	0.15	U	<b>0.38</b>	JTK	0.26	U	0.15	U	0.32	U
EE03B	6-12	0.3	U	<b>0.63</b>	JTK	0.3	U	0.12	U	0.12	U	0.56	U	<b>0.16</b>	JTK	<b>0.18</b>	JT	0.25	U	0.13	U	0.3	U
EE04B	6-12	0.3	U	0.26	U	0.3	U	<b>0.29</b>	JT	0.12	U	2.5	U	0.14	U	<b>0.48</b>	JT	<b>0.59</b>	JT	0.13	U	<b>0.37</b>	JT
EI02B	6-12	<b>0.75</b>	JTK	0.27	U	0.31	U	0.13	U	0.13	U	1.8	U	0.14	U	<b>0.29</b>	JT	0.26	U	0.14	U	<b>0.45</b>	JT
FT04B	12-24	<b>7.1</b>		<b>1.9</b>	JT	<b>1.9</b>	JT	0.19	U	0.19	U	0.23	U	<b>0.31</b>	JT	0.21	U	0.39	U	0.21	U	0.46	U
FT12B	6-12	<b>0.58</b>	JT	0.29	U	<b>1.1</b>	JTK	0.14	U	0.14	U	2	U	<b>1.3</b>		<b>0.28</b>	JT	0.28	U	0.15	U	<b>0.8</b>	JT
KP02B	12-24	<b>2.6</b>	JTK	<b>1.1</b>	JTK	0.62	U	0.25	U	0.26	U	<b>2.1</b>	JTK	<b>2.8</b>	JK	<b>0.66</b>	JTK	0.52	U	0.28	U	<b>1.1</b>	JT
KP03B	24-36	<b>0.68</b>	JTK	<b>0.72</b>	JTK	0.39	U	<b>0.29</b>	JTK	0.16	U	<b>0.22</b>	JTK	<b>1.4</b>	JTK	<b>0.29</b>	JT	0.33	U	0.18	U	0.39	U
KP07B	12-24	<b>0.6</b>	JT	0.3	U	<b>0.77</b>	JTK	0.14	U	0.14	U	0.17	U	<b>0.41</b>	JTK	0.16	U	0.3	U	0.16	U	0.35	U
KP08B	36-48	0.36	U	0.31	U	0.36	U	0.15	U	0.15	U	0.18	U	0.16	U	0.16	U	0.3	U	0.16	U	0.36	U
LA02B	24-36	0.4	U	0.34	U	0.38	U	0.15	U	0.16	U	0.19	U	0.18	U	<b>0.53</b>	JT	0.32	U	0.18	U	0.39	U
LAET		16		9		34		NA		NA		NA		NA		NA		NA		NA		NA	
Station	Sample Interval (inches)	Endosulfan Sulfate		Endrin		Endrin Aldehyde		Endrin Ketone		gamma-Chlordane		Heptachlor		Heptachlor Epoxide		Lindane		Methoxychlor		Toxaphene			
		(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier		
BL02B	36-48	0.69	U	0.85	U	0.51	U	0.51	U	0.24	U	0.27	U	0.25	U	0.23	U	2.7	U	20	U		
CO02B	6-12	<b>1</b>	JTK	<b>1</b>	JT	0.29	U	0.29	U	0.14	U	<b>0.25</b>	JT	0.15	U	<b>1.2</b>	JK	1.5	U	12	U		
CO03B	24-36	0.44	U	0.54	U	0.32	U	0.32	U	0.15	U	0.17	U	0.16	U	0.15	U	1.7	U	13	U		
CO04B	12-24	3.7		0.52	U	0.31	U	<b>0.6</b>	JTK	<b>2.4</b>		<b>0.24</b>	JT	1.8	U	0.14	U	1.7	U	12	U		
CO05B	24-36	<b>13</b>	JK	0.73	U	0.44	U	0.44	U	<b>8.5</b>		0.23	U	<b>0.76</b>	JTK	<b>0.43</b>	JT	2.3	U	17	U		
EC03B	6-12	<b>9.8</b>	JK	0.85	U	0.51	U	0.51	U	<b>5.5</b>		0.27	U	<b>1.3</b>	JTK	<b>0.28</b>	JTK	2.7	U	20	U		
EC04B	12-24	<b>1.3</b>	JTK	0.73	U	0.43	U	0.43	U	<b>1</b>	JT	0.23	U	<b>0.52</b>	JTK	0.2	U	2.3	U	17	U		
ED05B	12-24	<b>2.2</b>	JTK	0.63	U	0.37	U	0.37	U	<b>1.1</b>	JT	0.2	U	<b>0.97</b>	JTK	0.17	U	2	U	15	U		
EE01B	6-12	0.35	U	0.44	U	0.26	U	0.26	U	0.12	U	0.14	U	<b>0.44</b>	JT	0.12	U	1.4	U	10	U		
EE02B	12-24	0.4	U	0.52	U	0.31	U	0.31	U	<b>0.34</b>	JT	<b>0.33</b>	JT	<b>0.57</b>	JT	<b>0.73</b>	JTK	1.6	U	12	U		
EE03B	6-12	0.38	U	0.47	U	0.28	U	0.28	U	<b>0.25</b>	JT	0.15	U	<b>0.6</b>	JT	0.13	U	1.5	U	11	U		
EE04B	6-12	0.39	U	0.48	U	<b>0.38</b>	JT	0.29	U	0.14	U	0.15	U	0.98	U	<b>0.56</b>	JT	1.5	U	11	U		
EI02B	6-12	<b>0.49</b>	JT	<b>0.59</b>	JT	<b>0.8</b>	JT	<b>0.42</b>	JT	0.6	U	0.16	U	0.59	U	0.14	U	1.6	U	12	U		
FT04B	12-24	0.6	U	0.74	U	0.44	U	0.44	U	<b>0.55</b>	JT	0.24	U	0.22	U	0.2	U	2.3	U	17	U		
FT12B	6-12	0.43	U	<b>1.2</b>	JTK	<b>2.5</b>	JK	0.32	U	0.81	U	<b>0.2</b>	JT	0.99	U	0.15	U	1.7	U	13	U		
KP02B	12-24	<b>2.4</b>	JTK	<b>1</b>	U	0.6	U	0.6	U	<b>0.71</b>	JT	0.32	U	<b>0.72</b>	JT	0.28	U	3.2	U	24	U		
KP03B	24-36	0.51	U	0.63	U	0.37	U	0.37	U	<b>0.95</b>	JT	0.2	U	<b>0.92</b>	JT	0.17	U	2	U	15	U		
KP07B	12-24	0.46	U	<b>1.2</b>	JTK	0.34	U	0.34	U	0.16	U	0.18	U	0.17	U	0.16	U	1.8	U	13	U		
KP08B	36-48	0.46	U	0.57	U	0.34	U	0.34	U	0.16	U	0.18	U	0.17	U	0.16	U	1.8	U	14	U		
LA02B	24-36	0.51	U	<b>0.66</b>	JT	0.38	U	0.38	U	0.18	U	0.2	U	<b>1.2</b>	JT	0.17	U	2	U	15	U		
LAET		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	

Key:  
**Bold** = Analyte was detected.  
 dw = dry weight  
 µg/kg = micrograms per kilogram  
 JT = The associated estimated positive result is less than the reporting limit.  
 JK = The associated estimated positive result has a likely unknown bias.  
 U = Analyte was not detected at or above the reported result.  
 JTK = The associated estimated positive result is less than the reporting limit with a likely unknown bias.

Table C-B11. Concentrations of Resin Acid and Guaiacol Compounds in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	Retene		Abietic Acid		Dehydroabietic Acid		Oleic Acid		Isophorone		12-Chlorodehydroabietic Acid		14-Chlorodehydroabietic Acid		9,10-Dichlorostearic Acid		Dichlorodehydroabietic Acid		Isopimaric Acid		Linolenic Acid		Neoabietic Acid	
		Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier
BL02B	36-48	<b>2200</b>		<b>1000</b>		<b>840</b>		500	U	8.2	U	500	U	500	U	500	U	500	U	500	U	500	U	500	U
BL08B	12-24	<b>22</b>		<b>98</b>	UJK	<b>91</b>	JT	98	U	8.1	U	98	U	98	U	98	U	98	U	98	U	98	U	98	U
CO02B	6-12	<b>240</b>		<b>97</b>	UJG	<b>190</b>		97	U	8.1	U	97	U	97	U	97	U	97	U	97	U	97	U	97	U
CO03B	24-36	<b>170</b>		<b>190</b>	JG	<b>330</b>		99	U	8.1	U	99	U	99	U	99	U	99	U	99	U	99	U	99	UJK
CO04B	12-24	8.7	U	<b>150</b>	JG	<b>140</b>		99	U	8	U	99	UJG	99	UJG	99	U	99	U	99	U	99	U	<b>99</b>	REJ
CO05B	24-36	<b>18000</b>		<b>790</b>	JG	<b>1500</b>		98	U	8	U	<b>110</b>	JG	98	UJG	98	UJG	<b>98</b>	REJ	98	U	98	UJG	<b>98</b>	REJ
DO04B	6-12	8.9	U	98	U	98	U	98	U	8.3	U	98	U	98	U	98	U	98	U	98	U	98	U	<b>98</b>	REJ
DO05B	6-12	8.7	U	97	U	97	U	97	U	8.1	U	97	U	97	U	97	U	97	U	97	U	97	U	<b>97</b>	REJ
EC03B	6-12	<b>7600</b>								8.2	U														
EC04B	12-24	<b>45</b>								8	U														
ED01B	24-36	8.8	U							8.1	U														
ED02B	12-24	<b>46</b>								8.2	U														
ED03B	6-18	<b>100</b>								8.3	U														
ED05B	12-24	<b>3800</b>								8.2	U														
EE01B	6-12	<b>14</b>								8.2	U														
EE02B	12-24	8.8	U							8.1	U														
EE03B	6-12	8.7	U							8	U														
EE04B	6-12	8.7	U							8	U														
EI02B	6-12	8.8	U							8.2	U														
FT04B	12-24	8.9	U	<b>1700</b>	JG	<b>1000</b>		98	U	8.3	U	98	U	98	U	98	U	98	U	98	U	98	U	98	U
FT06B	12-24	8.8	U							8.1	U														
FT12B	6-12	8.7	U							8	U														
IE01B	30-42	8.9	U	<b>890</b>		<b>1100</b>		500	U	8.3	U	500	U	500	U	500	U	500	U	500	U	500	U	500	U
IE05B	12-24	8.8	U	<b>4600</b>		<b>6800</b>		490	U	8.1	U	490	U	490	U	490	U	490	U	<b>3000</b>		490	U	490	U
IE09B	36-48	<b>630000</b>		<b>6400</b>		<b>5100</b>		300	U	8.2	U	300	U	300	U	300	U	300	U	<b>2300</b>		300	U	300	U
IE12B	12-24	<b>480</b>		<b>4600</b>		<b>5600</b>		490	U	8.2	U	490	U	490	U	490	U	490	U	490	U	490	U	490	U
IE14B	12-24	<b>2800</b>		<b>1700</b>		<b>4800</b>		490	U	8.2	U	490	U	490	U	490	U	490	U	<b>620</b>	JK	490	U	490	U
IE16B	12-24	8.9	U	99	U	99	U	99	U	8.3	U	99	U	99	U	99	U	99	U	99	U	99	U	99	U
IH02B	12-24	<b>5400</b>		<b>6800</b>		<b>4500</b>		500	U	8.2	U	500	U	500	U	500	U	500	U	<b>1500</b>	NJ	500	U	500	U
IH06B	12-24	<b>330</b>		<b>7900</b>		<b>3800</b>		500	U	8.2	U	<b>480</b>	JT	500	U	500	U	500	U	500	U	500	U	500	U
KP02B	12-24	<b>170</b>		<b>1500</b>	JTK	<b>1500</b>		<b>90</b>	JT	8.2	U	99	U	99	U	99	U	99	U	99	U	99	U	99	U
KP03B	24-36	<b>52</b>		<b>2400</b>		<b>2000</b>		<b>88</b>	JT	8.3	U	200	U	200	U	100	U	100	U	<b>320</b>	JK	100	U	<b>57</b>	JT
KP07B	12-24	8.9	U	99	U	99	U	99	U	8.2	U	99	U	99	U	99	U	99	U	99	U	99	U	99	U
KP08B	36-48	8.7	U	98	U	98	U	98	U	8.1	U	98	U	98	U	98	U	98	U	98	U	98	U	98	U
LA02B	24-36	<b>200</b>		<b>1200</b>	JG	<b>1200</b>		490	U	8.1	U	490	U	490	U	490	U	490	U	490	U	490	U	<b>490</b>	REJ
LP05B	6-12	<b>75000</b>		<b>32000</b>	JG	<b>22000</b>		500	U	8.2	U	500	U	500	U	500	U	500	U	<b>1800</b>		500	U	<b>3100</b>	JK
MA02B	6-12	<b>40</b>		<b>1700</b>		<b>2400</b>		490	U	8.2	U	490	U	490	U	490	U	490	U	490	U	490	U	490	U
MD01B	6-12	<b>71</b>		<b>97</b>	JG	<b>230</b>		96	U	8.1	U	96	U	96	U	96	U	96	U	96	U	96	U	96	U
MD02B	12-24	<b>50000</b>		<b>17000</b>	JG	<b>9600</b>		500	U	8.2	U	500	U	500	U	500	U	500	U	<b>970</b>		500	U	<b>1500</b>	
MD03B	48-60	<b>120</b>		<b>1800</b>		<b>1200</b>		98	U	8.2	U	98	U	98	U	98	U	98	U	98	U	98	U	98	U
MD04B	6-18	<b>57</b>		<b>930</b>		<b>790</b>		97	U	8.1	U	97	U	97	U	97	U	97	U	97	U	97	U	97	U
MD05B	4-10	8.9	U	99	U	99	U	99	U	8.3	U	99	U	99	U	99	U	99	U	99	U	99	U	99	U

Blank cells indicate that the compound was not analyzed at that station.

Key:

**Bold** = Analyte was detected.

dw = dry weight

µg/kg = micrograms per kilogram

JT = The associated estimated positive result is less than the reporting limit.

JG = The associated estimated positive result has a likely low bias.

JK = The associated estimated positive result has a likely unknown bias.

UJG = The associated estimated sample quantitation limit has a likely low bias.

UJK = The associated estimated sample quantitation limit has a likely unknown bias.

UJL = The associated estimated sample quantitation limit has a likely high bias.

U = Analyte was not detected at or above the reported result.

NJ = The associated estimated positive result is tentatively identified.

JTK = The associated estimated positive result is less than the reporting limit with a likely unknown bias.

REJ = Rejected.

Table C-B11. Concentrations of Resin Acid and Guaiacol Compounds in Subsurface B Core Sediment Samples

Station	Palustric Acid		Pimaric Acid		Sandaracopimaric Acid		3,4,5-Trichloroguaiacol		3,4,6-Trichloroguaiacol		3,4-Dichloroguaiacol		4,5,6 Trichloro guaiacol		4,5-Dichloroguaiacol		4,6-Dichloroguaiacol		4-Chloroguaiacol		Guaiacol		Tetrachloroguaiacol	
	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier
BL02B	500	U	500	U	500	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
BL08B	98	U	98	U	98	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
CO02B	97	U	97	U	97	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
CO03B	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
CO04B	99	REJ	99	U	99	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U
CO05B	98	REJ	98	U	98	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U
DO04B	98	UJG	98	U	98	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
DO05B	97	UJG	97	U	97	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
EC03B							20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
EC04B							19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U
ED01B							20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
ED02B							20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
ED03B							20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
ED05B							20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
EE01B							20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
EE02B							20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
EE03B							19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U
EE04B							19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U
EI02B							20	U	20	U	20	U	20	U	20	UJG	20	U	20	U	20	U	20	U
FT04B	98	REJ	98	U	98	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
FT06B							20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
FT12B							19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U	19	U
IE01B	500	U	500	U	500	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	26		20	U
IE05B	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IE09B	300	U	300	U	970		20	U	20	U	20	U	20	U	20	U	20	U	71	UJL	76	UJG	20	U
IE12B	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IE14B	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IE16B	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IH02B	500	U	500	U	500	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
IH06B	500	U	380	JT	500	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
KP02B	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
KP03B	100	U	100	U	100	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
KP07B	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
KP08B	98	U	98	U	98	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
LA02B	490	UJG	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
LP05B	500	U	500	U	1100		20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
MA02B	490	U	490	U	490	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
MD01B	96	U	96	U	96	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
MD02B	670	NJ	500	U	820		20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
MD03B	98	U	98	U	98	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
MD04B	97	U	97	U	97	U	20	U	20	U	20	U	20	U	20	U	20	UJK	20	U	20	U	20	U
MD05B	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U

Blank cells indicate that the compound was not analyzed at that station.

Table C-B12. Concentrations of Chlorinated Benzenes, Benzoic Acid, and Benzyl Alcohol in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	% TOC	1,2,4-Trichlorobenzene			1,2-Dichlorobenzene			1,4-Dichlorobenzene			Hexachlorobenzene			Hexachlorobutadiene			Dibenzofuran			Benzoic Acid		Benzyl Alcohol	
			Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	Qualifier	Results (µg/kg)	Qualifier
BL02B	36-48	3.41	9	0.26	U	7.8	0.23	U	7.3	0.21	U	8	0.23	U	8.1	0.24	U	11	0.323	JT	260		47	
BL08B	12-24	0.483	8.9	1.84	U	7.7	1.59	U	7.2	1.49	U	7.9	1.64	U	7.9	1.64	U	7.4	1.532	U	110	U	14	U
CO02B	6-12	1.27	8.9	0.70	U	7.7	0.61	U	7.2	0.57	U	7.8	0.61	U	7.9	0.62	U	7.4	0.583	U	110	U	14	U
CO03B	24-36	1.27	8.9	0.70	U	7.8	0.61	U	7.2	0.57	U	7.9	0.62	U	8	0.63	U	160	12.598		110	U	14	U
CO04B	12-24	1.12	8.8	0.79	U	7.7	0.69	U	7.1	0.63	U	7.8	0.70	U	7.9	0.71	U	7.3	0.652	U	110	U	14	U
CO05B	24-36	3.4	8.8	0.26	U	7.6	0.22	U	7.1	0.21	U	7.7	0.23	U	7.8	0.23	U	14	0.412	JT	110	U	14	U
DO04B	6-12	0.695	9.1	1.31	U	7.9	1.14	U	7.3	1.05	U	8	1.15	U	8.1	1.17	U	7.5	1.079	U	110	U	14	U
DO05B	6-12	0.539	8.9	1.65	U	7.7	1.43	U	7.2	1.34	U	7.8	1.45	U	7.9	1.47	U	7.4	1.373	U	110	U	14	U
EC03B	6-12	2.3	9	0.39	U	7.8	0.34	U	7.3	0.32	U	8	0.35	U	8.1	0.35	U	570	24.783		110	U	14	U
EC04B	12-24	3.11	8.8	0.28	U	7.6	0.24	U	7.1	0.23	U	7.8	0.25	U	7.9	0.25	U	7.3	0.235	U	110	U	14	U
ED01B	24-36	0.712	8.9	0.06	U	7.7	0.05	U	7.2	0.05	U	7.9	0.06	U	8	0.06	U	7.4	1.039	U	110	U	14	U
ED02B	12-24	0.548	9	0.05	U	7.8	0.04	U	7.3	0.04	U	14	0.08	U	8.1	0.04	U	7.5	1.369	U	110	U	14	U
ED03B	6-18	3.46	9.1	0.31	U	7.9	0.27	U	7.3	0.25	U	8	0.28	U	8.1	0.28	U	7.5	0.217	U	110	U	14	U
ED05B	12-24	3.71	9	0.24	U	7.8	0.21	U	7.3	0.20	U	8	0.22	U	8.1	0.22	U	31	0.836		110	U	14	U
EE01B	6-12	0.25	9	3.60	U	7.8	3.12	U	7.3	2.92	U	7.9	3.16	U	8	3.20	U	7.5	3.000	U	110	U	14	U
EE02B	12-24	0.583	8.9	1.53	U	7.7	1.32	U	7.2	1.23	U	7.9	1.36	U	8	1.37	U	7.4	1.269	U	110	U	14	U
EE03B	6-12	0.498	8.8	1.77	U	7.6	1.53	U	7.1	1.43	U	7.8	1.57	U	7.9	1.59	U	7.3	1.466	U	110	U	14	U
EE04B	6-12	0.63	8.8	1.40	U	7.6	1.21	U	7.1	1.13	U	7.8	1.24	U	7.9	1.25	U	7.3	1.159	U	110	U	14	U
EI02B	6-12	0.207	9	4.35	U	7.8	3.77	U	7.3	3.53	U	7.9	3.82	U	8	3.86	U	7.5	3.623	U	110	U	20	REJ
FT04B	12-24	1.39	9.1	0.65	U	7.9	0.57	U	7.4	0.53	U	8	0.58	U	8.1	0.11	U	7.6	0.547	U	110	U	14	U
FT06B	12-24	0.463	8.9	1.92	U	7.7	1.66	U	7.2	1.56	U	7.9	1.71	U	7.9	1.71	U	7.4	1.598	U	110	U	14	U
FT12B	6-12	0.843	8.8	1.04	U	7.6	0.90	U	7.1	0.84	U	7.8	0.93	U	7.9	0.94	U	7.3	0.866	U	110	U	14	U
IE01B	30-42	14.8	9.1	0.06	U	7.9	0.05	U	7.3	0.05	U	8	0.05	U	8.1	0.05	U	13	0.088	JT	110	U	14	U
IE05B	12-24	11.7	8.9	0.08	U	7.8	0.07	U	7.2	0.06	U	7.9	0.07	U	8	0.07	U	37	0.316		110	U	14	U
IE09B	36-48	78.5	9	0.01	U	7.8	0.01	U	7.3	0.01	U	8	0.01	U	8.1	0.01	U	41	0.052		280		14	U
IE12B	12-24	5.76	9	0.16	U	7.8	0.14	U	7.3	0.13	U	7.9	0.14	U	8	0.14	U	14	0.243	JT	110	U	14	U
IE14B	12-24	3.61	8.9	0.25	U	7.8	0.22	U	7.2	0.20	U	7.9	0.22	U	8	0.22	U	17	0.471	JT	120	JT	14	U
IE16B	12-24	0.656	9.1	1.39	U	7.9	1.20	U	7.3	1.11	U	8	1.22	U	8.1	1.23	U	7.5	1.143	U	110	U	14	UJK
IH02B	12-24	23.1	9	0.04	U	7.8	0.03	U	7.3	0.03	U	8	0.03	U	8.1	0.04	U	17	0.074	JT	160	JT	14	UJK
IH06B	12-24	4.85	9	0.19	U	7.8	0.16	U	7.3	0.15	U	8	0.16	U	8.1	0.17	U	21	0.433		200		14	U
KP02B	12-24	8.7	9	0.10	U	7.8	0.09	U	7.3	0.08	U	7.9	0.09	U	8	0.09	U	11	0.126	JT	200		14	U
KP03B	24-36	3.12	9.1	0.29	U	7.9	0.25	U	7.3	0.23	U	8	0.26	U	8.1	0.26	U	7.5	0.240	U	120	JT	18	JT
KP07B	12-24	0.529	9	1.70	U	7.8	1.47	U	7.3	1.38	U	7.9	1.49	U	8	1.51	U	7.5	1.418	U	110	U	14	UJG
KP08B	36-48	0.749	8.9	1.19	U	7.7	1.03	U	7.2	0.96	U	7.8	1.04	U	7.9	0.06	U	7.4	0.988	U	110	U	14	U
LA02B	24-36	4.41	8.9	0.20	U	7.7	0.17	U	7.2	0.16	U	7.9	0.18	U	8	0.18	U	7.4	0.168	U	110	U	14	U
LP05B	6-12	13.9	9	0.06	U	7.8	0.06	U	7.3	0.05	U	8	0.06	U	8.1	0.06	U	67	0.482		110	U	23	NJ
MA02B	6-12	5.84	9	0.15	U	7.8	0.13	U	7.3	0.13	U	7.9	0.14	U	8	0.14	U	21	0.360		110	U	14	UJK
MD01B	6-12	1.88	8.8	0.47	U	7.7	0.41	U	7.2	0.38	U	7.8	0.41	U	7.9	0.42	U	7.4	0.394	U	110	U	14	U
MD02B	12-24	5.12	9	0.18	U	7.8	0.15	U	7.3	0.14	U	8	0.16	U	8.1	0.16	U	29	0.566		110	U	14	U
MD03B	48-60	2.86	9	0.31	U	7.8	0.27	U	7.3	0.26	U	7.9	0.28	U	8	0.28	U	22	0.769		110	U	14	UJG
MD04B	6-18	1.22	8.9	0.73	U	7.7	0.63	U	7.2	0.59	U	7.9	0.65	U	8	0.66	U	10	0.820	JT	110	U	14	UJG
MD05B	4-10	0.803	9.1	1.13	U	7.9	0.98	U	7.3	0.91	U	8	1.00	U	8.1	1.01	U	7.5	0.934	U	110	U	14	UJG
SQS				0.81			2.300			3.100			0.380			3.900			15.000		650		57	
CSL				1.8			2.300			9.000			2.300			6.200			58.000		650		73	
LAET			31			35			110			22			NA			540		650		57		

Key:

Exceeds SQS/LAET criteria

Bold = Analyte was detected.

dw = dry weight

JG = Analyte was positively identified. Value may be greater than the reported estimate.

JK = Analyte was positively identified. Reported result is an estimate with unknown bias.

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.

JTK = Analyte was positively identified. Reported result is an estimate with unknown bias, below the associated quantitation limit but above the MDL.

ng/kg = nanograms per kilogram

U = Analyte was not detected at or above the reported result.

UJG = Analyte was not detected at or above the reported estimate with likely low bias.

REJ = Rejected

Table C-B13. Concentrations of Dioxin and Furan Congeners (ng/kg dw) in Subsurface B Core Sediment Samples

Station	Sample Interval (inches)	1,2,3,4,6,7,8-HpCDD		Detect/ ND Result	1,2,3,4,6,7,8-HpCDD TEQ (ND=1/2DL)		1,2,3,4,6,7,8-HpCDF		Detect/ ND Result	1,2,3,4,7,8,9-HpCDF TEQ (ND=1/2DL)		1,2,3,4,7,8-HxCDD		Detect/ ND Result	1,2,3,4,7,8-HxCDF		Detect/ ND Result	1,2,3,6,7,8-HxCDD		Detect/ ND Result	1,2,3,6,7,8-HxCDF TEQ (ND=1/2DL)				
BL02B	36-48	417	JG	417	4.17	121	JG	121	1.21	23.7	NG	23.7	0.237	4.41	JG	4.41	0.441	4.78	JG	4.78	0.478	26.7	JG	26.7	2.67
BL08B	12-24	13	JG	13	0.13	3.55	JG	3.55	0.0355	0.173	JTG	0.173	0.00173	0.307	JTG	0.307	0.0307	0.25	JTG	0.25	0.025	1.25	JG	1.25	0.125
CO02B	6-12	18.6		18.6	0.186	2.6		2.6	0.026	0.176	U	0.088	0.00088	0.503	JT	0.503	0.0503	0.432	JT	0.432	0.0432	1.12		1.12	0.112
CO03B	24-36	30.9		30.9	0.309	22.4		22.4	0.224	1.17		1.17	0.0117	0.425	JT	0.425	0.0425	11.3		11.3	1.13	1.91		1.91	0.191
CO04B	12-24	2.6		2.6	0.026	0.541	U	0.2705	0.002705	0.091	U	0.0455	0.000455	0.1	NJ	0.1	0.01	0.139	U	0.0695	0.00695	0.202	JT	0.202	0.0202
CO05B	24-36	104		104	1.04	45.3		45.3	0.453	4.45		4.45	0.0445	1.97		1.97	0.197	12.1		12.1	1.21	7.74		7.74	0.774
DO04B	6-12	26		26	0.26	5.71		5.71	0.0571	0.345	JT	0.345	0.00345	0.851		0.851	0.0851	0.67		0.67	0.067	3.34		3.34	0.334
DO05B	6-12	13		13	0.13	3.4		3.4	0.034	0.209	U	0.1045	0.001045	0.412	JT	0.412	0.0412	0.354	JT	0.354	0.0354	1.86		1.86	0.186
EC03B	6-12	465		465	4.65	132		132	1.32	8.15		8.15	0.0815	4.03		4.03	0.403	17.7		17.7	1.77	12.6		12.6	1.26
EC04B	12-24	43		43	0.43	13.8		13.8	0.138	1.32		1.32	0.0132	1.11		1.11	0.111	3.2		3.2	0.32	3.69		3.69	0.369
ED01B	24-36	5.28		5.28	0.0528	1.61		1.61	0.0161	0.102	JT	0.102	0.00102	0.194	JT	0.194	0.0194	0.185	JT	0.185	0.0185	0.476	JT	0.476	0.0476
ED02B	12-24	11.1		11.1	0.111	2.55		2.55	0.0255	0.161	JT	0.161	0.00161	0.353	JT	0.353	0.0353	0.316	JT	0.316	0.0316	0.979		0.979	0.0979
ED03B	6-18	164		164	1.64	28.8		28.8	0.288	1.38		1.38	0.0138	2.07		2.07	0.207	2.95		2.95	0.295	9.97		9.97	0.997
ED04B	36-48	252		252	2.52	37.9		37.9	0.379	2.1		2.1	0.021	4.99		4.99	0.499	4.42		4.42	0.442	20.8		20.8	2.08
ED05B	12-24	108		108	1.08	25.9		25.9	0.259	1.23		1.23	0.0123	1.32		1.32	0.132	3.4		3.4	0.34	6.76		6.76	0.676
EE01B	6-12	0.311	U	0.1555	0.001555	0.114	U	0.057	0.00057	0.025	U	0.0125	0.000125	0.032	JT	0.032	0.0032	0.047	U	0.0235	0.00235	0.044	NJ	0.044	0.0044
EE02B	12-24	5.97		5.97	0.0597	1.32		1.32	0.0132	0.133	U	0.0665	0.000665	0.262	JT	0.262	0.0262	0.397	JT	0.397	0.0397	0.55		0.55	0.055
EE03B	6-12	8.07		8.07	0.0807	1.9		1.9	0.019	0.328	JT	0.328	0.00328	0.143	JT	0.143	0.0143	0.415	JT	0.415	0.0415	0.53	JT	0.53	0.053
EE04B	6-12	3.22		3.22	0.0322	0.776	U	0.388	0.00388	0.077	U	0.0385	0.000385	0.127	JT	0.127	0.0127	0.129	U	0.0645	0.00645	0.341	JT	0.341	0.0341
IE01B	30-42	31.2		31.2	0.312	25.8		25.8	0.258	0.474	JT	0.474	0.00474	2.81		2.81	0.281	2.45		2.45	0.245	4.95		4.95	0.495
IE05B	12-24	298	JG	298	2.98	107	JG	107	1.07	2.94	JG	2.94	0.0294	6.26	JG	6.26	0.626	7.64	JG	7.64	0.764	25.7	JG	25.7	2.57
IE09B	36-48	393	JG	393	3.93	97.5	JG	97.5	0.975	3.75	JG	3.75	0.0375	1.43	JTG	1.43	0.143	2.17	JG	2.17	0.217	11.6	JG	11.6	1.16
IE12B	12-24	199		199	1.99	46.3		46.3	0.463	1.56		1.56	0.0156	2.23		2.23	0.223	2.94		2.94	0.294	20.2		20.2	2.02
IE14B	12-24	134		134	1.34	25.3		25.3	0.253	1.21		1.21	0.0121	2.45		2.45	0.245	1.99		1.99	0.199	18.9		18.9	1.89
IE16B	12-24	1.69	JG	1.69	0.0169	0.945	JK	0.945	0.00945	0.04	JTG	0.04	0.0004	0.048	JTG	0.048	0.0048	0.091	UJG	0.091	0.0091	0.171	JTG	0.171	0.0171
IH02B	12-24	2420	JG	2420	24.2	996	JG	996	9.96	22.4	JG	22.4	0.224	8.21	JG	8.21	0.821	37.1	JG	37.1	3.71	149	JG	149	14.9
IH06B	12-24	2030	JG	2030	20.3	565	JG	565	5.65	15.1	JG	15.1	0.151	12.2	JG	12.2	1.22	18.9	JG	18.9	1.89	128	JG	128	12.8
KP02B	12-24	378	JG	378	3.78	109	JG	109	1.09	4.3	JG	4.3	0.043	4.27	JG	4.27	0.427	7.36	JG	7.36	0.736	24.1	JG	24.1	2.41
KP03B	24-36	167	JG	167	1.67	33	JG	33	0.33	1.43	JG	1.43	0.0143	1.22	JG	1.22	0.122	2.28	JG	2.28	0.228	11.9	JG	11.9	1.19
KP07B	12-24	4.06		4.06	0.0406	1.58		1.58	0.0158	0.096	JT	0.096	0.00096	0.112	JT	0.112	0.0112	0.138	JT	0.138	0.0138	0.441	JT	0.441	0.0441
KP08B	36-48	7.55	JG	7.55	0.0755	2.31	JG	2.31	0.0231	0.122	JTG	0.122	0.00122	0.144	JTG	0.144	0.0144	0.171	JTG	0.171	0.0171	0.663	JG	0.663	0.0663
LA02B	24-36	7.82		7.82	0.0782	3.28		3.28	0.0328	0.108	JT	0.108	0.00108	0.935		0.935	0.0935	0.486	JT	0.486	0.0486	1.3		1.3	0.13
MA02B	6-12	393		393	3.93	88.7		88.7	0.887	3.07		3.07	0.0307	4.47		4.47	0.447	3.94		3.94	0.394	43		43	4.3
MD01B	6-12	64.2		64.2	0.642	5.99		5.99	0.0599	0.431	JT	0.431	0.00431	1.06		1.06	0.106	0.874		0.874	0.0874	2.91		2.91	0.291
MD02B	12-24	211		211	2.11	70.8		70.8	0.708	4.69		4.69	0.0469	5.91		5.91	0.591	7.73		7.73	0.773	15.6		15.6	1.56
MD03B	48-60	95.3		95.3	0.953	25.8		25.8	0.258	1.27		1.27	0.0127	4.65		4.65	0.465	3.16		3.16	0.316	9.38		9.38	0.938
MD04B	6-18	145		145	1.45	36.2		36.2	0.362	1.68		1.68	0.0168	2.46		2.46	0.246	2.79		2.79	0.279	8.24		8.24	0.824
MD05B	4-10	8.12		8.12	0.0812	1.58		1.58	0.0158	0.115	JT	0.115	0.00115	0.262	JT	0.262	0.0262	0.223	JT	0.223	0.0223	0.888		0.888	0.0888

Key:

- Bold** = Analyte was detected.
- dw = dry weight
- JG = Analyte was positively identified. Value may be greater than the reported estimate.
- JK = Analyte was positively identified. Reported result is an estimate with unknown bias.
- JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.
- JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.
- JTK = Analyte was positively identified. Reported result is an estimate with unknown bias, below the associated quantitation limit but above the MDL.
- ng/kg = nanograms per kilogram
- U = Analyte was not detected at or above the reported result.
- UJG = Analyte was not detected at or above the reported estimate with likely low bias.

Table C-B13. Concentrations of Dioxin and Furan Congeners (ng/kg dw) in Subsurface B Core Sediment Samples

Station	1,2,3,6,7,8-HxCDF		Detect/ ND Result	1,2,3,6,7,8-HxCDF TEQ (ND=1/2DL)		1,2,3,7,8,9-HxCDD		Detect/ ND Result	1,2,3,7,8,9-HxCDD TEQ (ND=1/2DL)		1,2,3,7,8,9-HxCDF		Detect/ ND Result	1,2,3,7,8-PeCDD		Detect/ ND Result	1,2,3,7,8-PeCDD TEQ (ND=1/2DL)		1,2,3,7,8-PeCDF		Detect/ ND Result	1,2,3,7,8-PeCDF TEQ (ND=1/2DL)		2,3,4,6,7,8-HxCDF		Detect/ ND Result	2,3,4,6,7,8-HxCDF TEQ (ND=1/2DL)	
BL02B	3.65	JG	3.65	0.365	12.9	JG	12.9	1.29	0.241	JTG	0.241	0.0241	4.09	JG	4.09	4.09	1.5	JG	1.5	0.045	3.19	JG	3.19	0.319				
BL08B	0.169	JTG	0.169	0.0169	0.845	JG	0.845	0.0845	0.0296	UJG	0.0296	0.00296	0.357	JTG	0.357	0.357	0.177	JTG	0.177	0.00531	0.169	JTG	0.169	0.0169				
CO02B	0.284	JT	0.284	0.0284	0.94		0.94	0.094	0.036	JT	0.036	0.0036	0.501	JT	0.501	0.501	0.368	JT	0.368	0.01104	0.241	JT	0.241	0.0241				
CO03B	1.92		1.92	0.192	1.1		1.1	0.11	0.066	NJ	0.066	0.0066	0.349	JT	0.349	0.349	0.985		0.985	0.02955	2.82		2.82	0.282				
CO04B	0.065	U	0.0325	0.00325	0.199	JT	0.199	0.0199	0.0235	U	0.01175	0.001175	0.119	NJ	0.119	0.119	0.073	U	0.0365	0.001095	0.097	U	0.0485	0.00485				
CO05B	2.63		2.63	0.263	4.4		4.4	0.44	0.157	JT	0.157	0.0157	1.47		1.47	1.47	1.7		1.7	0.051	2.99		2.99	0.299				
DO04B	0.413	JT	0.413	0.0413	2.51		2.51	0.251	0.063	JT	0.063	0.0063	1.04		1.04	1.04	0.471	JT	0.471	0.01413	0.394	JT	0.394	0.0394				
DO05B	0.232	JT	0.232	0.0232	1.28		1.28	0.128	0.0401	U	0.02005	0.002005	0.414	JT	0.414	0.414	0.23	JT	0.23	0.0069	0.229	JT	0.229	0.0229				
EC03B	4.64		4.64	0.464	9.63		9.63	0.963	0.289	JT	0.289	0.0289	3.58		3.58	3.58	4.07		4.07	0.1221	4.55		4.55	0.455				
EC04B	1.1		1.1	0.11	2.72		2.72	0.272	0.083	JT	0.083	0.0083	1.16		1.16	1.16	1.02		1.02	0.0306	1.02		1.02	0.102				
ED01B	0.112	JT	0.112	0.0112	0.501	JT	0.501	0.0501	0.0245	U	0.01225	0.001225	0.226	JT	0.226	0.226	0.109	JT	0.109	0.00327	0.088	JT	0.088	0.0088				
ED02B	0.202	JT	0.202	0.0202	0.761		0.761	0.0761	0.0247	U	0.01235	0.001235	0.353	JT	0.353	0.353	0.232	JT	0.232	0.00696	0.195	JT	0.195	0.0195				
ED03B	1.5		1.5	0.15	5.63		5.63	0.563	0.122	JT	0.122	0.0122	2.14		2.14	2.14	1.73		1.73	0.0519	1.52		1.52	0.152				
ED04B	2.58		2.58	0.258	13.1		13.1	1.31	0.31	JT	0.31	0.031	5.2		5.2	5.2	3.05		3.05	0.0915	2.49		2.49	0.249				
ED05B	1.24		1.24	0.124	3.47		3.47	0.347	0.121	JT	0.121	0.0121	1.03		1.03	1.03	1.11		1.11	0.0333	1.15		1.15	0.115				
EE01B	0.027	U	0.0135	0.00135	0.066	NJ	0.066	0.0066	0.023	U	0.0115	0.00115	0.033	JT	0.033	0.033	0.023	U	0.0115	0.000345	0.023	U	0.0115	0.00115				
EE02B	0.276	JT	0.276	0.0276	0.565		0.565	0.0565	0.032	NJ	0.032	0.0032	0.287	JT	0.287	0.287	0.195	JT	0.195	0.00585	0.209	JT	0.209	0.0209				
EE03B	0.212	U	0.106	0.0106	0.407	JT	0.407	0.0407	0.0241	U	0.01205	0.001205	0.188	JT	0.188	0.188	0.156	JT	0.156	0.00468	0.163	JT	0.163	0.0163				
EE04B	0.082	U	0.041	0.0041	0.27	JT	0.27	0.027	0.0242	U	0.0121	0.00121	0.128	JT	0.128	0.128	0.096	U	0.048	0.00144	0.083	U	0.0415	0.00415				
IE01B	2.05		2.05	0.205	5.37		5.37	0.537	0.175	JT	0.175	0.0175	3.26		3.26	3.26	2.53		2.53	0.0759	2.05		2.05	0.205				
IE05B	5.88	JG	5.88	0.588	15.9	JG	15.9	1.59	0.312	JTG	0.312	0.0312	7.48	JG	7.48	7.48	4.38	JG	4.38	0.1314	5.66	JG	5.66	0.566				
IE09B	1.14	JTG	1.14	0.114	3.28	JG	3.28	0.328	0.215	UJG	0.215	0.0215	1.5	JTG	1.5	1.5	1.19	JTG	1.19	0.0357	1.03	JTG	1.03	0.103				
IE12B	1.72		1.72	0.172	9.28		9.28	0.928	0.149	JT	0.149	0.0149	2.7		2.7	2.7	1.3		1.3	0.039	1.95		1.95	0.195				
IE14B	1.26		1.26	0.126	10.2		10.2	1.02	0.137	JT	0.137	0.0137	3.34		3.34	3.34	1.32		1.32	0.0396	1.21		1.21	0.121				
IE16B	0.049	JTG	0.049	0.0049	0.282	JTG	0.282	0.0282	0.0239	UJG	0.0239	0.00239	0.106	JTG	0.106	0.106	0.0239	UJG	0.0239	0.000717	0.033	JTG	0.033	0.0033				
IH02B	16.5	JG	16.5	1.65	26.8	JG	26.8	2.68	0.862	JTG	0.862	0.0862	12.1	JG	12.1	12.1	6.62	JG	6.62	0.1986	13.4	JG	13.4	1.34				
IH06B	9.52	JG	9.52	0.952	42.8	JG	42.8	4.28	0.848	JTG	0.848	0.0848	10.8	JG	10.8	10.8	3.87	JG	3.87	0.1161	8.01	JG	8.01	0.801				
KP02B	3.69	JG	3.69	0.369	11.8	JG	11.8	1.18	0.173	JTG	0.173	0.0173	4.74	JG	4.74	4.74	2.03	JG	2.03	0.0609	3.29	JG	3.29	0.329				
KP03B	1.3	JG	1.3	0.13	3.9	JG	3.9	0.39	0.183	JTG	0.183	0.0183	1.33	JG	1.33	1.33	0.848	JG	0.848	0.02544	1.25	JG	1.25	0.125				
KP07B	0.094	JT	0.094	0.0094	0.39	JT	0.39	0.039	0.0246	U	0.0123	0.00123	0.163	JT	0.163	0.163	0.087	JT	0.087	0.00261	0.092	JT	0.092	0.0092				
KP08B	0.102	JTG	0.102	0.0102	0.578	JTG	0.578	0.0578	0.039	JTG	0.039	0.0039	0.277	JTG	0.277	0.277	0.095	JTG	0.095	0.00285	0.092	JTG	0.092	0.0092				
LA02B	0.489	JT	0.489	0.0489	1.46		1.46	0.146	0.044	NJ	0.044	0.0044	0.918		0.918	0.918	0.876		0.876	0.02628	0.401	JT	0.401	0.0401				
MA02B	3.12		3.12	0.312	16		16	1.6	0.216	JT	0.216	0.0216	5.14		5.14	5.14	1.93		1.93	0.0579	3.18		3.18	0.318				
MD01B	0.522		0.522	0.0522	2.52		2.52	0.252	0.058	JT	0.058	0.0058	0.859		0.859	0.859	0.634		0.634	0.01902	2.28		2.28	0.228				
MD02B	3.58		3.58	0.358	12.2		12.2	1.22	0.27	JT	0.27	0.027	5.29		5.29	5.29	3.54		3.54	0.1062	3.85		3.85	0.385				
MD03B	2.45		2.45	0.245	8.65		8.65	0.865	0.231	JT	0.231	0.0231	4.04		4.04	4.04	3.15		3.15	0.0945	2.13		2.13	0.213				
MD04B	1.62		1.62	0.162	6.27		6.27	0.627	0.134	JT	0.134	0.0134	2.23		2.23	2.23	1.66		1.66	0.0498	1.46		1.46	0.146				
MD05B	0.159	JT	0.159	0.0159	0.7		0.7	0.07	0.0243	U	0.01215	0.001215	0.287	JT	0.287	0.287	0.162	JT	0.162	0.00486	0.156	JT	0.156	0.0156				

Key:

dw = dry weight

JG = Analyte was positively identified. Value may be greater than the reported estimate.

JK = Analyte was positively identified. Reported result is an estimate with unknown bias.

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.

JTK = Analyte was positively identified. Reported result is an estimate with unknown bias, below the associated quantitation limit but above the MDL.

ng/kg = nanograms per kilogram

U = Analyte was not detected at or above the reported result.

UJG = Analyte was not detected at or above the reported estimate with likely low bias.

Table C-B13. Concentrations of Dioxin and Furan Congeners (ng/kg dw) in Subsurface B Core Sediment Samples

Station	2,3,4,7,8-PeCDF		Detect/ ND Result	2,3,4,7,8-PeCDF TEQ (ND=1/2DL)	2,3,7,8-TCDD		Detect/ ND Result	2,3,7,8-TCDD TEQ (ND=1/2DL)	2,3,7,8-TCDF		Detect/ ND Result	2,3,7,8-TCDF TEQ (ND=1/2DL)	OCDD		Detect/ ND Result	OCDD TEQ (ND=1/2DL)	OCDF		Detect/ ND Result	OCDF TEQ (ND=1/2DL)	Total TCDD TEQ (ND=1/2DL)
BL02B	2.27	JG	2.27	0.681	1.05	JG	1.05	1.05	2.77	JG	2.77	0.277	2820	JG	2820	0.846	340	JG	340	0.102	18.3
BL08B	0.263	JTG	0.263	0.0789	0.175	JG	0.175	0.175	0.31	JG	0.31	0.031	88.7	JG	88.7	0.02661	7.14	JG	7.14	0.002142	1.15
CO02B	0.541		0.541	0.1623	0.18		0.18	0.18	0.799		0.799	0.0799	199		199	0.0597	14.1		14.1	0.00423	1.57
CO03B	2.79		2.79	0.837	0.166		0.166	0.166	2.23		2.23	0.223	199		199	0.0597	18.7		18.7	0.00561	4.17
CO04B	0.102	U	0.051	0.0153	0.083	JT	0.083	0.083	0.122		0.122	0.0122	22.9		22.9	0.00687	1.06	U	0.53	0.000159	0.333
CO05B	3.55		3.55	1.065	0.653		0.653	0.653	6.34		6.34	0.634	815		815	0.2445	100		100	0.03	8.88
DO04B	0.64		0.64	0.192	0.285		0.285	0.285	1.14		1.14	0.114	141		141	0.0423	9.35		9.35	0.002805	2.84
DO05B	0.35	JT	0.35	0.105	0.155		0.155	0.155	0.58		0.58	0.058	68.8		68.8	0.02064	4.71		4.71	0.001413	1.37
EC03B	7.76		7.76	2.328	1.17		1.17	1.17	17		17	1.7	7320		7320	2.196	1260		1260	0.378	22.9
EC04B	1.71		1.71	0.513	0.416		0.416	0.416	2.88		2.88	0.288	344		344	0.1032	43.6		43.6	0.01308	4.40
ED01B	0.143	JT	0.143	0.0429	0.211		0.211	0.211	0.192		0.192	0.0192	44.5		44.5	0.01335	5.8		5.8	0.00174	0.744
ED02B	0.342	JT	0.342	0.1026	0.175		0.175	0.175	0.51		0.51	0.051	96.5		96.5	0.02895	11.2		11.2	0.00336	1.14
ED03B	2.63		2.63	0.789	0.855		0.855	0.855	4.36		4.36	0.436	1410		1410	0.423	98.3		98.3	0.02949	9.04
ED04B	4.23		4.23	1.269	1.49		1.49	1.49	7.45		7.45	0.745	2080		2080	0.624	122		122	0.0366	17.2
ED05B	1.65		1.65	0.495	0.378		0.378	0.378	3.82		3.82	0.382	935		935	0.2805	48.7		48.7	0.01461	5.71
EE01B	0.035	U	0.0175	0.00525	0.035	NJ	0.035	0.035	0.023	U	0.0115	0.00115	1.43		1.43	0.000429	0.141	U	0.0705	0.00002115	0.098
EE02B	0.258	JT	0.258	0.0774	0.118	NJ	0.118	0.118	0.301		0.301	0.0301	54.8		54.8	0.01644	2.75		2.75	0.000825	0.838
EE03B	0.216	JT	0.216	0.0648	0.132		0.132	0.132	0.273		0.273	0.0273	56.7		56.7	0.01701	6.71	JK	6.71	0.002013	0.716
EE04B	0.146	U	0.073	0.0219	0.082	NJ	0.082	0.082	0.195		0.195	0.0195	23.4		23.4	0.00702	1.95		1.95	0.000585	0.387
IE01B	3.34		3.34	1.002	1.31		1.31	1.31	4.07		4.07	0.407	132		132	0.0396	13.8		13.8	0.00414	8.66
IE05B	6.97	JG	6.97	2.091	2.04	JG	2.04	2.04	8.05	JG	8.05	0.805	2210	JG	2210	0.663	216	JG	216	0.0648	24.1
IE09B	1.32	JTG	1.32	0.396	0.773	NJ	0.773	0.773	2.12	JG	2.12	0.212	6480	JG	6480	1.944	801	JG	801	0.2403	12.1
IE12B	1.84		1.84	0.552	0.652		0.652	0.652	4.3		4.3	0.43	1530		1530	0.459	78.2		78.2	0.02346	11.2
IE14B	1.68		1.68	0.504	0.759		0.759	0.759	5		5	0.5	740		740	0.222	59.8		59.8	0.01794	10.6
IE16B	0.083	NJ	0.083	0.0249	0.102	NJ	0.102	0.102	0.208	JG	0.208	0.0208	14.7	JG	14.7	0.00441	0.57	JTG	0.57	0.000171	0.356
IH02B	7.96	JG	7.96	2.388	4.46	JG	4.46	4.46	8.81	JG	8.81	0.881	31200	JG	31200	9.36	2310	JG	2310	0.693	89.7
IH06B	5.51	JG	5.51	1.653	5.25	JG	5.25	5.25	15.3	JG	15.3	1.53	20000	JG	20000	6	2170	JG	2170	0.651	74.1
KP02B	3.09	JG	3.09	0.927	1.4		1.4	1.4	3.6		3.6	0.36	3440	JG	3440	1.032	440	JG	440	0.132	19.0
KP03B	1.22	JG	1.22	0.366	0.497	JG	0.497	0.497	1.28		1.28	0.128	1430	JG	1430	0.429	61	JG	61	0.0183	7.01
KP07B	0.121	JT	0.121	0.0363	0.093	JT	0.093	0.093	0.181		0.181	0.0181	30		30	0.009	2.4		2.4	0.00072	0.508
KP08B	0.133	JTG	0.133	0.0399	0.212	JG	0.212	0.212	.13		.13	0.013	52.8	JG	52.8	0.01584	6.13	JG	6.13	0.001839	0.841
LA02B	1.02		1.02	0.306	0.38		0.38	0.38	2.16		2.16	0.216	15.9		15.9	0.00477	1.8		1.8	0.00054	2.48
MA02B	2.78		2.78	0.834	1.05		1.05	1.05	4.57		4.57	0.457	2930		2930	0.879	267		267	0.0801	20.7
MD01B	0.843		0.843	0.2529	0.271		0.271	0.271	1.27		1.27	0.127	588		588	0.1764	25.7		25.7	0.00771	3.44
MD02B	6.38		6.38	1.914	1.38		1.38	1.38	10.4		10.4	1.04	2030		2030	0.609	236		236	0.0708	18.2
MD03B	4.08		4.08	1.224	1.46		1.46	1.46	5.82		5.82	0.582	539		539	0.1617	105		105	0.0315	11.9
MD04B	2.6		2.6	0.78	1.08		1.08	1.08	3.87		3.87	0.387	1740		1740	0.522	282		282	0.0846	9.26
MD05B	0.23	JT	0.23	0.069	0.12		0.12	0.12	0.367	NJ	0.367	0.0367	53.2		53.2	0.01596	5.12		5.12	0.001536	0.873

Key:

- dw = dry weight
- JG = Analyte was positively identified. Value may be greater than the reported estimate.
- JK = Analyte was positively identified. Reported result is an estimate with unknown bias.
- JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.
- JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.
- JTK = Analyte was positively identified. Reported result is an estimate with unknown bias, below the associated quantitation limit but above the MDL.
- ng/kg = nanograms per kilogram
- U = Analyte was not detected at or above the reported result.
- UJG = Analyte was not detected at or above the reported estimate with likely low bias.

**Table C–B14. Total Dioxin TEQs in Subsurface "B" Core Sediment Samples**

Station	Sample Interval (inches)	Total Dioxin TEQ	Qualifier	Station	Sample Interval (inches)	Total Dioxin TEQ	Qualifier
IE01B	30–42	8.66	JT	CO05B	24–36	8.88	JT
IE05B	12–24	24.1	JG	MD01B	6–12	3.44	JT
IE09B	36–48	12.1	JG	MD02B	12–24	18.2	JT
IE12B	12–24	11.2	JT	MD03B	48–60	11.9	JT
IE14B	12–24	10.6	JT	MD04B	6–18	9.26	JT
IE16B	12–24	0.356	JG	MD05B	4–10	0.873	JT
LA02B	24–36	2.48	JT	ED01B	24–36	0.744	JT
IH02B	12–24	89.7	JG	ED02B	12–24	1.14	JT
IH06B	12–24	74.1	JG	ED03B	6–18	9.04	JT
MA02B	6–12	20.7	JT	ED04B	36–48	17.2	JT
BL02B	36–48	18.3	JG	ED05B	12–24	5.71	JT
BL08B	12–24	1.15	JG	DO04B	6–12	2.84	JT
KP02B	12–24	19.0	JG	DO05B	6–12	1.37	JT
KP03B	24–36	7.01	JG	EC03B	6–12	22.9	JT
KP07B	12–24	0.508	JT	EC04B	12–24	4.40	JT
KP08B	36–48	0.841	JG	EE01B	6–12	0.098	JT
CO02B	6–12	1.57	JT	EE02B	12–24	0.838	JK
CO03B	24–36	4.17	JT	EE03B	6–12	0.716	JT
CO04B	12–24	0.333	JT	EE04B	6–12	0.387	JT

Key:

Concentrations are in ng/kg dry weight.

Non-detected values are reported as half of the detection limit.

- JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.
- JG = Analyte was positively identified. Value may be greater than the reported estimate.
- JK = Analyte was positively identified. Reported result is an estimate with unknown bias.



**Table C-C1. Sediment Grain Size in Subsurface “C” and “D” Core Sediment Samples**

Station	Sample Interval (inches)	% Fines	% Gravel	% Very Coarse Sand	% Coarse Sand	% Medium Sand	% Fine Sand	% Very Fine Sand	Total % Silt	% Clay
BL02C	60–78	10.8	0.4	2	18.4	43.5	18.1	7	7.9	2.9
BL08C	36–48	52.2	0.1	0.3	0.2	0.6	12.6	33.9	43.4	8.8
DO04C	12–24	22.6	0.3	0.3	0.5	1.2	30.6	44.5	13.9	8.7
DO04D	24–32	20.8	2.2	1.7	1.3	1.5	32.7	39.8	12.5	8.2
DO05C	12–16	11.9	46.6	1.6	1.4	2.7	15.5	20.3	7.6	4.3
EC03C	12–24	48.5	1.9	2.2	2.5	5.1	12.7	27.2	33	15.5
ED01C	72–84	2.1	82.9	5.3	3.5	3.2	1.8	1.1	2.1	0
ED02C	36–48	18.1	38.9	2.5	4.7	12.6	13.5	9.6	14.3	3.8
ED03C	33–45	8.7	6.9	6.1	14.4	36.7	21.6	5.7	6.6	2.1
EE02C	24–36	3.9	10.6	3.5	6.7	26.1	37	12.1	2.8	1.1
EE03C	12–24	4.9	7	4.4	8.3	31.3	32.5	11.5	3.5	1.4
EE04C	12–24	7.5	26.3	6.4	3.6	13.5	30.2	12.5	6.3	1.2
FT04C	36–48	66.6	0.8	1.4	1.6	3	8	18.5	53.2	13.4
FT06C	36–48	13.9	36.8	3.6	4.5	15.9	15.9	9.4	9.7	4.2
FT12C	36–48	29.3	0.5	0.1	0.2	0.6	26.4	43	18.3	11
IE01C	48–60	14.6	0.7	0.7	1.7	8.8	52.4	21.2	8.9	5.7
IE05C	98–110	58.1	2.8	2.9	2.7	4.7	10.9	18	43.7	14.4
IE12C	107–119	28.5	0.5	0.6	0.7	1.7	32.3	35.7	20.3	8.2
IE14C	62–74	81.1	0.1	0.7	0.5	0.6	1.7	15.1	61.4	19.7
IE16C	36–48	55.9	0.2	0.4	0.5	1	5	37	44.8	11.1
IH02C	70–82	81.2	0.1	0.3	0.5	0.8	1.7	15.4	64.5	16.7
IH06C	98–100	39.6	0.5	0.4	0.7	1.6	14.7	42.4	34	5.6
KP02C	54–66	29.9	13.2	1.6	3	18.9	20.9	12.6	22.2	7.7
KP03C	78–90	87.6	0.1	0.9	0.7	0.8	1.5	8.6	67.4	20.2
KP07C	36–48	52.1	0.8	0.2	0.2	0.8	11.3	34.6	42.5	9.6
KP08C	48–60	18.8	40	3.3	4.3	12.5	12.8	8.3	11.7	7.1
LA02C	NA	6.5	18.8	10.6	23.7	31.6	7.6	1.1	4.3	2.2
MA02C	12–24	72.7	1.3	5.1	3.1	4.1	5.3	8.3	50.3	22.4
MD01C	12–24	5.4	71.9	4.3	4.6	8.5	3.2	2	4.1	1.3
MD02C	48–60	21	33.5	5.5	7.8	15.5	10.7	6.1	15.3	5.7
MD03C	35–47	25.4	34.8	7.4	8.9	13	6.6	4	18.2	7.2
MD05C	10–22	4.3	59.8	13.6	9.2	8.1	3.5	1.4	3	1.3

**Table C–C2. Total Organic Carbon Content of Subsurface “C” and “D” Core Sediment Samples**

Station	Sample Interval (inches)	% TOC	Qualifier
BL02C	60–78	1.1	
BL08C	36–48	0.438	
DO04C	12–24	0.593	
DO04D	24–32	0.424	
DO05C	12–16	0.534	
EC03C	12–24	2.78	JK
ED01C	72–84	0.255	
ED02C	36–48	1.32	
ED03C	33–45	0.548	
EE02C	24–36	0.128	
EE03C	12–24	0.329	JK
EE04C	12–24	0.263	
FT04C	36–48	2.43	
FT06C	36–48	0.2	
FT12C	36–48	0.506	
IE01C	48–60	0.698	
IE05C	98–110	0.89	
IE12C	107–119	0.638	
IE14C	62–74	1.1	
IE16C	36–48	0.484	
IH02C	70–82	2.24	
IH06C	98–100	0.696	
KP02C	54–66	0.336	
KP03C	78–90	6.47	
KP07C	36–48	0.506	
KP08C	48–60	0.622	
LA02C	NA	1.77	
MA02C	12–24	3.52	
MD01C	12–24	0.21	
MD02C	48–60	0.244	
MD03C	35–47	2.46	
MD05C	10–22	0.359	

Key:

JK = Analyte was positively identified. Reported result is an estimate with unknown bias.

**Table C–C3. Concentrations of Sulfide and Ammonia in Subsurface  
“C” and “D” Core Sediment Samples**

Station	Sample Interval (inches)	Sulfide (mg/kg dw)	Qualifier	Ammonia (mg/kg dw)	Qualifier
BL02C	60–78	105	JG	9.41	
DO04C	12–24	76.3		2.28	
DO04D	24–32	17.9		3.23	
DO05C	12–16	8.38		1.32	
EC03C	12–24	3030	JL	175	
IE01C	48–60	18.7		6.87	
IE05C	98–110	138		30	
IE12C	107–119	2.68		20	
IE14C	62–74	304		70.6	
IE16C	36–48	2.96		14.7	
IH02C	70–82	123		147	
IH06C	98–100	19.1	JG	24.3	
KP08C	48–60	171		2.54	
LA02C	NA	7.25		8.93	
MD01C	12–24	6.76		0.49	
MD02C	48–60	1.09		65.5	
MD03C	35–47	131		36.6	
MD05C	10–22	2.8	JK	1.2	

Note: There were no data qualifiers for Ammonia.

Key:

dw = dry weight

JG = The associated estimated positive result has a likely low bias.

JK = Analyte was positively identified. Reported result is an estimate with unknown bias.

mg/kg = milligrams per kilogram

Table C-C4. Concentrations of Metals in Subsurface C and D Core Sediment Samples

Station	Sample Interval (inches)	Antimony (mg/kg dw)		Arsenic (mg/kg dw)		Barium (mg/kg dw)		Cadmium (mg/kg dw)		Chromium (mg/kg dw)		Copper (mg/kg dw)		Lead (mg/kg dw)		Mercury (mg/kg dw)		Nickel (mg/kg dw)		Silver (mg/kg dw)		Zinc (mg/kg dw)	
		Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
BL02C	60-78	0.002	U	1.7		19		0.12	JT	27		15		2.3		0.023	JT	52		0.032	JT	28	
BL08C	36-48	0.26	U	4.7		24		0.095	JT	27		16		3.6		0.017	JT	24		0.072	JT	50	
DO04C	12-24	0.17	JT	4.4		14		0.2	JT	23		15		3.8		0.026		21		0.046	JT	51	
DO04D	24-32	0.17	JT	4.4		15		0.2	JT	23		14		3.3		0.018	JT	21		0.039	JT	48	
DO05C	12-16	0.18	JT	4.6		13		0.21	JT	20		12		3.1		0.027		19		0.039	JT	42	
EC03C	12-24	0.45		4.7		27		0.54		37		44		23		0.097		37		0.13	JT	66	
ED01C	72-84	0.33	U	4.4		12		0.00053	U	32		40		1.7		0.031		47		0.074	JT	42	
ED02C	36-48	0.25	U	3.8		26		0.076	JT	27		22		4.1		0.024		29		0.077	JT	38	
ED03C	33-45	0.0015	U	2.7		15		0.065	JT	22		11		2.9		0.017	JT	25		0.032	JT	23	
EE02C	24-36	0.09	JT	2.3		9.2		0.12	JT	18		12		1.9		0.016	JT	22		0.031	JT	25	
EE03C	12-24	0.17	JT	2		6.5		0.03	JT	21		17		5.4		0.019	JT	23		0.033	JT	26	
EE04C	12-24	0.31		2.9		6.3		0.086	JT	16		10		1.9		0.017	JT	18		0.024	JT	20	
FT04C	36-48	1.7		7.9		45		0.89		37		46		45		0.33		34		0.61		130	
FT06C	36-48	0.23	U	2.2		10		0.064	JT	16		8.8		2.2		0.012	JT	18		0.037	JT	25	
FT12C	36-48	0.25	JT	3.5		15		0.11	JT	23		18		4		0.048		23		0.051	JT	47	
IE01C	48-60	0.18	U	2.1		9.5		0.052	JT	22		11		2.7		0.014	JT	18		0.039	JT	42	
IE05C	98-110	0.28	U	5.4		26		0.2	JT	31		24		6.3		0.037		28		0.092	JT	57	
IE12C	107-119	0.25	U	5		22		0.17	JT	28		17		4.1		0.026		25		0.064	JT	54	
IE14C	62-74	0.46	U	5.7		36		0.26	JT	32		25		9.6		0.098		27		0.13	JT	67	
IE16C	36-48	0.22	JT	4.7		28		0.17	JT	28		17		4.5		0.029		23		0.075	JT	53	
IH02C	70-82	0.23	JT	6.8		28		0.63		32		24		6.7		0.058		29		0.1	JT	59	
IH06C	98-100	0.12		3.9		14		0.51		19		11		3		0.021	JT	18		0.056	JT	35	
KP02C	54-66	0.15	JT	4.8		34		0.19		27		21		3.7		0.025		27		0.053	JT	38	
KP03C	78-90	0.37		8		35		0.75		40		42		29		0.17		38		0.24	JT	87	
KP07C	36-48	0.16	U	4.9		22		0.12	JT	26		15		4.1		0.014	JT	22		0.066	JT	50	
KP08C	48-60	0.3	U	5.1		21		0.022	JT	34		13		3.2		0.034		26		0.052	JT	34	
LA02C	NA	0.13	JT	3.3		5.7		0.51		19		18		3.3		0.028		19		0.033	JT	44	
MA02C	12-24	0.54		9.4		34		2.6		38		51		27		0.5		32		0.21	JT	200	
MD01C	12-24	0.0024	U	1.1		6		0.016	JT	9.7		6		1.3		0.024		13		0.014	JT	13	
MD02C	48-60	0.2	JT	2.1		15		0.11	JT	15		280		6.8		0.028		24		0.065	JT	160	
MD03C	35-47	0.0026	U	5.4		17		0.46		21		24		10		0.16		28		0.08	JT	43	
MD05C	10-22	0.0017	U	1.7		4.5		0.053	JT	6.7		5.8		1.7		0.05		7.8		0.025	JT	12	
SQS		NA		57.00		NA		5.10		260.00		390.00		450.00		0.410		NA		6.10		410.00	
CSL		NA		93.00		NA		6.70		270.00		390.00		530.00		0.590		NA		6.10		960.00	
LAET		150.00		57		NA		5.10		260.00		390.00		450.00		0.410		140		6.10		410.00	

Key:

Exceeds SQS criteria

**Bold** = Analyte was detected.

dw = dry weight

mg/kg = milligrams per kilogram

JT = The associated estimated positive result is less than the reporting limit.

U = Analyte was not detected at or above the reported result.

**Table C-C5. Concentrations of TPH Compounds in Subsurface C Core Sediment Samples**

Station	Sample Interval (inches)	#2 Diesel (mg/kg dw)		Motor Oil (mg/kg dw)	
		Result	Qualifier	Result	Qualifier
EC03C	12-24	<b>310</b>		<b>650</b>	
ED01C	72-84	6.5	U	6.5	U
ED02C	36-48	15	U	<b>22</b>	JT
ED03C	33-45	<b>6.7</b>	JT	<b>9.4</b>	JT
EE02C	24-36	7.2	U	7.2	U
EE03C	12-24	<b>8.7</b>	JT	6.6	U
EE04C	12-24	6.5	U	6.5	U
FT04C	36-48	<b>150</b>		<b>580</b>	
IE01C	48-60	7.3	U	7.2	U
IE05C	98-110	8.6	U	8.5	U
IH02C	70-82	<b>11</b>	JT	<b>33</b>	JT
IH06C	98-100	<b>10</b>	JT	<b>37</b>	JT
KP02C	54-66	7	U	<b>17</b>	JT
KP03C	78-90	<b>67</b>		<b>270</b>	
LA02C	NA	<b>14</b>	JT	<b>41</b>	JT
MA02C	12-24	<b>83</b>		<b>410</b>	
MD01C	12-24	6.6	U	6.6	U
MD02C	48-60	<b>9.2</b>	JT	<b>9</b>	JT
MD03C	35-47	<b>37</b>		<b>130</b>	
MD05C	10-22	<b>8</b>	JT	6.5	U

Key:

**Bold** = Analyte was detected.

dw = dry weight

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

mg/kg = milligrams per kilogram

U = Analyte was not detected at or above the reported result.

Table C-C6. Concentrations of LPAH and HPAH Compounds in Subsurface C and D Core Sediment Samples

Station	Sample Interval (inches)	% TOC	2-Methylnaphthalene			Acenaphthene			Acenaphthylene			Anthracene			Fluorene			Naphthalene		
			Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier
BL02C	60-78	1.1	8.1	0.74	U	8.1	0.74	U	8.6	0.78	U	7.6	0.69	U	8.9	0.81	U	8.6	0.78	U
BL08C	36-48	0.438	8.1	1.85	U	8.1	1.85	U	8.5	1.94	U	7.6	1.74	U	8.8	2.01	U	8.6	1.96	U
DO04C	12-24	0.593	8	1.35	U	8	1.35	U	8.4	1.42	U	7.5	1.26	U	8.7	1.47	U	8.5	1.43	U
DO05C	12-16	0.534	8	1.50	U	8	1.50	U	8.5	1.59	U	7.6	1.42	U	8.8	1.65	U	8.5	1.59	U
EC03C	12-24	2.78	<b>3,000</b>	<b>107.91</b>		<b>4900</b>	<b>176.26</b>		<b>20</b>	<b>0.72</b>		<b>690</b>	<b>24.82</b>		<b>4100</b>	<b>147.48</b>		<b>6300</b>	<b>226.62</b>	
ED01C	72-84	0.255	8.1	3.18	U	8.1	3.18	U	8.6	3.37	U	7.7	3.02	U	8.9	3.49	U	8.6	3.37	U
ED02C	36-48	1.32	8	0.61	U	8	0.61	U	8.5	0.64	U	7.6	0.58	U	8.7	0.66	U	<b>22</b>	<b>1.67</b>	
ED03C	33-45	0.548	8.1	1.48	U	8.1	1.48	U	8.5	1.55	U	7.6	1.39	U	8.8	1.61	U	8.6	1.57	U
EE02C	24-36	0.128	8	6.25	U	8.1	6.33	U	8.5	6.64	U	7.6	5.94	U	8.8	6.88	U	8.5	6.64	U
EE03C	12-24	0.329	7.9	2.40	U	7.9	2.40	U	8.4	2.55	U	7.5	2.28	U	8.6	2.61	U	<b>11</b>	<b>3.34</b>	JT
EE04C	12-24	0.263	7.9	3.00	U	7.9	3.00	U	8.4	3.19	U	7.5	2.85	U	8.7	3.31	U	8.4	3.19	U
FT04C	36-48	2.43	8	0.33	U	<b>21</b>	<b>0.86</b>		8.5	0.35	U	<b>53</b>	<b>2.18</b>		<b>22</b>	<b>0.91</b>		<b>39</b>	<b>1.60</b>	
FT06C	36-48	0.2	8.1	4.05	U	8.1	4.05	U	8.6	4.30	U	7.7	3.85	U	8.9	4.45	U	8.6	4.30	U
FT12C	36-48	0.506	8	1.58	U	8	1.58	U	8.4	1.66	U	7.5	1.48	U	8.7	1.72	U	8.4	1.66	U
IE01C	48-60	0.698	8	1.15	U	8	1.15	U	8.4	1.20	U	7.5	1.07	U	8.7	1.25	U	8.4	1.20	U
IE05C	98-110	0.89	8	0.90	U	8.1	0.91	U	8.5	0.96	U	7.6	0.85	U	8.8	0.99	U	8.5	0.96	U
IE12C	107-119	0.638	8.1	1.27	U	8.1	1.27	U	8.5	1.33	U	7.6	1.19	U	8.8	1.38	U	8.6	1.35	U
IE14C	62-74	1.1	<b>11</b>	<b>1.00</b>	JT	8.1	0.74	U	8.5	0.77	U	7.6	0.69	U	8.8	0.80	U	<b>24</b>	<b>2.18</b>	
IE16C	36-48	0.484	8.1	1.67	U	8.2	1.69	U	8.6	1.78	U	7.7	1.59	U	8.9	1.84	U	8.6	1.78	U
IH02C	70-82	2.24	8.1	0.36	U	8.2	0.37	U	8.6	0.38	U	7.7	0.34	U	8.9	0.40	U	8.6	0.38	U
IH06C	98-100	0.696	8	1.15	U	8	1.15	U	8.4	1.21	U	7.5	1.08	U	8.7	1.25	U	8.5	1.22	U
KP02C	54-66	0.336	8	2.38	U	8	2.38	U	8.5	2.53	U	7.6	2.26	U	8.8	2.62	U	8.5	2.53	U
KP03C	78-90	6.47	<b>28</b>	<b>0.43</b>		<b>49</b>	<b>0.76</b>		<b>43</b>	<b>0.66</b>		<b>120</b>	<b>1.85</b>	JG	<b>62</b>	<b>0.96</b>		<b>110</b>	<b>1.70</b>	
KP07C	36-48	0.506	8	1.58	U	8.1	1.60	U	8.5	1.68	U	7.6	1.50	U	8.8	1.74	U	8.5	1.68	U
KP08C	48-60	0.622	8.1	2.41	UJG	8.2	2.44	UJG	8.6	2.56	UJG	7.7	2.29	UJG	8.9	2.65	UJG	8.6	2.56	UJG
LA02X	NA	1.77	7.9	0.45	U	7.9	0.45	U	8.4	0.47	U	7.5	0.42	U	8.7	0.49	U	8.4	0.47	U
MA02C	12-24	3.52	<b>10</b>	<b>0.28</b>	JT	8.2	0.23	U	8.6	0.24	U	7.7	0.22	U	8.9	0.25	U	8.6	0.24	U
MD01C	12-24	0.21	8.1	3.86	U	8.1	3.86	U	8.6	4.10	U	7.7	3.67	U	8.9	4.24	U	8.6	4.10	U
MD02C	48-60	0.244	8	3.28	U	8	3.28	U	8.4	3.44	U	<b>11</b>	<b>4.51</b>	JT	8.7	3.57	U	8.5	3.48	U
MD03C	35-47	2.46	<b>10</b>	<b>0.41</b>	JT	<b>11</b>	<b>0.45</b>	JT	<b>11</b>	<b>0.45</b>	JT	<b>33</b>	<b>1.34</b>		<b>16</b>	<b>0.65</b>	JT	<b>56</b>	<b>2.28</b>	
MD05C	10-22	0.359	7.9	2.20	U	8	2.23	U	8.4	2.34	U	7.5	2.09	U	8.7	2.42	U	8.4	2.34	U
SQS (mg/kg OC)			38			16			66			220			23			99		
CSL (mg/kg OC)			64			57			66			1200			79			170		
LAET (ug/kg DW)			670			500			560			960			540			2100		

The result units are in µg/kg dry weight and TOC-norm units are in mg/kg TOC normalized.

Key:

Exceeds SQS/LAET criteria

Exceeds CSL/2LAET criteria

**Bold** = Analyte was detected.

µg/kg = micrograms per kilogram

JT = The associated estimated positive result is less than the reporting limit.

JG = The associated estimated positive result has a likely low bias.

UJG = The associated estimated sample quantitation limit has a likely low bias.

UJK = The associated estimated sample quantitation limit has a likely unknown bias.

U = Analyte was not detected at or above the reported result.

Shaded cells indicate the result exceed SQS criterion.  
The result units are in µg/kg dry weight and TOC-norm units are in mg/kg TOC normalized.

Table C-C6. Concentrations of LPAH and HPAH Compounds in Subsurface C and D Core Sediment Samples

Station	Sample Interval (inches)	% TOC	Phenanthrene			Benzo(b)fluoranthene			Benzo(k)fluoranthene			Benz(a)anthracene			Benzo(a)pyrene			Benzo(g,h,i)perylene			Chrysene		
			Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier
BL02C	60-78	1.1	8.3	0.75	U	9.4	0.85	U	9.2	0.84	U	5.8	0.53	U	8.1	0.74	U	6.7	0.61	U	6.6	0.60	U
BL08C	36-48	0.438	8.3	1.89	U	9.4	2.15	U	9.1	2.08	U	5.8	1.32	U	8	1.83	U	6.7	1.53	U	6.5	1.48	U
DO04C	12-24	0.593	8.2	1.38	U	9.3	1.57	U	9	1.52	U	5.8	0.98	U	8	1.35	U	6.6	1.11	UJK	6.5	1.10	U
DO05C	12-16	0.534	8.2	1.54	U	9.3	1.74	U	9.1	1.70	U	5.8	1.09	U	8	1.50	U	6.6	1.24	UJK	6.5	1.22	U
EC03C	12-24	2.78	<b>9700</b>	<b>348.92</b>		<b>170</b>	<b>6.12</b>		<b>160</b>	<b>5.76</b>		<b>440</b>	<b>15.83</b>		<b>120</b>	<b>4.32</b>		<b>20</b>	<b>0.72</b>		<b>450</b>	<b>16.19</b>	
ED01C	72-84	0.255	8.3	3.25	U	9.4	3.69	U	9.2	3.61	U	5.9	2.31	U	8.1	3.18	U	6.7	2.63	U	6.6	2.59	U
ED02C	36-48	1.32	<b>33</b>	<b>2.50</b>		9.3	0.70	U	9	0.68	U	5.8	0.44	U	8	0.61	U	6.6	0.50	U	6.5	0.49	U
ED03C	33-45	0.548	8.3	1.51	U	9.4	1.72	U	9.1	1.66	U	5.8	1.06	U	8	1.46	U	6.7	1.22	U	<b>22</b>	<b>4.01</b>	
EE02C	24-36	0.128	8.2	6.41	U	9.3	7.27	U	9.1	7.11	U	5.8	4.53	U	8	6.25	U	6.6	5.16	UJK	6.5	5.08	U
EE03C	12-24	0.329	8.1	2.46	U	9.2	2.80	U	8.9	2.71	U	5.7	1.73	U	7.9	2.40	U	6.5	1.98	U	6.4	1.95	U
EE04C	12-24	0.263	8.1	3.08	U	9.2	3.50	U	9	3.42	U	5.7	2.17	U	7.9	3.00	U	6.5	2.47	U	6.4	2.43	U
FT04C	36-48	2.43	<b>98</b>	<b>4.03</b>		<b>100</b>	<b>4.12</b>		<b>91</b>	<b>3.74</b>		<b>87</b>	<b>3.58</b>		<b>74</b>	<b>3.05</b>		6.6	0.27	U	<b>120</b>	<b>4.94</b>	
FT06C	36-48	0.2	8.3	4.15	U	9.4	4.70	U	9.2	4.60	U	5.9	2.95	U	8.1	4.05	U	6.7	3.35	U	6.6	3.30	U
FT12C	36-48	0.506	8.2	1.62	U	9.3	1.84	U	9	1.78	U	5.8	1.15	U	7.9	1.56	U	6.6	1.30	U	6.5	1.28	U
IE01C	48-60	0.698	8.2	1.17	U	9.3	1.33	U	9	1.29	U	5.8	0.83	U	7.9	1.13	U	6.6	0.95	U	6.5	0.93	U
IE05C	98-110	0.89	<b>16</b>	<b>1.80</b>	JT	9.3	1.04	U	9.1	1.02	U	5.8	0.65	U	8	0.90	U	6.6	0.74	U	6.5	0.73	U
IE12C	107-119	0.638	8.3	1.30	U	9.4	1.47	U	9.1	1.43	U	5.8	0.91	U	8	1.25	U	6.7	1.05	U	6.5	1.02	U
IE14C	62-74	1.1	<b>39</b>	<b>3.55</b>		<b>13</b>	<b>1.18</b>	JT	9.1	0.83	U	<b>10</b>	<b>0.91</b>	JT	<b>12</b>	<b>1.09</b>	JT	<b>13</b>	<b>1.18</b>	JT	<b>14</b>	<b>1.27</b>	JT
IE16C	36-48	0.484	8.3	1.71	U	9.5	1.96	U	9.2	1.90	U	5.9	1.22	U	8.1	1.67	U	6.7	1.38	U	6.6	1.36	U
IH02C	70-82	2.24	<b>25</b>	<b>1.12</b>		9.4	0.42	U	<b>11</b>	<b>0.49</b>	JT	<b>12</b>	<b>0.54</b>	JT	<b>12</b>	<b>0.54</b>	JT	6.7	0.30	U	<b>14</b>	<b>0.63</b>	JT
IH06C	98-100	0.696	<b>10</b>	<b>1.44</b>	JT	9.3	1.34	U	9	1.29	U	5.8	0.83	U	8	1.15	U	6.6	0.95	U	6.5	0.93	U
KP02C	54-66	0.336	8.2	2.44	U	9.3	2.77	U	9	2.68	U	5.8	1.73	U	8	2.38	U	6.6	1.96	U	6.5	1.93	U
KP03C	78-90	6.47	<b>240</b>	<b>3.71</b>	JG	<b>120</b>	<b>1.85</b>	JG	<b>200</b>	<b>3.09</b>	JG	<b>160</b>	<b>2.47</b>	JT	<b>120</b>	<b>1.85</b>	JG	<b>31</b>	<b>0.48</b>	JG	<b>180</b>	<b>2.78</b>	JG
KP07C	36-48	0.506	8.2	1.62	U	9.3	1.84	U	9.1	1.80	U	5.8	1.15	U	8	1.58	U	6.6	1.30	U	6.5	1.28	U
KP08C	48-60	0.622	8.3	2.47	UJG	9.5	2.83	UJG	9.2	2.74	UJG	5.9	1.76	UJG	8.1	2.41	UJG	6.7	1.99	UJG	6.6	1.96	UJG
LA02X	NA	1.77	8.1	0.46	U	9.2	0.52	U	9	0.51	U	5.7	0.32	U	7.9	0.45	U	6.5	0.37	UJK	6.4	0.36	U
MA02C	12-24	3.52	<b>27</b>	<b>0.77</b>		<b>11</b>	<b>0.31</b>	JT	9.2	0.26	U	5.9	0.17	U	<b>11</b>	<b>0.31</b>	JT	6.7	0.19	U	<b>16</b>	<b>0.45</b>	JT
MD01C	12-24	0.21	8.3	3.95	U	9.4	4.48	U	9.2	4.38	U	5.9	2.81	U	8.1	3.86	U	6.7	3.19	U	6.6	3.14	U
MD02C	48-60	0.244	<b>22</b>	<b>9.02</b>		<b>24</b>	<b>9.84</b>		<b>20</b>	<b>8.20</b>		<b>20</b>	<b>8.20</b>		<b>18</b>	<b>7.38</b>	JT	6.6	2.70	U	<b>41</b>	<b>16.80</b>	
MD03C	35-47	2.46	<b>110</b>	<b>4.47</b>		<b>88</b>	<b>3.58</b>		<b>57</b>	<b>2.32</b>		<b>67</b>	<b>2.72</b>		<b>58</b>	<b>2.36</b>		<b>11</b>	<b>0.45</b>	JT	<b>95</b>	<b>3.86</b>	
MD05C	10-22	0.359	8.1	2.26	U	9.2	2.56	U	9	2.51	U	5.7	1.59	U	7.9	2.20	U	6.5	1.81	U	6.4	1.78	U
SQS (mg/kg OC)			100			NA			NA			110			99			31			110		
CSL (mg/kg OC)			480			NA			NA			270			210			78			460		
LAET (ug/kg DW)			1500			NA			NA			1300			1600			670			1400		

Shaded cells indicate the result exceed SQS criterion.  
The result units are in µg/kg dry weight and TOC-norm units are in mg/kg TOC normalized.

Table C-C6. Concentrations of LPAH and HPAH Compounds in Subsurface C and D Core Sediment Samples

Station	Sample Interval (inches)	% TOC	Dibenzo(a,h)anthracene			Fluoranthene			Indeno(1,2,3-cd)pyrene			Benzo(b + k)fluoranthene			Pyrene		
			Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier	Result	TOC-Norm	Qualifier
BL02C	60-78	1.1	8.5	0.77	U	7.8	0.71	U	8.5	0.77	U	9.4	0.85	U	7.7	0.70	U
BL08C	36-48	0.438	8.4	1.92	U	7.8	1.78	U	8.5	1.94	U	9.4	2.15	U	7.6	1.74	U
DO04C	12-24	0.593	8.3	1.40	UJK	7.7	1.30	U	8.4	1.42	U	9.3	1.57	U	7.6	1.28	U
DO05C	12-16	0.534	8.4	1.57	U	7.7	1.44	U	8.4	1.57	U	9.3	1.74	U	7.6	1.42	U
EC03C	12-24	2.78	<b>12</b>	<b>0.43</b>	JT	<b>4100</b>	<b>147.48</b>		<b>20</b>	<b>0.72</b>		<b>330</b>	<b>11.87</b>		<b>2300</b>	<b>82.73</b>	
ED01C	72-84	0.255	8.5	3.33	U	7.8	3.06	U	8.5	3.33	U	9.4	3.69	U	7.7	3.02	U
ED02C	36-48	1.32	8.4	0.64	U	<b>54</b>	<b>4.09</b>		8.4	0.64	U	9.3	0.70	U	<b>38</b>	<b>2.88</b>	
ED03C	33-45	0.548	8.4	1.53	U	<b>50</b>	<b>9.12</b>		8.5	1.55	U	9.4	1.72	U	<b>44</b>	<b>8.03</b>	
EE02C	24-36	0.128	8.4	6.56	U	7.8	6.09	U	8.4	6.56	U	9.3	7.27	U	7.6	5.94	U
EE03C	12-24	0.329	8.3	2.52	U	7.6	2.31	U	8.3	2.52	U	9.2	2.80	U	<b>26</b>	<b>7.90</b>	
EE04C	12-24	0.263	8.3	3.16	U	7.7	2.93	U	8.3	3.16	U	9.2	3.50	U	7.5	2.85	U
FT04C	36-48	2.43	8.4	0.35	U	<b>260</b>	<b>10.70</b>		8.4	0.35	U	<b>191</b>	<b>7.86</b>		<b>230</b>	<b>9.47</b>	
FT06C	36-48	0.2	8.5	4.25	U	7.8	3.90	U	8.5	4.25	U	9.4	4.70	U	7.7	3.85	U
FT12C	36-48	0.506	8.3	1.64	U	7.7	1.52	U	8.4	1.66	U	9.3	1.84	U	7.6	1.50	U
IE01C	48-60	0.698	8.3	1.19	U	7.7	1.10	U	8.4	1.20	U	9.3	1.33	U	7.5	1.07	U
IE05C	98-110	0.89	8.4	0.94	U	<b>12</b>	<b>1.35</b>	JT	8.4	0.94	U	9.3	1.04	U	<b>11</b>	<b>1.24</b>	JT
IE12C	107-119	0.638	8.4	1.32	U	7.8	1.22	U	8.5	1.33	U	9.4	1.47	U	7.6	1.19	U
IE14C	62-74	1.1	8.4	0.76	U	<b>34</b>	<b>3.09</b>		8.5	0.77	U	<b>13</b>	<b>1.18</b>	JT	<b>37</b>	<b>3.36</b>	
IE16C	36-48	0.484	8.5	1.76	U	7.9	1.63	U	8.5	1.76	U	9.5	1.96	U	7.7	1.59	U
IH02C	70-82	2.24	8.5	0.38	U	<b>34</b>	<b>1.52</b>		8.5	0.38	U	<b>11</b>	<b>0.49</b>	JT	<b>24</b>	<b>1.07</b>	
IH06C	98-100	0.696	8.3	1.19	U	7.7	1.11	U	8.4	1.21	U	9.3	1.34	U	7.6	1.09	U
KP02C	54-66	0.336	8.4	2.50	U	7.7	2.29	U	8.4	2.50	U	9.3	2.77	U	7.6	2.26	U
KP03C	78-90	6.47	<b>16</b>	<b>0.25</b>	JT	<b>430</b>	<b>6.65</b>	JG	<b>31</b>	<b>0.48</b>	JG	<b>320</b>	<b>4.95</b>	JG	<b>690</b>	<b>10.66</b>	JG
KP07C	36-48	0.506	8.4	1.66	U	7.8	1.54	U	8.4	1.66	U	9.3	1.84	U	7.6	1.50	U
KP08C	48-60	0.622	8.5	2.53	UJG	7.9	2.35	UJG	8.5	2.53	UJG	9.5	2.83	UJG	7.7	2.29	UJG
LA02X	NA	1.77	8.3	0.47	UJK	7.7	0.44	U	8.3	0.47	U	9.2	0.52	U	7.5	0.42	U
MA02C	12-24	3.52	8.5	0.24	U	<b>21</b>	<b>0.60</b>		8.5	0.24	U	<b>11</b>	<b>0.31</b>		<b>21</b>	<b>0.60</b>	
MD01C	12-24	0.21	8.5	4.05	U	7.8	3.71	U	8.5	4.05	U	9.4	4.48	U	7.7	3.67	U
MD02C	48-60	0.244	8.3	3.40	U	<b>29</b>	<b>11.89</b>		8.4	3.44	U	<b>44</b>	<b>18.03</b>		<b>35</b>	<b>14.34</b>	
MD03C	35-47	2.46	8.5	0.35	U	<b>240</b>	<b>9.76</b>		<b>10</b>	<b>0.41</b>	JT	<b>145</b>	<b>5.89</b>		<b>180</b>	<b>7.32</b>	
MD05C	10-22	0.359	8.3	2.31	U	<b>11</b>	<b>3.06</b>	JT	8.3	2.31	U	9.2	2.56	U	7.5	2.09	U
SQS (mg/kg OC)			12			160			34			NA			1000		
CSL (mg/kg OC)			33			1200			88			NA			1400		
LAET (ug/kg DW)			230			1700			600			NA			2600		

Shaded cells indicate the result exceed SQS criterion.  
The result units are in µg/kg dry weight and TOC-norm units are in mg/kg TOC normalized.



Table C-C7. Concentrations of LPAH and HPAH Compounds in Subsurface C and D Core Sediment Samples

Station	Sample Interval (inches)	% TOC	Total LPAH (µg/kg dw)		Total LPAH (mg/kg TOC)		Total HPAH (µg/kg dw)		Total HPAH (mg/kg TOC)	
			Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
BL02C	60-78	1.1	8.9	U	0.81	U	9.4	U	0.85	U
BL08C	36-48	0.438	8.8	U	2.01	U	9.4	U	2.15	U
DO04C	12-24	0.593	8.7	U	1.47	U	9.3	U	1.57	U
DO04D	24-32	0.424	8.8	U	2.08	U	9.4	U	2.22	U
DO05C	12-16	0.534	8.8	U	1.65	U	9.3	U	1.74	U
EC03C	12-24	2.78	<b>25,710</b>		<b>924.82</b>		<b>7,792</b>		<b>280.29</b>	
ED01C	72-84	0.255	8.9	U	3.49	U	9.4	U	3.69	U
ED02C	36-48	1.32	<b>55</b>		<b>4.17</b>		<b>92</b>		<b>6.97</b>	
ED03C	33-45	0.548	8.8	U	1.61	U	<b>116</b>		<b>21.17</b>	
EE02C	24-36	0.128	8.8	U	6.88	U	9.3	U	7.27	U
EE03C	12-24	0.329	<b>11</b>	JT	<b>3.34</b>	JT	<b>26</b>		<b>7.90</b>	
EE04C	12-24	0.263	8.7	U	3.31	U	9.2	U	3.50	U
FT04C	36-48	2.43	<b>233</b>		<b>9.59</b>		<b>962</b>		<b>39.59</b>	
FT06C	36-48	0.2	8.9	U	4.45	U	9.4	U	4.70	U
FT12C	36-48	0.506	8.7	U	1.72	U	9.3	U	1.84	U
IE01C	48-60	0.698	8.7	U	1.25	U	9.3	U	1.33	U
IE05C	98-110	0.89	<b>16</b>	JT	<b>1.80</b>	JT	<b>23</b>		<b>2.58</b>	
IE12C	107-119	0.638	8.8	U	1.38	U	9.4	U	1.47	U
IE14C	62-74	1.1	<b>63</b>		<b>5.73</b>		<b>133</b>		<b>12.09</b>	
IE16C	36-48	0.484	8.9	U	1.84	U	9.5	U	1.96	U
IH02C	70-82	2.24	<b>25</b>		<b>1.12</b>		<b>107</b>		<b>4.78</b>	
IH06C	98-100	0.696	<b>10</b>	JT	<b>1.44</b>	JT	9.3	U	1.34	U
KP02C	54-66	0.336	8.8	U	2.62	U	9.3	U	2.77	U
KP03C	78-90	6.47	<b>624</b>		<b>9.64</b>		<b>1,978</b>		<b>30.57</b>	
KP07C	36-48	0.506	8.8	U	1.74	U	9.3	U	1.84	U
KP08C	48-60	0.622	8.9	UJG	2.65	UJG	9.5	UJG	1.53	UJG
LA02C	NA	1.77	8.7	U	0.49	U	9.2	U	0.52	U
MA02C	12-24	3.52	<b>27</b>		<b>0.77</b>		<b>80</b>		<b>2.27</b>	
MD01C	12-24	0.21	8.9	U	4.24	U	9.4	U	4.48	U
MD02C	48-60	0.244	<b>33</b>		<b>13.52</b>		<b>187</b>		<b>76.64</b>	
MD03C	35-47	2.46	<b>237</b>		<b>9.63</b>		<b>806</b>		<b>32.76</b>	
MD05C	10-22	0.359	8.7	U	2.42	U	<b>11</b>	JT	<b>3.06</b>	JT
SQS (mg/kg TOC)					370.00				960.00	
CSL (mg/kg TOC)					780.00				5300.00	
LAET (ug/kg dw)			5200				12000			

Key:

Exceeds CSL/2LAET criteria

**Bold** = Analyte was detected.

dw = dry weight

LPAH = Low molecular weight polycyclic aromatic hydrocarbons.

JG = Analyte was positively identified. Value may be greater than the reported estimate.

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation

mg/kg = milligrams per kilogram

TOC = Total organic carbon

U = Analyte was not detected at or above the reported result.

ug/Kg = micrograms per kilogram

UJG = Analyte was not detected at or above the reported estimate with likely low bias.

Table C-C8. Concentrations of Phenols and Phthalates in Subsurface C and D Core Sediment Samples

Station	Sample Interval (inches)	% TOC	2,4-Dimethylphenol		2-Methylphenol		4-Methylphenol		Pentachlorophenol		Phenol		bis(2-Ethylhexyl) phthalate		
			Result µg/kg	Qualifier	Result µg/kg	Qualifier	Result µg/kg	Qualifier	Result µg/kg	Qualifier	Result µg/kg	Qualifier	Result µg/kg	mg/kg TOC	Qualifier
BL02C	60-78	1.1	15	U	14	U	13	U	47	U	<b>22</b>		11	1.00	U
BL08C	36-48	0.438	15	U	14	U	13	U	47	U	14	U	11	2.51	U
DO04C	12-24	0.593	14	U	14	U	12	U	46	U	13	U	11	1.85	U
DO04D	24-32	0.424	15	U	14	U	13	U	47	U	14	U	11	2.59	U
DO05C	12-16	0.534	14	U	14	U	13	U	47	U	13	U	11	2.06	U
EC03C	12-24	2.78	<b>15</b>	JT	14	U	<b>230</b>		47	U	<b>14</b>	JT	<b>120</b>	<b>4.32</b>	
ED01C	72-84	0.255	15	U	14	U	13	U	47	U	14	U	11	4.31	U
ED02C	36-48	1.32	14	U	14	U	<b>49</b>		46	U	13	U	11	0.83	U
ED03C	33-45	0.548	15	U	14	U	<b>76</b>		47	U	14	U	11	2.01	U
EE02C	24-36	0.128	15	U	14	U	13	U	47	U	13	U	11	8.59	U
EE03C	12-24	0.329	14	U	14	U	12	U	46	U	13	U	11	3.34	U
EE04C	12-24	0.263	14	U	14	U	12	U	46	U	13	U	11	4.18	U
FT04C	36-48	2.43	14	U	14	U	<b>140</b>		47	U	<b>27</b>		<b>280</b>	<b>11.52</b>	
FT06C	36-48	0.2	15	U	14	U	13	U	47	U	<b>25</b>		<b>11</b>	<b>5.50</b>	JT
FT12C	36-48	0.506	14	U	14	U	12	U	46	U	<b>28</b>		11	2.17	U
IE01C	48-60	0.698	14	U	14	U	12	U	46	U	13	U	11	1.58	U
IE05C	98-110	0.89	14	U	14	U	13	U	47	U	13	U	11	1.24	U
IE12C	107-119	0.638	15	U	14	U	13	U	47	U	13	U	11	1.72	U
IE14C	62-74	1.1	15	U	14	U	<b>16</b>	JT	47	U	13	U	11	1.00	U
IE16C	36-48	0.484	15	U	14	U	13	U	47	U	14	U	11	2.27	U
IH02C	70-82	2.24	15	U	14	U	13	U	47	U	14	U	11	0.49	U
IH06C	98-100	0.696	14	U	14	U	12	U	46	U	13	U	11	1.58	U
KP02C	54-66	0.336	14	U	14	U	13	U	47	U	<b>62</b>		11	3.27	U
KP03C	78-90	6.47	15	U	14	U	13	U	47	U	14	U	11	0.17	U
KP07C	36-48	0.506	15	U	14	U	13	U	47	U	<b>16</b>	JT	11	2.17	U
KP08C	48-60	0.622	20	UJG	14	UJG	13	UJG	47	UJG	14	UJG	11	1.77	UJG
LA02C	NA	1.77	14	U	14	U	12	U	46	U	13	U	11	0.62	U
MA02C	12-24	3.52	15	U	14	U	<b>34</b>		47	U	<b>190</b>		11	0.31	U
MD01C	12-24	0.21	15	U	14	U	13	U	47	U	14	U	11	5.24	U
MD02C	48-60	0.244	14	U	14	U	12	U	46	U	<b>14</b>	JT	11	4.51	U
MD03C	35-47	2.46	15	U	14	U	<b>150</b>		47	U	14	U	11	0.45	U
MD05C	10-22	0.359	14	U	14	U	12	U	46	UJG	13	U	11	3.06	U
SQS			29		63		670		360		420		47		
CSL			29		63		670		690		1200		78		
LAET			29		63		670		360		420		1300		

Key:

- Bold** = Analyte was detected.
- µg/kg = micrograms per kilogram
- mg/kg = miligrams per kilogram
- JT = The associated estimated positive result is less than the reporting limit.
- UJG = The associated estimated sample quantitation limit has a likely low bias.
- U = Analyte was not detected at or above the reported result.

Table C-C8. Concentrations of Phenols and Phthalates in Subsurface C and D Core Sediment Samples

Station	Sample Interval (inches)	% TOC	Butyl benzyl phthalate			Dibutyl phthalate			Diethyl phthalate			Dimethyl phthalate			Di-n-Octyl phthalate		
			Result µg/kg	mg/kg TOC	Qualifier	Result µg/kg	mg/kg TOC	Qualifier	Result µg/kg	mg/kg TOC	Qualifier	Result µg/kg	mg/kg TOC	Qualifier	Result µg/kg	mg/kg TOC	Qualifier
BL02C	60-78	1.1	11	1.00	U	12	1.09	U	16	1.45	U	7.7	0.70	U	8.2	0.75	U
BL08C	36-48	0.438	11	2.51	U	12	2.74	U	16	3.65	U	7.6	1.74	U	8.2	1.87	U
DO04C	12-24	0.593	11	1.85	U	12	2.02	U	16	2.70	U	7.6	1.28	U	8.1	1.37	U
DO04D	24-32	0.424	11	2.59	U	12	2.83	U	16	3.77	U	7.6	1.79	U	8.2	1.94	U
DO05C	12-16	0.534	11	2.06	U	12	2.25	U	16	3.00	U	7.6	1.42	U	8.2	1.54	U
EC03C	12-24	2.78	11	0.40	U	12	0.43	U	16	0.58	U	7.6	0.27	U	8.2	0.29	U
ED01C	72-84	0.255	11	4.31	U	12	4.71	U	16	6.27	U	7.7	3.02	U	8.2	3.22	U
ED02C	36-48	1.32	11	0.83	U	12	0.91	U	16	1.21	U	7.6	0.58	U	8.1	0.61	U
ED03C	33-45	0.548	11	2.01	U	12	2.19	U	16	2.92	U	7.6	1.39	U	8.2	1.50	U
EE02C	24-36	0.128	11	8.59	U	12	9.38	U	16	12.50	U	7.6	5.94	U	8.2	6.41	U
EE03C	12-24	0.329	11	3.34	U	12	3.65	U	16	4.86	U	7.5	2.28	U	8.1	2.46	UJG
EE04C	12-24	0.263	11	4.18	U	12	4.56	U	16	6.08	U	7.5	2.85	U	8.1	3.08	U
FT04C	36-48	2.43	11	0.45	U	12	0.49	U	16	0.66	U	7.6	0.31	U	8.2	0.34	U
FT06C	36-48	0.2	11	5.50	U	12	6.00	U	16	8.00	U	7.7	3.85	U	8.3	4.15	U
FT12C	36-48	0.506	11	2.17	U	12	2.37	U	16	3.16	U	7.6	1.50	U	8.1	1.60	U
IE01C	48-60	0.698	11	1.58	U	12	1.72	U	<b>55</b>	<b>7.88</b>		7.5	1.07	U	8.1	1.16	U
IE05C	98-110	0.89	11	1.24	U	12	1.35	U	16	1.80	U	7.6	0.85	U	8.2	0.92	U
IE12C	107-119	0.638	11	1.72	U	12	1.88	U	16	2.51	U	7.6	1.19	U	8.2	1.29	U
IE14C	62-74	1.1	11	1.00	U	12	1.09	U	16	1.45	U	7.6	0.69	U	8.2	0.75	U
IE16C	36-48	0.484	11	2.27	U	12	2.48	U	16	3.31	U	7.7	1.59	U	8.3	1.71	U
IH02C	70-82	2.24	11	0.49	U	12	0.54	U	16	0.71	U	7.7	0.34	U	8.3	0.37	U
IH06C	98-100	0.696	11	1.58	U	12	1.72	U	16	2.30	U	7.6	1.09	U	8.1	1.16	U
KP02C	54-66	0.336	11	3.27	U	12	3.57	U	16	4.76	U	7.6	2.26	U	8.1	2.41	U
KP03C	78-90	6.47	11	0.17	U	12	0.19	U	16	0.25	U	7.7	0.12	U	8.3	0.13	U
KP07C	36-48	0.506	11	2.17	U	12	2.37	U	16	3.16	U	7.6	1.50	U	8.2	1.62	U
KP08C	48-60	0.622	11	1.77	UJG	12	1.93	UJG	16	2.57	UJG	7.7	1.24	UJG	8.3	1.33	UJG
LA02C	NA	1.77	11	0.62	U	12	0.68	U	16	0.90	U	7.5	0.42	U	8.1	0.46	U
MA02C	12-24	3.52	11	0.31	U	12	0.34	U	16	0.45	U	7.7	0.22	U	8.3	0.24	U
MD01C	12-24	0.21	11	5.24	U	12	5.71	U	16	7.62	U	7.7	3.67	U	8.2	3.90	U
MD02C	48-60	0.244	11	4.51	U	12	4.92	U	16	6.56	U	7.6	3.11	U	8.1	3.32	U
MD03C	35-47	2.46	11	0.45	U	12	0.49	U	16	0.65	U	7.7	0.31	U	8.3	0.34	U
MD05C	10-22	0.359	11	3.06	U	12	3.34	U	16	4.46	U	7.5	2.09	U	8.1	2.26	U
SQS			4.9			220			61			53			58		
CSL			64			1700			110			53			4500		
LAET			63			1400			200			71			6200		

Key:

- Bold** = Analyte was detected.
- µg/kg = micrograms per kilogram
- mg/kg = milligrams per kilogram
- JT = The associated estimated positive result is less than the reporting limit.
- UJG = The associated estimated sample quantitation limit has a likely low bias.
- U = Analyte was not detected at or above the reported result.

Table C–C9. Concentrations of PCB Aroclors in Subsurface C Core Sediment Samples

Station	Sample Interval (inches)	% TOC	PCB-aroclor 1016			PCB-aroclor 1221			PCB-aroclor 1232			PCB-aroclor 1242			PCB-aroclor 1248		
			Result mg/kg	mg/kg TOC	Qualifier	Result mg/kg	mg/kg TOC	Qualifier	Result mg/kg	mg/kg TOC	Qualifier	Result mg/kg	mg/kg TOC	Qualifier	Result mg/kg	mg/kg TOC	Qualifier
BL02C	60–78	1.1	0.0067	0.61	U	0.0067	0.61	U	0.0067	0.61	U	0.0067	0.61	U	0.0067	0.61	U
EC03C	12–24	2.78	0.0099	0.36	U	0.0099	0.36	U	0.0099	0.36	U	0.0099	0.36	U	0.0099	0.36	U
ED01C	72–84	0.255	0.0065	2.55	U	0.0065	2.55	U	0.0065	2.55	U	0.0065	2.55	U	0.0065	2.55	U
ED02C	36–48	1.32	0.0068	0.52	U	0.0068	0.52	U	0.0068	0.52	U	0.0068	0.52	U	0.0068	0.52	U
ED03C	33–45	0.548	0.0066	1.20	U	0.0066	1.20	U	0.0066	1.20	U	0.0066	1.20	U	0.0066	1.20	U
EE02C	24–36	0.128	0.0069	5.39	U	0.0069	5.39	U	0.0069	5.39	U	0.0069	5.39	U	0.0069	5.39	U
EE03C	12–24	0.329	0.0067	2.04	U	0.0067	2.04	U	0.0067	2.04	U	0.0067	2.04	U	0.0067	2.04	U
EE04C	12–24	0.263	0.0067	2.55	U	0.0067	2.55	U	0.0067	2.55	U	0.0067	2.55	U	0.0067	2.55	U
FT04C	36–48	2.43	0.01	0.41	U	0.01	0.41	U	0.01	0.41	U	0.01	0.41	U	0.01	0.41	U
FT06C	36–48	0.2	0.0065	3.25	U	0.0065	3.25	U	0.0065	3.25	U	0.0065	3.25	U	0.0065	3.25	U
IH02C	70–82	2.24	0.009	0.40	UJG	0.009	0.40	UJG	0.009	0.40	UJG	0.009	0.40	UJG	0.009	0.40	UJG
IH06C	98–100	0.696	0.0077	1.11	U	0.0077	1.11	U	0.0077	1.11	U	0.0077	1.11	U	0.0077	1.11	U
KP02C	54–66	0.336	0.0066	1.96	UJG	0.0066	1.96	UJG	0.0066	1.96	UJG	0.0066	1.96	UJG	0.0066	1.96	UJG
KP03C	78–90	6.47	0.0092	0.14	UJG	0.0092	0.14	UJG	0.0092	0.14	UJG	0.0092	0.14	UJG	0.0092	0.14	UJG
KP08C	48–60	0.622	0.0072	1.16	U	0.0072	1.16	U	0.0072	1.16	U	0.0072	1.16	U	0.0072	1.16	U
LA02C	NA	1.77	0.007	0.40	U	0.007	0.40	U	0.007	0.40	U	0.007	0.40	U	0.007	0.40	U
MA02C	12–24	3.52	0.013	0.37	UJG	0.013	0.37	UJG	0.013	0.37	UJG	0.013	0.37	UJG	0.013	0.37	UJG
MD01C	12–24	0.21	0.0064	3.05	U	0.0064	3.05	U	0.0064	3.05	U	0.0064	3.05	U	0.0064	3.05	U
MD02C	48–60	0.244	0.0061	2.50	U	0.0061	2.50	U	0.0061	2.50	U	0.0061	2.50	U	0.0061	2.50	U
MD03C	35–47	2.46	0.0072	0.29	U	0.0072	0.29	U	0.0072	0.29	U	0.0072	0.29	U	0.0072	0.29	U
MD05C	10–22	0.359	0.0059	1.64	U	0.0059	1.64	U	0.0059	1.64	U	0.0059	1.64	U	0.0059	1.64	U

Total PCB criteria: SQS= 12 mg/kg TOC; CSL= 65 mg/kg TOC, LAET= 130 ug/kg dw

Key:

Exceeds SQS/LAET criteria

**Bold** = Analyte was detected.

mg/kg = milligrams per kilogram

UJG = The associated estimated sample quantitation limit has a likely low bias.

U = Analyte was not detected at or above the reported result.

JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.

Table C–C9. Concentrations of PCB Aroclors in Subsurface C Core Sediment Samples

Station	Sample Interval (inches)	% TOC	PCB-aroclor 1254			PCB-aroclor 1260			PCB-aroclor 1268			Total PCB		
			Result mg/kg	mg/kg TOC	Qualifier	Result mg/kg	mg/kg TOC	Qualifier	Result mg/kg	mg/kg TOC	Qualifier	Result ug/kg	mg/kg TOC	Qualifier
BL02C	60–78	1.1	0.0017	0.15	U	0.0017	0.15	U				6.7	0.61	U
EC03C	12–24	2.78	0.0026	0.09	U	<b>0.41</b>	<b>14.75</b>		0.017	0.611511	U	<b>410</b>	<b>14.75</b>	
ED01C	72–84	0.255	0.0017	0.67	U	0.0017	0.67	U				6.5	2.55	U
ED02C	36–48	1.32	0.0018	0.14	U	0.0018	0.14	U				6.8	0.52	U
ED03C	33–45	0.548	0.0017	0.31	U	0.0017	0.31	U				6.6	1.20	U
EE02C	24–36	0.128	0.0018	1.41	U	0.0018	1.41	U				6.9	5.39	U
EE03C	12–24	0.329	0.0017	0.52	U	0.0017	0.52	U	0.012	3.647416	U	6.7	2.04	U
EE04C	12–24	0.263	0.0017	0.65	U	0.0017	0.65	U				6.7	2.55	U
FT04C	36–48	2.43	0.0027	0.11	U	0.0027	0.11	U				10	0.41	U
FT06C	36–48	0.2	0.0017	0.85	U	0.0017	0.85	U				6.5	3.25	U
IH02C	70–82	2.24	0.0023	0.10	UJG	0.0023	0.10	UJG				9	0.40	UJG
IH06C	98–100	0.696	0.002	0.29	U	0.002	0.29	U				7.7	1.11	U
KP02C	54–66	0.336	0.0017	0.51	UJG	0.0017	0.51	UJG				6.6	1.96	UJG
KP03C	78–90	6.47	0.0024	0.04	UJG	0.0024	0.04	UJG				9.2	0.14	UJG
KP08C	48–60	0.622	0.0019	0.31	U	0.0019	0.31	U				7.2	1.16	U
LA02C	NA	1.77	0.0018	0.10	U	0.0018	0.10	U				7	0.40	U
MA02C	12–24	3.52	0.0033	0.09	UJG	<b>0.0074</b>	<b>0.21</b>	JTG				<b>7.4</b>	<b>0.21</b>	JTG
MD01C	12–24	0.21	0.0017	0.81	U	0.0017	0.81	U				6.4	3.05	U
MD02C	48–60	0.244	0.0016	0.66	U	0.0016	0.66	U				6.1	2.50	U
MD03C	35–47	2.46	0.0019	0.08	U	<b>0.016</b>	<b>0.65</b>					<b>16</b>	<b>0.65</b>	
MD05C	10–22	0.359	0.0015	0.42	U	0.0015	0.42	U				5.9	1.64	U

Total PCB criteria: SQS= 12 mg/kg TOC; CSL= 65 mg/kg TOC, LAET= 130 ug/kg dw

Key:

Exceeds SQS/LAET criteria

**Bold** = Analyte was detected.

mg/kg = miligrams per kilogram

UJG = The associated estimated sample quantitation limit has a likely low bias.

U = Analyte was not detected at or above the reported result.

JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.

Table C–C10. Concentrations of Pesticides in Subsurface C and D Core Sediment Samples

Station	Sample Interval (inches)	4,4'-DDD		4,4'-DDE		4,4'-DDT		Aldrin		alpha-BHC		beta-BHC	
		(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier
BL02C	60–78	0.3	U	0.26	U	0.3	U	0.12	U	0.12	U	0.15	U
EC03C	12–24	<b>1.9</b>	JTK	<b>5.4</b>		<b>2.7</b>	JTK	0.17	U	<b>0.38</b>	JTK	<b>3.1</b>	
EE02C	24–36	0.31	U	0.26	U	0.32	U	0.12	U	0.12	U	0.83	U
EE03C	12–24	0.31	U	0.26	U	0.3	U	0.12	U	0.12	U	1.1	U
EE04C	12–24	0.31	U	0.27	U	0.31	U	<b>0.37</b>	JT	0.13	U	2	U
FT04C	36–48	<b>65</b>		<b>14</b>		<b>4.2</b>		0.2	U	0.2	U	0.24	U
FT12C	36–48	0.36	U	0.3	U	0.35	U	0.14	U	0.14	U	1	U
KP02C	54–66	0.32	U	0.27	U	0.31	U	0.13	U	0.13	U	0.15	U
KP03C	78–90	0.42	UJG	0.36	UJG	0.42	UJG	0.17	UJG	0.17	UJG	0.2	UJG
KP08C	48–60	0.34	U	0.29	U	0.33	U	0.14	U	<b>0.54</b>	JT	<b>0.47</b>	JT
LA02C	NA	0.32	U	0.28	U	0.32	U	0.13	U	0.12	U	0.15	U
LAET		16		9		34		NA		NA		NA	
Station	Sample Interval (inches)	Endosulfan Sulfate		Endrin		Endrin Aldehyde		Endrin Ketone		gamma-Chlordane		Heptachlor	
		(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier
BL02C	60–78	0.39	U	0.48	U	0.29	U	0.29	U	0.14	U	0.15	U
EC03C	12–24	<b>5.2</b>	JK	0.67	U	0.4	U	0.4	U	<b>3</b>	JK	0.21	U
EE02C	24–36	0.41	U	0.48	U	0.29	U	0.29	U	0.14	U	<b>0.28</b>	JT
EE03C	12–24	0.39	U	0.48	U	0.29	U	0.29	U	<b>0.2</b>	JT	0.15	U
EE04C	12–24	0.4	U	0.5	U	0.3	U	0.3	U	0.14	U	0.16	U
FT04C	36–48	0.63	U	0.78	U	0.47	U	0.47	U	<b>3.6</b>		0.25	U
FT12C	36–48	0.46	U	0.56	U	<b>0.72</b>	JTK	0.34	U	0.16	U	0.18	U
KP02C	54–66	0.41	U	0.5	U	0.3	U	0.3	U	0.14	U	0.16	U
KP03C	78–90	0.54	UJG	0.67	UJG	0.4	UJG	0.4	UJG	0.19	UJG	0.21	UJG
KP08C	48–60	0.43	U	0.53	U	0.32	U	0.32	U	0.15	U	<b>1.6</b>	
LA02C	NA	0.41	U	0.51	U	0.3	U	0.3	U	0.14	U	<b>0.31</b>	JT
LAET		NA		NA		NA		NA		NA		NA	

Key:

Exceeds LAET criteria

**Bold** = Analyte was detected.

dw = dry weight

µg/kg = micrograms per kilogram

JT = The associated estimated positive result is less than the reporting limit.

JK = The associated estimated positive result has a likely unknown bias.

UJG = The associated estimated sample quantitation limit has a likely low bias.

U = Analyte was not detected at or above the reported result.

JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.

Table C–C10. Concentrations of Pesticides in Subsurface C and D Core Sediment Samples

Station	cis-Chlordane		delta-BHC		Dieldrin		Endosulfan I		Endosulfan II	
	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier
BL02C	0.14	U	0.14	U	0.25	U	0.14	U	0.3	U
EC03C	<b>2.3</b>	JK	0.19	U	0.35	U	0.19	U	<b>1.4</b>	JTK
EE02C	<b>0.3</b>	JTK	<b>0.44</b>	JTK	<b>0.7</b>	JT	0.14	U	0.3	U
EE03C	0.14	U	<b>0.27</b>	JT	0.25	U	0.14	U	0.3	U
EE04C	<b>0.32</b>	JTK	<b>0.51</b>	JT	0.26	U	0.14	U	<b>0.35</b>	JT
FT04C	<b>0.39</b>	JT	0.22	U	0.41	U	0.22	U	0.49	U
FT12C	0.16	U	<b>0.21</b>	JT	0.3	U	0.16	U	0.35	U
KP02C	0.14	U	0.14	U	0.26	U	0.14	U	0.31	U
KP03C	0.19	UJG	0.19	UJG	0.35	UJG	0.19	UJG	1.4	UJG
KP08C	0.15	U	0.15	U	0.28	U	0.15	U	0.33	U
LA02C	<b>0.29</b>	JT	<b>0.37</b>	JTK	0.27	U	0.13	U	0.3	U
LAET	NA		NA		NA		NA		NA	
Station	Heptachlor Epoxide		Lindane		Methoxychlor		Toxaphene			
	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier	(µg/kg dw)	Qualifier		
BL02C	0.14	U	0.13	U	1.5	U	11	U		
EC03C	<b>2.6</b>	JK	<b>0.27</b>	JTK	2.1	U	16	U		
EE02C	0.15	U	0.13	U	1.5	U	11	U		
EE03C	0.14	U	0.13	U	1.5	U	11	U		
EE04C	0.6	U	<b>2.2</b>	JK	1.6	U	12	U		
FT04C	0.23	U	0.22	U	2.5	U	18	U		
FT12C	0.4	U	0.16	U	1.8	U	13	U		
KP02C	0.15	U	0.14	U	1.6	U	12	U		
KP03C	0.2	UJG	0.18	UJG	2.1	UJG	16	UJG		
KP08C	0.16	U	0.15	U	1.7	U	13	U		
LA02C	0.15	U	0.14	U	1.6	U	12	U		
LAET	NA		NA		NA		NA			

Key:

Exceeds LAET criteria

**Bold** = Analyte was detected.

dw = dry weight

µg/kg = micrograms per kilogram

JT = The associated estimated positive result is less than the reporting limit.

JK = The associated estimated positive result has a likely unknown bias.

UJG = The associated estimated sample quantitation limit has a likely low bias.

U = Analyte was not detected at or above the reported result.

JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.

Table C-C11. Concentrations of Resin Acid and Guaiacol Compounds in Subsurface C and D Core Sediment Samples

Station	Sample Interval (inches)	Retene		Abietic Acid		Dehydroabietic Acid		Oleic Acid		Isophorone		12-Chlorodehydroabietic Acid		14-Chlorodehydroabietic Acid		9,10-Dichlorostearic Acid		Dichlorodehydroabietic Acid		Isopimaric Acid	
		Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier
BL02C	60-78	8.8	U	<b>270</b>		<b>130</b>		99	U	8.2	U	99	U	99	U	99	U	99	U	99	U
BL08C	36-48	8.8	U	99	UJK	99	U	99	U	8.2	U	99	U	99	U	99	U	99	U	99	U
DO04C	12-24	8.7	U	95	U	95	U	95	U	8.1	U	95	U	95	U	95	U	95	U	95	U
DO04D	24-32	8.8	U	97	UJG	97	U	97	U	8.2	U	97	U	97	U	97	U	97	U	97	U
DO05C	12-16	8.7	U	98	U	98	U	98	U	8.1	U	98	U	98	U	98	U	98	U	98	U
EC03C	12-24	<b>14000</b>		<b>850</b>	JG	<b>1500</b>		99	U	8.1	U	110		99	U	99	U	99	U	140	
ED01C	72-84	8.8	U							8.2	U										
ED02C	36-48	<b>72</b>								8.1	U										
ED03C	33-45	8.8	U							8.2	U										
EE02C	24-36	8.8	U							8.1	U										
EE03C	12-24	8.6	U							8	U										
EE04C	12-24	8.6	U							8	U										
FT04C	36-48	8.8	U	<b>1800</b>	JG	<b>1300</b>		98	U	8.1	U	98	U	98	U	98	U	98	U	<b>110</b>	
FT06C	36-48	8.8	U							8.2	U										
FT12C	36-48	8.7	U							8.1	U										
IE01C	48-60	8.7	U	97	U	97	U	97	U	8.1	U	97	U	97	U	97	U	97	U	97	U
IE05C	98-110	8.8	U	99	U	99	U	99	U	8.1	U	99	U	99	U	99	U	99	U	99	U
IE12C	107-119	<b>140</b>		99	U	99	U	99	U	8.2	U	99	U	99	U	99	U	99	U	99	U
IE14C	62-74	<b>270</b>		<b>100</b>		<b>130</b>		99	U	8.2	U	99	U	99	U	99	U	99	U	99	U
IE16C	36-48	<b>13</b>		99	U	99	U	99	U	8.2	U	99	U	99	U	99	U	99	U	99	U
IH02C	70-82	<b>94</b>		500	U	500	U	500	U	8.2	U	500	U	500	U	500	U	500	U	500	U
IH06C	98-100	<b>630</b>		<b>89</b>	JTK	<b>170</b>		98	U	8.1	U	98	U	98	U	98	U	98	U	98	U
KP02C	54-66	8.7	U	<b>8300</b>		<b>5400</b>		490	U	8.1	U	<b>770</b>		<b>290</b>	JT	490	U	490	U	490	U
KP03C	78-90	<b>34</b>		<b>170</b>		<b>290</b>		100	U	8.3	U	100	U	100	U	100	U	100	U	100	U
KP07C	36-48	8.8	U	98	U	98	U	98	U	8.1	U	98	U	98	U	98	U	98	U	98	U
KP08C	48-60	8.9	U	99	UJG	99	U	99	UJG	8.2	UJG	99	UJG	99	U	99	UJG	99	UJG	99	UJG
LA02C	NA	8.6	U	96	U	96	U	96	U	8	U	96	U	96	U	96	U	96	U	96	U
MA02C	12-24	<b>18</b>		<b>150</b>		<b>260</b>		99	U	8.2	U	99	U	99	U	99	U	99	U	99	U
MD01C	12-24	<b>20</b>		98	UJG	98	U	98	U	8.2	U	98	U	98	U	98	U	98	U	98	U
MD02C	48-60	<b>120</b>		<b>96</b>	REJ	96	U	96	U	8.1	U	96	U	96	U	96	U	96	U	96	U
MD03C	35-47	<b>580</b>		<b>1600</b>		<b>1100</b>		99	U	8.3	U	99	U	99	U	99	U	99	U	99	U
MD05C	10-22	8.7	U	97	U	97	U	97	U	8	U	97	U	97	U	97	U	97	U	97	U

Key:

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- dw = dry weight
- µg/kg = micrograms per kilogram
- JT = The associated estimated positive result is less than the reporting limit.
- JG = The associated estimated positive result has a likely low bias.
- UJG = The associated estimated sample quantitation limit has a likely low bias.
- UJK = The associated estimated sample quantitation limit has a likely unknown bias.
- U = Analyte was not detected at or above the reported result.
- JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.
- REJ = Rejected

Blank cells indicate that the compound was not analyzed at that station.



Table C–C11. Concentrations of Resin Acid and Guaiacol Compounds in Subsurface C and D Core Sediment Samples

Station	Linolenic Acid		Neoabietic Acid		Palustric Acid		Pimaric Acid		Sandaracopimaric Acid		3,4,5-Trichloroguaiacol		3,4,6-Trichloroguaiacol		3,4-Dichloroguaiacol		4,5,6-Trichloroguaiacol		4,5-Dichloroguaiacol	
	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier
BL02C	99	U	99	U	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U
BL08C	99	U	99	U	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U
DO04C	95	U	<b>95</b>	REJ	95	UJG	95	U	95	U	20	U	20	U	20	U	20	U	20	U
DO04D	97	U	<b>97</b>	REJ	97	UJG	97	U	97	U	20	U	20	U	20	U	20	U	20	U
DO05C	98	U	<b>98</b>	REJ	98	UJG	98	U	98	U	20	U	20	U	20	U	20	U	20	U
EC03C	99	U	99	UJK	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U
ED01C											20	U	20	U	20	U	20	U	20	U
ED02C											20	U	20	U	20	U	20	U	20	U
ED03C											20	U	20	U	20	U	20	U	20	U
EE02C											20	U	20	U	20	U	20	U	20	U
EE03C											19	U	19	U	19	U	19	U	19	U
EE04C											19	U	19	U	19	U	19	U	19	U
FT04C	98	U	98	U	<b>98</b>	REJ	98	U	98	U	20	U	20	U	20	U	20	U	20	U
FT06C											20	U	20	U	20	U	20	U	20	U
FT12C											20	U	20	U	20	U	20	U	20	U
IE01C	97	U	97	U	97	U	97	U	97	U	19	U	19	U	19	U	19	U	19	U
IE05C	99	U	99	U	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U
IE12C	99	U	99	U	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U
IE14C	99	U	99	U	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U
IE16C	99	U	99	U	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U
IH02C	500	U	500	U	500	U	500	U	500	U	20	U	20	U	20	U	20	U	20	U
IH06C	98	U	98	U	98	U	98	U	98	U	20	U	20	U	20	U	20	U	20	U
KP02C	490	U	490	U	490	U	<b>540</b>		490	U	20	U	20	U	20	U	20	U	20	U
KP03C	100	U	100	U	100	U	100	U	100	U	20	U	20	U	20	U	20	U	20	U
KP07C	98	U	98	U	98	U	98	U	98	U	20	U	20	U	20	U	20	U	20	U
KP08C	99	UJG	99	UJK	99	UJG	99	UJG	99	UJG	20	UJG	20	UJG	20	UJG	20	UJG	20	UJG
LA02C	96	U	<b>96</b>	REJ	96	UJG	96	U	96	U	19	U	19	U	19	U	19	U	19	U
MA02C	99	U	99	U	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U
MD01C	98	U	98	U	98	U	98	U	98	U	20	U	20	U	20	U	20	U	20	U
MD02C	96	U	<b>96</b>	REJ	96	UJG	96	U	96	U	20	U	20	U	20	U	20	U	20	U
MD03C	99	U	99	U	99	U	99	U	99	U	20	U	20	U	20	U	20	U	20	U
MD05C	97	U	97	U	97	U	97	U	97	U	19	U	19	U	19	U	19	U	19	U

Key:

- Bold** = Analyte was detected.
- dw = dry weight
- µg/kg = micrograms per kilogram
- JT = The associated estimated positive result is less than the reporting limit.
- JG = The associated estimated positive result has a likely low bias.
- UJG = The associated estimated sample quantitation limit has a likely low bias.
- UJK = The associated estimated sample quantitation limit has a likely unknown bias.
- U = Analyte was not detected at or above the reported result.
- JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.
- REJ = Rejected

Blank cells indicate that the compound was not analyzed at that station.

Table C–C11. Concentrations of Resin Acid and Guaiacol Compounds in Subsurface C and D Core Sediment Samples

Station	4,6-Dichloroguaiacol		4-Chloroguaiacol		Guaiacol		Tetrachloroguaiacol	
	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier	Result (µg/kg dw)	Qualifier
BL02C	20	U	20	U	20	U	20	U
BL08C	20	U	20	U	20	U	20	U
DO04C	20	U	20	U	20	U	20	U
DO04D	20	U	20	U	20	U	20	U
DO05C	20	U	20	U	20	U	20	U
EC03C	20	U	20	U	20	U	20	U
ED01C	20	UJK	20	U	20	U	20	U
ED02C	20	UJK	20	U	20	U	20	U
ED03C	20	UJK	20	U	20	U	20	U
EE02C	20	U	20	U	20	U	20	U
EE03C	19	U	19	U	19	U	19	U
EE04C	19	U	19	U	19	U	19	U
FT04C	20	U	20	U	20	U	20	U
FT06C	20	U	20	U	20	U	20	U
FT12C	20	U	20	U	20	U	20	U
IE01C	19	U	19	U	19	U	19	U
IE05C	20	U	20	U	20	U	20	U
IE12C	20	U	20	U	20	U	20	U
IE14C	20	U	20	U	20	U	20	U
IE16C	20	U	20	U	20	U	20	U
IH02C	20	U	20	U	20	U	20	U
IH06C	20	U	20	U	20	U	20	U
KP02C	20	U	20	U	20	U	20	U
KP03C	20	U	20	U	20	U	20	U
KP07C	20	U	20	U	20	U	20	U
KP08C	20	UJG	20	UJG	20	UJG	20	UJG
LA02C	19	U	19	U	19	U	19	U
MA02C	20	U	20	U	20	U	20	U
MD01C	20	U	20	U	20	U	20	U
MD02C	20	U	20	U	20	U	20	U
MD03C	20	UJK	20	U	20	U	20	U
MD05C	19	U	19	U	19	U	19	U

Key:

- Bold** = Analyte was detected.
- dw = dry weight
- µg/kg = micrograms per kilogram
- JT = The associated estimated positive result is less than the reporting limit.
- JG = The associated estimated positive result has a likely low bias.
- UJG = The associated estimated sample quantitation limit has a likely low bias.
- UJK = The associated estimated sample quantitation limit has a likely unknown bias.
- U = Analyte was not detected at or above the reported result.
- JTG = The associated estimated positive result is less than the reporting limit with a likely low bias.
- REJ = Rejected

Blank cells indicate that the compound was not analyzed at that station.

Table C-C12. Concentrations of Chlorinated Benzenes, Benzoic Acid, and Benzyl Alcohol in Subsurface C D Core Sediment Samples

Station	Sample Interval (inches)	% TOC	1,2,4-Trichlorobenzene			1,2-Dichlorobenzene			1,4-Dichlorobenzene			Hexachlorobenzene			Hexachlorobutadiene			Dibenzofuran			Benzoic Acid		Benzyl Alcohol	
			Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	TOC-Norm (mg/kg TOC)	Qualifier	Results (µg/kg)	Qualifier	Results (µg/kg)	Qualifier
BL02C	60-78	1.1	9	0.82	U	7.8	0.71	U	7.3	0.66	U	7.9	0.72	U	8	0.73	U	7.5	0.682	U	110	U	14	U
BL08C	36-48	0.438	9	2.05	U	7.8	1.78	U	7.3	1.67	U	7.9	1.80	U	8	1.83	U	7.5	1.712	U	110	U	14	U
DO04C	12-24	0.593	8.8	1.48	U	7.7	1.30	U	7.2	1.21	U	7.8	1.32	U	7.9	1.33	U	7.4	1.248	U	110	U	14	U
DO04D	24-32	0.424	9	2.12	U	7.8	1.84	U	7.3	1.72	U	7.9	1.86	U	8	1.89	U	7.5	1.769	U	110	U	14	U
DO05C	12-16	0.534	8.9	1.67	U	7.7	1.44	U	7.2	1.35	U	7.8	1.46	U	7.9	1.48	U	7.4	1.386	U	110	U	14	U
EC03C	12-24	2.78	8.9	0.32	U	7.7	0.28	U	7.2	0.26	U	7.9	0.28	U	8	0.29	U	<b>2700</b>	<b>97.122</b>		110	U	14	U
ED01C	72-84	0.255	9	0.26	U	7.8	0.26	U	7.3	0.26	U	7.9	0.26	U	8	0.26	U	7.5	2.941	U	110	U	14	U
ED02C	36-48	1.32	7.7	1.32	U	7.2	1.32	U	110	1.32	U	7.8	1.32	U	7.9	1.32	U	7.4	0.561	U	110	U	14	U
ED03C	33-45	0.548	7.7	0.55	U	7.2	0.55	U	110	0.55	U	7.9	0.55	U	8	0.55	U	7.4	1.350	U	110	U	14	U
EE02C	24-36	0.128	8.9	6.95	U	7.7	6.02	U	7.2	5.63	U	7.9	6.17	U	8	6.25	U	7.4	5.781	U	110	U	14	REJ
EE03C	12-24	0.329	8.8	2.67	U	7.6	2.31	U	7.1	2.16	U	7.7	2.34	U	7.8	2.37	U	7.3	2.219	U	110	U	14	U
EE04C	12-24	0.263	8.8	3.35	U	7.6	2.89	U	7.1	2.70	U	7.8	2.97	U	7.8	2.97	U	7.3	2.776	U	110	U	14	U
FT04C	36-48	2.43	8.9	0.37	U	7.7	0.32	U	<b>20</b>	<b>0.82</b>		7.9	0.33	U	8	4.00	U	7.4	0.305	U	110	U	14	U
FT06C	36-48	0.2	9	4.50	U	7.8	3.90	U	7.3	3.65	U	7.9	3.95	U	7.9	1.56	U	7.5	3.750	U	110	UJG	14	UJG
FT12C	36-48	0.506	8.8	1.74	U	7.7	1.52	U	7.2	1.42	U	7.8	1.54	U	7.9	1.13	U	7.4	1.462	U	110	U	14	U
IE01C	48-60	0.698	8.8	1.26	U	7.7	1.10	U	7.2	1.03	U	7.8	1.12	U	8	0.90	U	7.4	1.060	U	110	U	14	U
IE05C	98-110	0.89	8.9	1.00	U	7.7	0.87	U	7.2	0.81	U	7.9	0.89	U	8	1.25	U	7.4	0.831	U	110	U	14	U
IE12C	107-119	0.638	8.9	1.39	U	7.8	1.22	UJG	7.2	1.13	UJG	7.9	1.24	U	8	0.73	U	7.4	1.160	U	110	UJG	14	U
IE14C	62-74	1.1	8.9	0.81	U	7.8	0.71	U	7.2	0.65	U	7.9	0.72	U	8.1	1.67	U	7.4	0.673	U	110	U	14	U
IE16C	36-48	0.484	9	1.86	U	7.8	1.61	U	7.3	1.51	U	8	1.65	U	8.1	0.36	U	7.5	1.550	U	110	U	14	UJK
IH02C	70-82	2.24	9	0.40	U	7.8	0.35	U	7.3	0.33	U	8	0.36	U	7.9	1.14	U	7.5	0.335	U	110	U	14	UJK
IH06C	98-100	0.696	8.9	1.28	U	7.7	1.11	U	7.2	1.03	U	7.8	1.12	U	7.9	2.35	U	7.4	1.063	U	110	U	14	U
KP02C	54-66	0.336	8.9	2.65	U	7.7	2.29	U	7.2	2.14	U	7.8	2.32	U	8.1	0.13	U	7.4	2.202	U	110	U	14	U
KP03C	78-90	6.47	9.1	0.14	U	7.9	0.12	U	7.3	0.11	U	8	0.12	U	8	1.58	U	<b>46</b>	<b>0.711</b>		110	U	14	U
KP07C	36-48	0.506	8.9	1.76	U	7.7	1.52	U	7.2	1.42	U	7.9	1.56	U	7.8	0.44	U	7.4	1.462	U	110	U	14	UJG
KP08C	48-60	0.622	9	1.45	UJG	7.8	1.25	UJG	7.3	1.17	UJG	8	1.29	UJG	8.1	0.23	UJG	7.5	1.206	UJG	110	UJG	14	UJG
LA02C	NA	1.77	8.8	0.50	U	7.6	0.43	U	7.1	0.40	U	7.8	0.44	U	8	3.81	U	7.3	0.412	U	110	U	19	REJ
MA02C	12-24	3.52	9	0.26	U	7.8	0.22	U	7.3	0.21	U	8	0.23	U	7.9	3.24	U	7.5	0.213	U	110	U	14	U
MD01C	12-24	0.21	9	4.29	U	7.8	3.71	U	7.3	3.48	U	7.9	3.76	U	8.1	0.33	U	7.5	3.571	U	110	U	14	U
MD02C	48-60	0.244	8.8	3.61	U	7.7	3.16	U	7.2	2.95	U	7.8	3.20	U	7.9	2.20	U	7.4	3.033	U	110	U	20	REJ
MD03C	35-47	2.46	9.1	0.37	U	7.9	0.32	U	7.3	0.30	U	8	0.33	U	8.1	1.23	U	<b>15</b>	<b>0.610</b>	JT	110	U	14	UJG
MD05C	10-22	0.359	8.8	2.45	U	7.6	2.12	U	7.1	1.98	U	7.8	2.17	U	8.1	0.04	U	7.3	2.033	U	110	U	19	REJ
SQS				0.81			2.300			3.100			0.380			3.900			15.000		650		57	
CSL				1.8			2.300			9.000			2.300			6.200			58.000		650		73	
LAET			31			35			110			22			11			540		650		57		

Key:

Exceeds CSL/2LAET criteria

**Bold** = Analyte was detected.

µg/kg = micrograms per kilogram.

mg/kg = milligrams per kilogram.

JT = The associated estimated positive result is less than the reporting limit.

UJG = The associated estimated sample quantitation limit has a likely low bias.

UJK = The associated estimated sample quantitation limit has a likely unknown bias.

U = Analyte was not detected at or above the reported result.

REJ = Rejected.

Table C–C13. Concentrations of Dioxin and Furan Congeners in Subsurface C and D Core Sediment Samples (ng/kg dw)

Station	Sample Interval (inches)	1,2,3,4,6,7,8-HpCDD		Detect/ND Result	1,2,3,4,6,7,8-HpCDD TEQ (ND=1/2DL)		1,2,3,4,6,7,8-HpCDF		Detect/ND Result	1,2,3,4,7,8,9-HpCDF		Detect/ND Result	1,2,3,4,7,8-HxCDD		Detect/ND Result	1,2,3,4,7,8-HxCDD TEQ (ND=1/2DL)		1,2,3,4,7,8-HxCDF		Detect/ND Result	1,2,3,4,7,8-HxCDF TEQ (ND=1/2DL)	
		Value	Ident		Value	Ident	Value	Ident		Value	Ident		Value	Ident		Value	Ident	Value	Ident		Value	Ident
BL02C	60–78	<b>7.96</b>	JG	<b>7.96</b>	<b>0.0796</b>	<b>3.7</b>	JG	<b>3.7</b>	<b>0.037</b>	<b>0.365</b>	JTG	<b>0.365</b>	<b>0.00365</b>	<b>0.137</b>	JTG	<b>0.137</b>	<b>0.0137</b>	<b>0.19</b>	JTG	<b>0.19</b>	<b>0.019</b>	
BL08C	36–48	<b>0.758</b>	JG	<b>0.758</b>	<b>0.00758</b>	0.134	UJG	0.067	0.00067	0.0248	UJG	0.0124	0.000124	<b>0.03</b>	JTG	<b>0.03</b>	<b>0.003</b>	<b>0.048</b>	NJ	<b>0.048</b>	<b>0.0048</b>	
DO04C	12–24	<b>1.93</b>		<b>1.93</b>	<b>0.0193</b>	<b>0.479</b>	JT	<b>0.479</b>	<b>0.00479</b>	<b>0.027</b>	JT	<b>0.027</b>	<b>0.00027</b>	<b>0.066</b>	JT	<b>0.066</b>	<b>0.0066</b>	<b>0.063</b>	JT	<b>0.063</b>	<b>0.0063</b>	
DO04D	24–32	<b>0.684</b>		<b>0.684</b>	<b>0.00684</b>	<b>0.093</b>	JT	<b>0.093</b>	<b>0.00093</b>	0.0244	U	0.0122	0.000122	<b>0.034</b>	NJ	<b>0.034</b>	<b>0.0034</b>	<b>0.031</b>	NJ	<b>0.031</b>	<b>0.0031</b>	
DO05C	12–16	<b>2.16</b>		<b>2.16</b>	<b>0.0216</b>	<b>0.533</b>		<b>0.533</b>	<b>0.00533</b>	<b>0.034</b>	JT	<b>0.034</b>	<b>0.00034</b>	<b>0.063</b>	JT	<b>0.063</b>	<b>0.0063</b>	<b>0.062</b>	JT	<b>0.062</b>	<b>0.0062</b>	
EC03C	12–24	<b>147</b>		<b>147</b>	<b>1.47</b>	<b>98.1</b>		<b>98.1</b>	<b>0.981</b>	<b>8.06</b>		<b>8.06</b>	<b>0.0806</b>	<b>2.38</b>		<b>2.38</b>	<b>0.238</b>	<b>15.4</b>		<b>15.4</b>	<b>1.54</b>	
ED01C	72–84	<b>0.914</b>		<b>0.914</b>	<b>0.00914</b>	<b>0.245</b>	JT	<b>0.245</b>	<b>0.00245</b>	<b>0.028</b>	NJ	<b>0.028</b>	<b>0.00028</b>	<b>0.063</b>	JT	<b>0.063</b>	<b>0.0063</b>	<b>0.041</b>	NJ	<b>0.041</b>	<b>0.0041</b>	
ED02C	36–48	<b>15.8</b>		<b>15.8</b>	<b>0.158</b>	<b>3.35</b>		<b>3.35</b>	<b>0.0335</b>	<b>0.237</b>	JT	<b>0.237</b>	<b>0.00237</b>	<b>1.59</b>		<b>1.59</b>	<b>0.159</b>	<b>0.532</b>	JT	<b>0.532</b>	<b>0.0532</b>	
ED03C	33–45	<b>11.1</b>		<b>11.1</b>	<b>0.111</b>	<b>1.87</b>		<b>1.87</b>	<b>0.0187</b>	<b>0.09</b>	JT	<b>0.09</b>	<b>0.0009</b>	<b>0.212</b>	JT	<b>0.212</b>	<b>0.0212</b>	<b>0.187</b>	JT	<b>0.187</b>	<b>0.0187</b>	
EE02C	24–36	<b>0.342</b>	JT	<b>0.342</b>	<b>0.00342</b>	0.178	U	0.089	0.00089	0.061	U	0.0305	0.000305	<b>0.044</b>	NJ	<b>0.044</b>	<b>0.0044</b>	0.059	U	0.0295	0.00295	
EE03C	12–24	<b>3.65</b>		<b>3.65</b>	<b>0.0365</b>	<b>1.04</b>		<b>1.04</b>	<b>0.0104</b>	0.107	U	0.0535	0.000535	<b>0.246</b>	JT	<b>0.246</b>	<b>0.0246</b>	0.306	U	0.153	0.0153	
EE04C	12–24	<b>0.719</b>		<b>0.719</b>	<b>0.00719</b>	0.154	U	0.077	0.00077	0.025	U	0.0125	0.000125	<b>0.029</b>	JT	<b>0.029</b>	<b>0.0029</b>	0.036	U	0.018	0.0018	
IH02C	70–82	<b>0.863</b>	JG	<b>0.863</b>	<b>0.00863</b>	<b>0.211</b>	JTG	<b>0.211</b>	<b>0.00211</b>	<b>0.026</b>	JTG	<b>0.026</b>	<b>0.00026</b>	<b>0.061</b>	NJ	<b>0.061</b>	<b>0.0061</b>	<b>0.084</b>	JTG	<b>0.084</b>	<b>0.0084</b>	
IH06C	98–100	<b>0.913</b>	JG	<b>0.913</b>	<b>0.00913</b>	0.181	UJG	0.0905	0.000905	<b>0.032</b>	JTG	<b>0.032</b>	<b>0.00032</b>	<b>0.07</b>	JTG	<b>0.07</b>	<b>0.007</b>	0.056	UJG	0.028	0.0028	
LA02C	NA	<b>1.16</b>		<b>1.16</b>	<b>0.0116</b>	<b>0.563</b>		<b>0.563</b>	<b>0.00563</b>	0.0256	U	0.0128	0.000128	<b>0.176</b>	JT	<b>0.176</b>	<b>0.0176</b>	<b>0.122</b>	JT	<b>0.122</b>	<b>0.0122</b>	
MA02C	12–24	<b>732</b>		<b>732</b>	<b>7.32</b>	<b>220</b>		<b>220</b>	<b>2.2</b>	<b>9.01</b>		<b>9.01</b>	<b>0.0901</b>	<b>5.26</b>		<b>5.26</b>	<b>0.526</b>	<b>7.63</b>		<b>7.63</b>	<b>0.763</b>	
MD01C	12–24	<b>2.64</b>		<b>2.64</b>	<b>0.0264</b>	0.0221	U	0.01105	0.0001105	0.063	U	0.0315	0.000315	<b>0.048</b>	NJ	<b>0.048</b>	<b>0.0048</b>	0.099	U	0.0495	0.00495	
MD02C	48–60	<b>4.68</b>		<b>4.68</b>	<b>0.0468</b>	0.021	U	0.0105	0.000105	0.101	U	0.0505	0.000505	<b>0.501</b>	JT	<b>0.501</b>	<b>0.0501</b>	0.325	U	0.1625	0.01625	
MD03C	35–47	<b>88.3</b>		<b>88.3</b>	<b>0.883</b>	<b>27.7</b>		<b>27.7</b>	<b>0.277</b>	<b>1.57</b>		<b>1.57</b>	<b>0.0157</b>	<b>4.36</b>		<b>4.36</b>	<b>0.436</b>	<b>3.41</b>		<b>3.41</b>	<b>0.341</b>	
MD05C	10–22	<b>6.23</b>		<b>6.23</b>	<b>0.0623</b>	<b>1.07</b>		<b>1.07</b>	<b>0.0107</b>	<b>0.085</b>	JT	<b>0.085</b>	<b>0.00085</b>	<b>0.198</b>	JT	<b>0.198</b>	<b>0.0198</b>	<b>0.167</b>	NJ	<b>0.167</b>	<b>0.0167</b>	

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- JK = Analyte was positively identified. Reported result is an estimate with unknown bias.
- JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.
- JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.
- ng/kg = nanograms per kilogram
- U = Analyte was not detected at or above the reported result.
- UJG = Analyte was not detected at or above the reported estimate with likely low bias.

Table C–C13. Concentrations of Dioxin and Furan Congeners in Subsurface C and D Core Sediment Samples (ng/kg dw)

Station	1,2,3,6,7,8-HxCDD		Detect/ ND Result	1,2,3,6,7,8-HxCDD TEQ (ND=1/2DL)	1,2,3,6,7,8-HxCDF		Detect/ ND Result	1,2,3,6,7,8-HxCDF TEQ (ND=1/2DL)	1,2,3,7,8,9-HxCDD		Detect/ ND Result	1,2,3,7,8,9-HxCDD TEQ (ND=1/2DL)	1,2,3,7,8,9-HxCDF		Detect/ ND Result	1,2,3,7,8,9-HxCDF TEQ (ND=1/2DL)	1,2,3,7,8-PeCDD		Detect/ ND Result	1,2,3,7,8-PeCDD TEQ (ND=1/2DL)
	Value	Ident			Value	Ident			Value	Ident			Value	Ident			Value	Ident		
BL02C	<b>0.595</b>	JG	<b>0.595</b>	<b>0.0595</b>	<b>0.124</b>	JTG	<b>0.124</b>	<b>0.0124</b>	<b>0.407</b>	JTG	<b>0.407</b>	<b>0.0407</b>	0.0252	UJG	<b>0.0252</b>	<b>0.00252</b>	<b>0.166</b>	JTG	<b>0.166</b>	<b>0.166</b>
BL08C	<b>0.074</b>	JTG	<b>0.074</b>	<b>0.0074</b>	0.0248	UJG	0.0124	0.00124	<b>0.188</b>	JTG	<b>0.188</b>	<b>0.0188</b>	0.0248	UJG	<b>0.0248</b>	<b>0.00248</b>	<b>0.07</b>	NJ	<b>0.07</b>	<b>0.07</b>
DO04C	<b>0.25</b>	JT	<b>0.25</b>	<b>0.025</b>	<b>0.044</b>	JT	<b>0.044</b>	<b>0.0044</b>	<b>0.243</b>	JT	<b>0.243</b>	<b>0.0243</b>	0.024	U	0.012	0.0012	<b>0.083</b>	JT	<b>0.083</b>	<b>0.083</b>
DO04D	<b>0.087</b>	NJ	<b>0.087</b>	<b>0.0087</b>	0.0244	U	0.0122	0.00122	<b>0.142</b>	JT	<b>0.142</b>	<b>0.0142</b>	0.0244	U	0.0122	0.00122	<b>0.052</b>	NJ	<b>0.052</b>	<b>0.052</b>
DO05C	<b>0.29</b>	JT	<b>0.29</b>	<b>0.029</b>	<b>0.042</b>	JT	<b>0.042</b>	<b>0.0042</b>	<b>0.233</b>	JT	<b>0.233</b>	<b>0.0233</b>	0.0241	U	0.01205	0.001205	<b>0.083</b>	JT	<b>0.083</b>	<b>0.083</b>
EO03C	<b>6.4</b>		<b>6.4</b>	<b>0.64</b>	<b>3.97</b>		<b>3.97</b>	<b>0.397</b>	<b>5.63</b>		<b>5.63</b>	<b>0.563</b>	<b>0.131</b>	JT	<b>0.131</b>	<b>0.0131</b>	<b>2.13</b>		<b>2.13</b>	<b>2.13</b>
ED01C	<b>0.139</b>	JT	<b>0.139</b>	<b>0.0139</b>	<b>0.035</b>	NJ	<b>0.035</b>	<b>0.0035</b>	<b>0.225</b>	JT	<b>0.225</b>	<b>0.0225</b>	0.0236	U	0.0118	0.00118	<b>0.127</b>	JT	<b>0.127</b>	<b>0.127</b>
ED02C	<b>2.32</b>		<b>2.32</b>	<b>0.232</b>	<b>0.4</b>	JT	<b>0.4</b>	<b>0.04</b>	<b>2.29</b>		<b>2.29</b>	<b>0.229</b>	<b>0.033</b>	JT	<b>0.033</b>	<b>0.0033</b>	<b>0.828</b>		<b>0.828</b>	<b>0.828</b>
ED03C	<b>0.655</b>		<b>0.655</b>	<b>0.0655</b>	<b>0.113</b>	JT	<b>0.113</b>	<b>0.0113</b>	<b>0.495</b>	JT	<b>0.495</b>	<b>0.0495</b>	0.0252	U	0.0126	0.00126	<b>0.199</b>	JT	<b>0.199</b>	<b>0.199</b>
EE02C	<b>0.087</b>	NJ	<b>0.087</b>	<b>0.0087</b>	0.048	U	0.024	0.0024	<b>0.117</b>	JT	<b>0.117</b>	<b>0.0117</b>	0.0244	U	0.0122	0.00122	<b>0.087</b>	JT	<b>0.087</b>	<b>0.087</b>
EE03C	<b>0.442</b>	JT	<b>0.442</b>	<b>0.0442</b>	<b>0.252</b>	JT	<b>0.252</b>	<b>0.0252</b>	<b>0.432</b>	JT	<b>0.432</b>	<b>0.0432</b>	0.022	U	0.011	0.0011	<b>0.272</b>	NJ	<b>0.272</b>	<b>0.272</b>
EE04C	<b>0.061</b>	NJ	<b>0.061</b>	<b>0.0061</b>	0.026	U	0.013	0.0013	<b>0.099</b>	NJ	<b>0.099</b>	<b>0.0099</b>	0.0228	U	0.0114	0.00114	<b>0.053</b>	NJ	<b>0.053</b>	<b>0.053</b>
IH02C	<b>0.119</b>	JTG	<b>0.119</b>	<b>0.0119</b>	<b>0.058</b>	JTG	<b>0.058</b>	<b>0.0058</b>	<b>0.331</b>	JTG	<b>0.331</b>	<b>0.0331</b>	0.0246	UJG	0.0123	0.00123	<b>0.145</b>	JTG	<b>0.145</b>	<b>0.145</b>
IH06C	<b>0.125</b>	JTG	<b>0.125</b>	<b>0.0125</b>	<b>0.04</b>	JTG	<b>0.04</b>	<b>0.004</b>	<b>0.222</b>	JTG	<b>0.222</b>	<b>0.0222</b>	0.0249	UJG	0.0124	0.00124	<b>0.118</b>	JTG	<b>0.118</b>	<b>0.118</b>
LA02C	<b>0.251</b>	JT	<b>0.251</b>	<b>0.0251</b>	<b>0.111</b>	NJ	<b>0.111</b>	<b>0.0111</b>	<b>0.279</b>	NJ	<b>0.279</b>	<b>0.0279</b>	0.0256	U	0.0128	0.00128	<b>0.202</b>	JT	<b>0.202</b>	<b>0.202</b>
MA02C	<b>42.5</b>		<b>42.5</b>	<b>4.25</b>	<b>4.81</b>		<b>4.81</b>	<b>0.481</b>	<b>18</b>		<b>18</b>	<b>1.8</b>	<b>0.501</b>	JT	<b>0.501</b>	<b>0.0501</b>	<b>5.31</b>		<b>5.31</b>	<b>5.31</b>
MD01C	<b>0.148</b>	NJ	<b>0.148</b>	<b>0.0148</b>	0.057	U	0.0285	0.00285	<b>0.149</b>	JT	<b>0.149</b>	<b>0.0149</b>	0.0221	U	0.01105	0.001105	<b>0.041</b>	JT	<b>0.041</b>	<b>0.041</b>
MD02C	<b>0.862</b>		<b>0.862</b>	<b>0.0862</b>	<b>0.362</b>	JT	<b>0.362</b>	<b>0.0362</b>	<b>0.925</b>		<b>0.925</b>	<b>0.0925</b>	<b>0.056</b>	JT	<b>0.056</b>	<b>0.0056</b>	<b>0.47</b>	JT	<b>0.47</b>	<b>0.47</b>
MD03C	<b>9.04</b>		<b>9.04</b>	<b>0.904</b>	<b>2.37</b>		<b>2.37</b>	<b>0.237</b>	<b>9.4</b>		<b>9.4</b>	<b>0.94</b>	<b>0.245</b>	JT	<b>0.245</b>	<b>0.0245</b>	<b>3.87</b>		<b>3.87</b>	<b>3.87</b>
MD05C	<b>0.671</b>		<b>0.671</b>	<b>0.0671</b>	<b>0.116</b>	JT	<b>0.116</b>	<b>0.0116</b>	<b>0.504</b>	JT	<b>0.504</b>	<b>0.0504</b>	0.0243	U	0.01215	0.001215	<b>0.208</b>	JT	<b>0.208</b>	<b>0.208</b>

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- JK = Analyte was positively identified. Reported result is an estimate with unknown bias.
- JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.
- JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.
- ng/kg = nanograms per kilogram
- U = Analyte was not detected at or above the reported result.
- UJG = Analyte was not detected at or above the reported estimate with likely low bias.

Table C–C13. Concentrations of Dioxin and Furan Congeners in Subsurface C and D Core Sediment Samples (ng/kg dw)

Station	1,2,3,7,8-PeCDF		Detect/ND Result	1,2,3,7,8-PeCDF TEQ (ND=1/2DL)		2,3,4,6,7,8-HxCDF		Detect/ND Result	2,3,4,6,7,8-HxCDF TEQ (ND=1/2DL)		2,3,4,7,8-PeCDF		Detect/ND Result	2,3,7,8-TCDD		Detect/ND Result	2,3,7,8-TCDD TEQ (ND=1/2DL)		2,3,7,8-TCDF		Detect/ND Result	2,3,7,8-TCDF TEQ (ND=1/2DL)	
	Value	Identified		Value	Identified	Value	Identified		Value	Identified	Value	Identified		Value	Identified		Value	Identified	Value	Identified		Value	Identified
BL02C	<b>0.1</b>	JTG	<b>0.1</b>	<b>0.003</b>	<b>0.127</b>	JTG	<b>0.127</b>	<b>0.0127</b>	<b>0.146</b>	JTG	<b>0.146</b>	<b>0.0438</b>	<b>0.112</b>	NJ	<b>0.112</b>	<b>0.112</b>	<b>0.16</b>	JG	<b>0.16</b>	<b>0.016</b>			
BL08C	0.0248	UJG	0.0124	0.000372	0.0248	UJG	0.0124	0.00124	<b>0.029</b>	NJ	<b>0.029</b>	<b>0.0087</b>	<b>0.075</b>	NJ	<b>0.075</b>	<b>0.075</b>	0.0559	UJG	0.028	0.0028			
DO04C	<b>0.047</b>	NJ	<b>0.047</b>	<b>0.00141</b>	<b>0.04</b>	NJ	<b>0.04</b>	<b>0.004</b>	<b>0.073</b>	JT	<b>0.073</b>	<b>0.0219</b>	<b>0.07</b>	NJ	<b>0.07</b>	<b>0.07</b>	<b>0.112</b>	NJ	<b>0.112</b>	<b>0.0112</b>			
DO04D	0.0244	U	0.0122	0.000366	0.0244	U	0.0122	0.00122	<b>0.029</b>	JT	<b>0.029</b>	<b>0.0087</b>	0.0244	U	0.0122	0.0122	<b>0.034</b>	JT	<b>0.034</b>	<b>0.0034</b>			
DO05C	0.0241	U	0.01205	0.0003615	<b>0.037</b>	JT	<b>0.037</b>	<b>0.0037</b>	<b>0.057</b>	JT	<b>0.057</b>	<b>0.0171</b>	<b>0.056</b>	NJ	<b>0.056</b>	<b>0.056</b>	<b>0.062</b>	JT	<b>0.062</b>	<b>0.0062</b>			
EC03C	<b>2.03</b>		<b>2.03</b>	<b>0.0609</b>	<b>2.7</b>		<b>2.7</b>	<b>0.27</b>	<b>4.56</b>		<b>4.56</b>	<b>1.368</b>	<b>0.599</b>		<b>0.599</b>	<b>0.599</b>	11.4		11.4	1.14			
ED01C	<b>0.026</b>	NJ	<b>0.026</b>	<b>0.00078</b>	<b>0.029</b>	NJ	<b>0.029</b>	<b>0.0029</b>	<b>0.043</b>	NJ	<b>0.043</b>	<b>0.0129</b>	<b>0.159</b>	NJ	<b>0.159</b>	<b>0.159</b>	<b>0.044</b>	JT	<b>0.044</b>	<b>0.0044</b>			
ED02C	<b>0.472</b>	JT	<b>0.472</b>	<b>0.01416</b>	<b>0.304</b>	JT	<b>0.304</b>	<b>0.0304</b>	<b>0.656</b>		<b>0.656</b>	<b>0.1968</b>	<b>0.463</b>		<b>0.463</b>	<b>0.463</b>	<b>0.988</b>		<b>0.988</b>	<b>0.0988</b>			
ED03C	<b>0.156</b>	JT	<b>0.156</b>	<b>0.00468</b>	<b>0.115</b>	JT	<b>0.115</b>	<b>0.0115</b>	<b>0.199</b>	JT	<b>0.199</b>	<b>0.0597</b>	<b>0.095</b>	JT	<b>0.095</b>	<b>0.095</b>	<b>0.33</b>		<b>0.33</b>	<b>0.033</b>			
EE02C	0.04	U	0.02	0.0006	0.028	U	0.014	0.0014	0.05	U	0.025	0.0075	<b>0.063</b>	JT	<b>0.063</b>	<b>0.063</b>	<b>0.044</b>	U	<b>0.022</b>	<b>0.0022</b>			
EE03C	<b>0.257</b>	JT	<b>0.257</b>	<b>0.00771</b>	<b>0.209</b>	JT	<b>0.209</b>	<b>0.0209</b>	<b>0.4</b>	JT	<b>0.4</b>	<b>0.12</b>	<b>0.138</b>	NJ	<b>0.138</b>	<b>0.138</b>	<b>0.53</b>		<b>0.53</b>	<b>0.053</b>			
EE04C	0.026	U	0.013	0.00039	0.0228	U	0.0114	0.00114	0.038	U	0.019	0.0057	<b>0.059</b>	NJ	<b>0.059</b>	<b>0.059</b>	<b>0.027</b>	JT	<b>0.027</b>	<b>0.0027</b>			
IH02C	<b>0.072</b>	JTG	<b>0.072</b>	<b>0.00216</b>	<b>0.07</b>	JTG	<b>0.07</b>	<b>0.007</b>	<b>0.096</b>	JTG	<b>0.096</b>	<b>0.0288</b>	<b>0.123</b>	JG	<b>0.123</b>	<b>0.123</b>	<b>0.087</b>	JTG	<b>0.087</b>	<b>0.0087</b>			
IH06C	<b>0.074</b>	JTG	<b>0.074</b>	<b>0.00222</b>	<b>0.037</b>	JTG	<b>0.037</b>	<b>0.0037</b>	<b>0.084</b>	JTG	<b>0.084</b>	<b>0.0252</b>	<b>0.116</b>	JTG	<b>0.116</b>	<b>0.116</b>	.105	JG	.105	<b>0.0105</b>			
LA02C	<b>0.183</b>	JT	<b>0.183</b>	<b>0.00549</b>	<b>0.1</b>	JT	<b>0.1</b>	<b>0.01</b>	<b>0.223</b>	JT	<b>0.223</b>	<b>0.0669</b>	<b>0.152</b>		<b>0.152</b>	<b>0.152</b>	<b>0.431</b>		<b>0.431</b>	<b>0.0431</b>			
MA02C	<b>2.23</b>		<b>2.23</b>	<b>0.0669</b>	<b>4.33</b>		<b>4.33</b>	<b>0.433</b>	<b>3.02</b>		<b>3.02</b>	<b>0.906</b>	<b>1.66</b>		<b>1.66</b>	<b>1.66</b>	<b>5.18</b>		<b>5.18</b>	<b>0.518</b>			
MD01C	0.049	U	0.0245	0.000735	0.035	U	0.0175	0.00175	0.076	U	0.038	0.0114	<b>0.042</b>	NJ	<b>0.042</b>	<b>0.042</b>	<b>0.084</b>	JT	<b>0.084</b>	<b>0.0084</b>			
MD02C	<b>0.451</b>	JT	<b>0.451</b>	<b>0.01353</b>	0.312	NJ	0.312	0.0312	<b>0.616</b>		<b>0.616</b>	<b>0.1848</b>	<b>0.156</b>	NJ	<b>0.156</b>	<b>0.156</b>	<b>0.728</b>		<b>0.728</b>	<b>0.0728</b>			
MD03C	<b>2.78</b>		<b>2.78</b>	<b>0.0834</b>	<b>2.02</b>		<b>2.02</b>	<b>0.202</b>	<b>3.82</b>		<b>3.82</b>	<b>1.146</b>	<b>1.68</b>		<b>1.68</b>	<b>1.68</b>	<b>5.44</b>		<b>5.44</b>	<b>0.544</b>			
MD05C	<b>0.13</b>	JT	<b>0.13</b>	<b>0.0039</b>	<b>0.12</b>	JT	<b>0.12</b>	<b>0.012</b>	<b>0.183</b>	JT	<b>0.183</b>	<b>0.0549</b>	<b>0.092</b>	NJ	<b>0.092</b>	<b>0.092</b>	<b>0.231</b>		<b>0.231</b>	<b>0.0231</b>			

Key:

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JK = Analyte was positively identified. Reported result is an estimate with unknown bias.

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.

ng/kg = nanograms per kilogram

U = Analyte was not detected at or above the reported result.

UJG = Analyte was not detected at or above the reported estimate with likely low bias.

Table C–C13. Concentrations of Dioxin and Furan Congeners in Subsurface C and D Core Sediment Samples (ng/kg dw)

Station	OCDD		Detect/ ND Result	OCDD TEQ (ND=1/2DL)	OCDF		Detect/ ND Result	OCDF TEQ (ND=1/2DL)	Total TCDD TEQ (ND=1/2DL)
BL02C	<b>38.9</b>	JG	<b>38.9</b>	<b>0.01167</b>	<b>5.07</b>	JG	<b>5.07</b>	<b>0.001521</b>	<b>0.635</b>
BL08C	<b>5.73</b>	JG	<b>5.73</b>	<b>0.001719</b>	0.228	UJG	0.114	0.0000342	<b>0.212</b>
DO04C	<b>13.7</b>		<b>13.7</b>	<b>0.00411</b>	<b>0.857</b>	JT	<b>0.857</b>	<b>0.0002571</b>	<b>0.288</b>
DO04D	<b>4.54</b>		<b>4.54</b>	<b>0.001362</b>	0.014	U	0.007	0.0000021	<b>0.119</b>
DO05C	<b>13.9</b>		<b>13.9</b>	<b>0.00417</b>	<b>0.76</b>	JT	<b>0.76</b>	<b>0.000228</b>	<b>0.268</b>
EC03C	<b>2080</b>		<b>2080</b>	<b>0.624</b>	<b>438</b>		<b>438</b>	<b>0.1314</b>	<b>12.2</b>
ED01C	<b>3.56</b>		<b>3.56</b>	<b>0.001068</b>	<b>0.431</b>	JT	<b>0.431</b>	<b>0.0001293</b>	<b>0.372</b>
ED02C	<b>59.9</b>		<b>59.9</b>	<b>0.01797</b>	<b>9.75</b>		<b>9.75</b>	<b>0.002925</b>	<b>2.56</b>
ED03C	<b>110</b>		<b>110</b>	<b>0.033</b>	<b>10.9</b>		<b>10.9</b>	<b>0.00327</b>	<b>0.737</b>
EE02C	<b>1.31</b>		<b>1.31</b>	<b>0.000393</b>	0.252	U	0.126	0.0000378	<b>0.198</b>
EE03C	<b>20.3</b>		<b>20.3</b>	<b>0.00609</b>	<b>2.24</b>		<b>2.24</b>	<b>0.000672</b>	<b>0.819</b>
EE04C	<b>5.04</b>		<b>5.04</b>	<b>0.001512</b>	0.296	U	0.148	0.0000444	<b>0.155</b>
IH02C	<b>4.97</b>	JG	<b>4.97</b>	<b>0.001491</b>	0.189	UJG	0.0945	0.00002835	<b>0.395</b>
IH06C	<b>4.12</b>	JG	<b>4.12</b>	<b>0.001236</b>	<b>0.168</b>	JTG	<b>0.168</b>	<b>0.0000504</b>	<b>0.342</b>
LA02C	<b>2.04</b>		<b>2.04</b>	<b>0.000612</b>	<b>0.293</b>	JT	<b>0.293</b>	<b>0.0000879</b>	<b>0.593</b>
MA02C	<b>6900</b>		<b>6900</b>	<b>2.07</b>	<b>922</b>		<b>922</b>	<b>0.2766</b>	<b>28.7</b>
MD01C	<b>23.4</b>		<b>23.4</b>	<b>0.00702</b>	0.869	U	0.4345	0.00013035	<b>0.183</b>
MD02C	<b>6.41</b>		<b>6.41</b>	<b>0.001923</b>	0.677	U	0.3385	0.00010155	<b>1.26</b>
MD03C	<b>494</b>		<b>494</b>	<b>0.1482</b>	<b>77</b>		<b>77</b>	<b>0.0231</b>	<b>11.8</b>
MD05C	<b>39</b>		<b>39</b>	<b>0.0117</b>	<b>3.5</b>		<b>3.5</b>	<b>0.00105</b>	<b>0.647</b>

Key:

**Bold** = Analyte was detected.

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JK = Analyte was positively identified. Reported result is an estimate with unknown bias.

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.

ng/kg = nanograms per kilogram

U = Analyte was not detected at or above the reported result.

UJG = Analyte was not detected at or above the reported estimate with likely low bias.

**Table C–C14. Dioxin TEQs in Subsurface "C" and "D" Core Sediment Samples**

Station	Total Dioxin TEQs	Qualifier
LA02C	0.593	JT
IH02C	0.395	JG
IH06C	0.342	JG
MA02C	28.7	JT
BL02C	0.635	JG
BL08C	0.212	JG
MD01C	0.183	JT
MD02C	1.26	JK
MD03C	11.8	JT
MD05C	0.647	JT
ED01C	0.372	JT
ED02C	2.56	JT
ED03C	0.737	JT
DO04C	0.288	JT
DO04D	0.119	JT
DO05C	0.268	JT
EC03C	12.2	JT
EE02C	0.198	JK
EE03C	0.819	JK
EE04C	0.155	JT

Note: Non-detected values are reported as half of the detection limit.

- JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.
- JG = Analyte was positively identified. Value may be greater than the reported estimate.
- JK = Analyte was positively identified. Reported result is an estimate with unknown bias.



**Table C–T1. Concentrations of COPCs in Port Angeles Geoduck Tissue Samples**

Percent Lipid concentration in Geoduck tissue				
Station	MD08TG		RF06TG	
Parameter	Result	Qualifier	Result	Qualifier
Percent Lipids	0.94		1.2	
Metals (mg/kg ww)				
Station	MD08TG		RF06TG	
Parameter	Result	Qualifier	Result	Qualifier
Antimony	0.0077	JT	0.001	U
Arsenic	2.3		1.5	
Barium	0.41		0.28	
Cadmium	0.27		0.13	
Chromium	0.33		0.21	
Copper	6		2.6	
Lead	0.3		0.071	JT
Mercury	0.082		0.0086	U
Nickel	0.86		0.2	
Silver	0.94		0.19	
Zinc	13		16	
Dioxin/Furan Homologues (ng/kg ww)				
Station	MD08TG		RF06TG	
Parameter	Result	Qualifier	Result	Qualifier
Total HpCDD	0.497	JT	0.293	JT
Total HpCDF	0.174	U	0.0473	U
Total HxCDD	0.463	JT	0.09	JT
Total HxCDF	0.176	JT	0.0473	U
Total PeCDD	0.143	JT	0.0473	U
Total PeCDF	0.0488	U	0.0473	U
Total TCDD	0.124	JT	0.102	JT
Total TCDF	0.328		0.227	JT
Dioxin/furan TEQs				
TEQ (ND=0)	0.11		0.014	
TEQ (ND=0.5DL)	0.15		0.085	
Dioxin-like PCB Congeners (ng/kg ww)				
Station	MD08TG		RF06TG	
Parameter	Result	Qualifier	Result	Qualifier
PCB-077	1.65	JT	0.993	JT
PCB-081	0.341	U	0.185	U
PCB-105	23.6		10.8	
PCB-114	5.5		1.36	JT
PCB-118	74.1		32.5	
PCB-123	2.5		1.12	JT
PCB-126	0.416	JT	0.192	U
PCB-156/157	21.9		2.84	
PCB-167	14.2		2.42	
PCB-169	0.992	U	0.218	U
PCB-189	3.35		0.108	NJ

**Table C–T1. Concentrations of COPCs in Port Angeles Geoduck Tissue Samples**

Pesticides (µg/kg ww)				
Station	MD08TG		RF06TG	
Parameter	Result	Qualifier	Result	Qualifier
4,4'-DDD	0.25	U	0.26	U
4,4'-DDE	0.22	U	0.22	U
4,4'-DDT	0.25	U	0.26	U
Aldrin	0.1	U	0.11	U
alpha-BHC	<b>0.73</b>	JT	<b>0.23</b>	JT
beta-BHC	<b>0.63</b>	JT	<b>0.17</b>	JT
cis-Chlordane	0.11	U	0.12	U
delta-BHC	0.11	U	0.12	U
Dieldrin	0.21	U	0.22	U
Endosulfan I	0.11	U	0.12	U
Endosulfan II	0.25	U	0.26	U
Endosulfan Sulfate	0.32	U	0.33	U
Endrin	0.4	U	0.41	U
Endrin Aldehyde	0.24	U	0.25	U
Endrin Ketone	0.24	U	0.25	U
gamma-Chlordane	0.11	U	0.12	U
Heptachlor	0.13	U	0.13	U
Heptachlor Epoxide	0.12	U	0.12	U
Lindane	0.11	U	0.11	U
Methoxychlor	1.3	U	1.3	U
Toxaphene	9.4	U	9.7	U
PAHs (µg/kg ww)				
Station	MD08TG		RF06TG	
Parameter	Result	Qualifier	Result	Qualifier
1-Methylphenanthrene	0.722	U	0.267	U
2,3,5-Trimethylnaphthalene	0.0994	U	<b>0.151</b>	NJ
2,6-Dimethylnaphthalene	0.252	U	0.136	U
2-Methylnaphthalene	0.444	U	0.287	U
Acenaphthene	<b>0.23</b>	J	<b>0.043</b>	NJ
Acenaphthylene	<b>0.227</b>	NJ	<b>0.054</b>	NJ
Anthracene	<b>0.571</b>	U	0.151	U
Benz[a]anthracene	<b>0.544</b>	NJ	<b>0.05</b>	NJ
Benzo[a]pyrene	<b>0.352</b>	NJ	0.0735	U
Benzo[b]/j/k]fluoranthene	<b>1.43</b>		<b>0.107</b>	J
Benzo[b]fluoranthene	<b>0.743</b>		<b>0.107</b>	J
Benzo[e]pyrene	<b>0.677</b>		<b>0.151</b>	NJ
Benzo[ghi]perylene	<b>0.312</b>	NJ	<b>0.136</b>	NJ
Benzo[j,k]fluoranthenes	<b>0.69</b>	J	<b>0.075</b>	NJ
Chrysene	<b>1.17</b>		<b>0.201</b>	J
Dibenz[a,h]anthracene	<b>0.085</b>	NJ	0.0668	U
Dibenzothiophene	<b>0.114</b>	NJ	0.0305	U
Fluoranthene	<b>2.34</b>		<b>0.431</b>	J
Fluorene	<b>0.454</b>	J	<b>0.118</b>	J
Indeno[1,2,3-cd]pyrene	<b>0.25</b>	NJ	<b>0.066</b>	NJ
Naphthalene	1.22	U	0.775	U
Perylene	<b>0.691</b>		<b>0.309</b>	J

**Table C–T1. Concentrations of COPCs in Port Angeles Geoduck Tissue Samples**

Phenanthrene	<b>1.55</b>		0.333	U
Pyrene	<b>1.32</b>		<b>0.54</b>	

Key:

**Bold** = Text denotes detected concentration.

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

mg/kg = miligram per kilogram

µg/kg = micrograms per kilogram

ng/kg = nanograms per kilogram

ww = wet weight

U = Analyte was not detected at or above the reported result.

Table C–T2. Concentrations of COPCs in Port Angeles Horse Clam Tissue Samples

Percent Lipids																				
Station	IE08TH		IE18TH		IE20TH		MD06TH		MD07TH		MD08TH		MD09TH		EC06TH		RF04TH		RF05TH	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Percent Lipids	0.44		1.01		0.89		1.16		1.34		0.87		0.94		0.67		1		0.93	
Metals (mg/kg ww)																				
Station	IE08TH		IE18TH		IE20TH		MD06TH		MD07TH		MD08TH		MD09TH		EC06TH		RF04TH		RF05TH	
Parameter	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier	Result (mg/kg)	Qualifier
Antimony	0.00087	U	0.00087	U	0.00084	U	0.0011	U	0.0011	U	0.018	JT	0.021	JT	0.00076	U	0.006	JT	0.001	U
Arsenic	0.82		1.5		1.7		3.1		1.9		2.7		4.6		5.8		1.5		2.4	
Barium	0.38		0.55		0.73		1.9		0.77		1.2		3		2.2		0.53		1.1	
Cadmium	0.2		0.22		0.26		0.35		0.31		0.28		0.27		0.3	JT	0.4		0.37	
Chromium	0.72		0.7		1.8		0.68		0.75		0.71		0.8		0.69		0.25		0.4	
Copper	2.5		2		1.9		1.7		1.7		1.7		1.9		1.7		2.1		3.8	
Lead	0.12	U	0.52	U	0.37	U	0.89		0.32	U	0.49		0.79		1		0.13		0.22	
Mercury	0.027		0.016		0.021		0.023		0.014	JT	0.016	JT	0.0082	U	0.014	JT	0.018	JT	0.0084	U
Nickel	0.75		1.4		1.3		0.93		0.99		1		1.4		0.81		0.8		1.4	
Silver	1.1		0.17		0.24		0.44		0.31		0.91		1.2		0.2		1.1		2.2	
Zinc	7.2		9.1		8.1		11		11		9.9		12		9.2		9.1		12	
Dioxin/Furan Homologues (ng/kg ww)																				
Station	IE08TH		IE18TH		IE20TH		MD06TH		MD07TH		MD08TH		MD09TH		EC06TH		RF04TH		RF05TH	
Parameter	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier
Total HpCDD	1.32		2.2		1.17		5.65		30.8		1.32		1.74		2.92		0.277	JT	0.216	JT
Total HpCDF	0.194		0.375		0.106		0.517		1.18		0.404	U	0.398	U	0.444		0.0497	U	0.0494	U
Total HxCDD	0.0486	U	0.537		0.19		0.942		2.55		0.0489	U	0.416	JT	0.669		0.069	JT	0.053	JT
Total HxCDF	0.067		0.138		0.048	U	0.11		0.836		0.08	JT	0.145	JT	0.134		0.0497	U	0.0494	U
Total PeCDD	0.0486	U	0.0478	U	0.05		0.074		0.273		0.0489	U	0.0483	U	0.083		0.0497	U	0.0494	U
Total PeCDF	0.086		0.0478	U	0.074		0.131		0.418		0.081	JT	0.079	JT	0.103		0.0497	U	0.0494	U
Total TCDD	0.075		0.181		0.048	U	0.212		0.477		0.0489	U	0.118	JT	0.211		0.0497	U	0.0494	U
Total TCDF	0.0486	U	0.198		0.048	U	0.158		0.662		0.125	JT	0.0483	U	0.174		0.051	JT	0.0494	U
Dioxin/Furan TEQs																				
Station	IE08TH		IE18TH		IE20TH		MD06TH		MD07TH		MD08TH		MD09TH		EC06TH		RF04TH		RF05TH	
TEQ (ND=0)	0.007		0.047		0.006		0.101		0.281		0.013		0.02		0.121		0		0.000031	
TEQ (ND=0.5DL)	0.086		0.115		0.087		0.144		0.298		0.088		0.092		0.163		0.079047		0.000287	
Dioxin- like PCB Congeners (ng/kg ww)																				
Station	IE08TH		IE18TH		IE20TH		MD06TH		MD07TH		MD08TH		MD09TH		EC06TH		RF04TH		RF05TH	
Parameter	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier	Result (ng/kg)	Qualifier
PCB-077	0.867	JT	2.37		1.25	JT	3.2		4.09		1.68	JT	1.52	JT	2.8		0.994	JT	1.25	JTG
PCB-081	0.226	U	0.194	U	0.124	U	0.215	U	0.468	U	0.227	U	0.124	U	0.356	U	0.228	U	0.405	JTG
PCB-105	14.8		31.6		25.4		58.5		71.4		25		22.6		53.5		12.2		14	JG
PCB-114	0.724	JT	1.27	JT	0.803	NJ	2.72		3.56		1.3	JT	0.94	JT	2.92		0.366	JT	0.736	JTG
PCB-118	36.4		79.7		64.1		164		231		67.3		60		166		26.7		28.2	JG
PCB-123	0.681	JT	1.32	JT	1.11	JT	2.2		2.6		1.29	JT	1.38	JT	1.97		0.661	JT	0.986	JTG
PCB-126	0.234	U	0.299	U	0.186	U	0.744	U	1.17	JT	0.245	U	0.297	U	0.8	U	0.341	U	0.111	JTG
PCB-156/157	6.28		6.65		4.96		29.8		49.5		9.55		10.3		46.4		1.52		2.71	JG
PCB-167	7.12		5.73		3.68		32.1		53.4		9.79		9.09		40.8		1.62	JT	2.2	JG
PCB-169	0.555	U	0.246	U	0.129	U	1.92	U	2.96	U	0.516	U	0.527	JT	2.56	U	0.251	U	0.176	UJG

Table C–T2. Concentrations of COPCs in Port Angeles Horse Clam Tissue Samples

PCB-189	0.889	JT	0.57	JT	0.289	JT	5.52		9.76		1.62	JT	1.74	JT	11.4		0.08	U	0.269	JTG
<b>Pesticides (µg/kg ww)</b>																				
Station	EI08TH		IE18TH		IE20TH		MD06TH		MD07TH		MD08TH		MD09TH		EC06TH		RF04TH		RF05TH	
Parameter	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier
4,4'-DDD	0.25	U									0.26	U	0.26	U	0.25	U	0.27	U	0.25	U
4,4'-DDE	0.22	U									0.22	U	0.22	U	0.21	U	0.23	U	0.22	U
4,4'-DDT	0.25	U									0.25	U	0.25	U	0.25	U	0.26	U	0.25	U
Aldrin	0.1	U									0.1	U	0.1	U	0.1	U	0.11	U	0.1	U
alpha-BHC	0.29	JTK									0.1	U	0.1	U	0.1	U	0.11	U	0.1	U
beta-BHC	0.45	JTK									0.12	U	0.12	U	0.41	JTL	0.13	U	0.12	U
cis-Chlordane	0.11	U									0.11	U	0.11	U	0.11	U	0.12	U	0.11	U
delta-BHC	0.11	U									0.11	U	0.11	U	0.11	U	0.12	U	0.11	U
Dieldrin	0.21	U									0.21	U	0.21	U	0.21	U	0.22	U	0.21	U
Endosulfan I	0.11	U									0.11	U	0.11	U	0.11	U	0.12	U	0.11	U
Endosulfan II	0.25	U									0.25	U	0.25	U	0.25	U	0.26	U	0.25	U
Endosulfan Sulfate	0.32	U									0.33	U	0.33	U	0.32	U	0.34	U	0.32	U
Endrin	0.4	U									0.4	U	0.4	U	0.39	U	0.42	U	0.4	U
Endrin Aldehyde	0.24	U									0.24	U	0.24	U	0.24	U	0.25	U	0.24	U
Endrin Ketone	0.24	U									0.24	U	0.24	U	0.24	U	0.25	U	0.24	U
gamma-Chlordane	0.11	U									0.11	U	0.11	U	0.11	U	0.12	U	0.11	U
Heptachlor	0.13	U									0.13	U	0.13	U	0.13	U	0.13	U	0.13	U
Heptachlor Epoxide	0.12	U									0.12	U	0.12	U	0.12	U	0.13	U	0.12	U
Lindane	0.11	U									0.11	U	0.11	U	0.11	U	0.12	U	0.11	U
Methoxychlor	1.3	U									1.3	U	1.3	U	1.2	U	1.3	U	1.3	U
Toxaphene	9.5	U									9.5	U	9.5	U	9.3	U	9.9	U	9.4	U
<b>PAHs (µg/kg ww)</b>																				
Station	EI08TH		IE18TH		IE20TH		MD06TH		MD07TH		MD08TH		MD09TH		EC06TH		RF04TH		RF05TH	
Parameter	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier	Result (µg/kg)	Qualifier
1-Methylphenanthrene	0.269	J	0.247	J	0.355	U	0.804	J	13.3		0.244	NJ	0.267	J	0.476		0.116	J	0.091	NJ
2,3,5-Trimethylnaphthalene	0.116	U	0.291	NJ	0.421	NJ	0.949	NJ	6.04	NJ	0.355	NJ	0.342	U	0.602	NJ	0.387	U	0.179	NJ
2,6-Dimethylnaphthalene	1.55		0.887	U	0.67		4.38		17.9		0.853		0.399	J	3.1		0.211	U	0.226	U
2-Methylnaphthalene	0.769	U	0.49	U	0.756	U	2		82.3		0.659	U	0.731	U	1.14		0.446	U	0.365	U
Acenaphthene	0.318	J	0.525		0.306	J	4.45		94.3		0.426	J	0.592		0.89		0.103	NJ	0.085	NJ
Acenaphthylene	0.402	J	0.245	NJ	0.233	NJ	0.875		6.62		0.315	NJ	0.35	NJ	0.459	NJ	0.044	NJ	0.221	U
Anthracene	0.711	U	0.72	U	0.425	U	4.49		25.3		0.677	U	0.867	U	1.74		0.129	U	0.114	U
Benz[a]anthracene	0.693	NJ	0.918		0.353	NJ	5.03		41.9		0.715	NJ	1.06	NJ	1.99	NJ	0.095	NJ	0.0958	U
Benzo[a]pyrene	0.516		0.391	NJ	0.269	J	3.03		17.5		0.575		0.844		1.68		0.0786	U	0.065	NJ
Benzo[b/j/k]fluoranthene	1.25		1.37		0.758		9.2		27.4		1.4		2.34		4.38		0.078	J	0.056	J
Benzo[b]fluoranthene	0.632		0.754		0.382	J	4.7		25.8		0.685		1.16		2.24		0.078	J	0.056	J
Benzo[e]pyrene	0.5	NJ	0.522	NJ	0.347	NJ	3.48		22.5	NJ	0.518	NJ	0.888	NJ	1.71		0.096	NJ	0.102	NJ
Benzo[ghi]perylene	0.497	NJ	0.459	NJ	0.253	NJ	1.47	NJ	4.74		0.516	NJ	0.736	NJ	1.11	NJ	0.101	NJ	0.12	NJ
Benzo[j,k]fluoranthenes	0.615	J	0.613	J	0.376	J	4.5		27.4		0.714	J	1.17		2.14		0.055	NJ	0.062	NJ
Chrysene	1.15		2.06		0.851		9.64		51.3		1.34		2.05		3.37		0.246	J	0.265	J
Dibenz[a,h]anthracene	0.0687	U	0.076	NJ	0.32	U	0.405	NJ	1.53		0.088	NJ	0.146	NJ	0.212	J	0.0771	U	0.0439	U
Dibenzothiophene	0.138	NJ	0.18	NJ	0.098	NJ	1.3	NJ	21		0.18	NJ	0.218	NJ	0.402	NJ	0.0535	U	0.043	NJ
Fluoranthene	2.54		3.6		2.09		23.1		288		3.28		4.1		7.14		0.519		0.513	
Fluorene	0.508		0.662		0.431	NJ	3.63		55.3		0.458	J	0.658		1.04		0.152	J	0.179	NJ

**Table C–T2. Concentrations of COPCs in Port Angeles Horse Clam Tissue Samples**

Indeno[1,2,3-cd]pyrene	<b>0.325</b>	NJ	<b>0.361</b>	NJ	<b>0.211</b>	NJ	<b>1.49</b>		<b>5.71</b>		0.378	NJ	<b>0.561</b>		1.1		<b>0.073</b>	NJ	0.0745	U
Naphthalene	2.58	U	1.44	U	1.52	U	<b>3.69</b>		<b>41.7</b>		2.28	U	2.4	U	4.34	U	1.09	U	0.883	U
<b>Station</b>	<b>EI08TH</b>		<b>IE18TH</b>		<b>IE20TH</b>		<b>MD06TH</b>		<b>MD07TH</b>		<b>MD08TH</b>		<b>MD09TH</b>		<b>EC06TH</b>		<b>RF04TH</b>		<b>RF05TH</b>	
<b>Parameter</b>	<b>Result (µg/kg)</b>	<b>Qualifier</b>	<b>Result (µg/kg)</b>	<b>Qualifier</b>	<b>Result (µg/kg)</b>	<b>Qualifier</b>	<b>Result (µg/kg)</b>	<b>Qualifier</b>	<b>Result (µg/kg)</b>	<b>Qualifier</b>	<b>Result (µg/kg)</b>	<b>Qualifier</b>	<b>Result (µg/kg)</b>	<b>Qualifier</b>	<b>Result (µg/kg)</b>	<b>Qualifier</b>	<b>Result (µg/kg)</b>	<b>Qualifier</b>	<b>Result (µg/kg)</b>	<b>Qualifier</b>
Perylene	<b>0.811</b>	<b>NJ</b>	<b>0.498</b>	NJ	<b>0.295</b>	NJ	<b>1.89</b>		<b>6.08</b>		<b>0.904</b>		<b>1.01</b>		<b>3.02</b>		<b>0.475</b>	NJ	<b>0.407</b>	J
Phenanthrene	<b>1.99</b>		<b>2.64</b>		<b>1.64</b>		<b>19.9</b>		<b>391</b>		<b>2.53</b>		<b>2.98</b>		<b>5.62</b>		<b>0.528</b>		<b>0.536</b>	
Pyrene	<b>2.39</b>		<b>3.32</b>		<b>2.05</b>		<b>34.5</b>		<b>298</b>		<b>3.45</b>		<b>4.62</b>		<b>8.46</b>		0.32	U	0.334	U

Key:

**Bold =** Text denotes detected concentration

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

JTG = Analyte was positively identified. Value may be greater than the reported result, which is an estimate below the associated quantitation limit but above the MDL.

mg/kg = miligram per kilogram

µg/kg = micrograms per kilogram

ng/kg = nanograms per kilogram

ww = wet weight

U = Analyte was not detected at or above the reported result.

UJG = Analyte was not detected at or above the reported estimate with likely low bias.

**Table C–T3. Concentrations of COPCs in Port Angeles Lingcod Tissue Samples**

<b>Percent Lipids</b>								
Station	IE21TL (Whole Body)		IE22TL (Fillet)		IE23TL (Fillet)		IE24TL (Whole Body)	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Percent Lipids	2.34		1.07		1.68		1.36	
<b>Metals (mg/kg ww)</b>								
Station	IE21TL (Whole Body)		IE22TL (Fillet)		IE23TL (Fillet)		IE24TL (Whole Body)	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Antimony	0.0009	U	0.001	U	0.001	U	0.00091	U
Arsenic	<b>0.32</b>		<b>0.77</b>		<b>0.44</b>		<b>0.59</b>	
Barium	0.024	U	0.023	U	0.015	U	0.036	U
Cadmium	0.0014	U	0.0047	U	0.00082	U	0.0075	U
Chromium	<b>0.099</b>		<b>0.062</b>	JT	<b>0.065</b>	JT	<b>0.33</b>	
Copper	<b>0.49</b>		<b>0.52</b>		<b>0.55</b>		<b>0.63</b>	
Lead	0.019	U	0.025	U	0.02	U	0.12	U
Mercury	<b>0.056</b>		<b>0.097</b>		<b>0.088</b>		<b>0.22</b>	
Nickel	<b>0.025</b>	JT	<b>0.072</b>	JT	<b>0.074</b>	JT	<b>0.096</b>	
Silver	0.0033	U	0.019	U	0.0019	U	0.011	U
Zinc	<b>10</b>		<b>5.5</b>		<b>6.3</b>		<b>11</b>	
<b>Dioxin and Furan Homologue (ng/kg ww)</b>								
Station	IE21TL (Whole Body)		IE22TL (Fillet)		IE23TL (Fillet)		IE24TL (Whole Body)	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Total HpCDD	0.0482	U	0.0485	U	0.079	U	0.151	U
Total HpCDF	0.0482	U	0.0485	U	0.0488	U	0.0674	U
Total HxCDD	<b>0.083</b>		0.0485	U	0.0488	U	<b>0.167</b>	
Total HxCDF	0.0482	U	0.0485	U	0.0488	U	0.0488	U
Total PeCDD	0.0482	U	0.0485	U	0.0488	U	0.0488	U
Total PeCDF	0.0482	U	0.0485	U	0.0488	U	<b>0.076</b>	
Total TCDD	0.0482	U	0.0485	U	0.0488	U	<b>0.073</b>	
Total TCDF	<b>0.235</b>		<b>0.088</b>		<b>0.15</b>		<b>0.434</b>	
<b>Dioxin and Furan TEQs</b>								
TEQ (ND=0)	<b>0.096</b>		<b>0.009</b>		<b>0.02</b>		<b>0.132</b>	
TEQ (ND=0.5DL)	<b>0.143</b>		<b>0.084</b>		<b>0.092</b>		<b>0.173</b>	
<b>Dioxin-like PCB Congeners (ng/kg ww)</b>								
Station	IE21TL (Whole Body)		IE22TL (Fillet)		IE23TL (Fillet)		IE24TL (Whole Body)	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
PCB-077	<b>1.68</b>	JT	<b>0.557</b>	JT	<b>0.916</b>	JT	<b>1.16</b>	JT
PCB-081	1.57	U	0.418	U	0.809	U	0.814	U
PCB-105	<b>683</b>		<b>124</b>		<b>226</b>		<b>1700</b>	
PCB-114	<b>44.9</b>		<b>6.93</b>		<b>13.8</b>		<b>118</b>	
PCB-118	<b>2110</b>		<b>349</b>		<b>666</b>		<b>5510</b>	
PCB-123	<b>17.8</b>		<b>2.07</b>		<b>4.94</b>		<b>15.4</b>	
PCB-126	<b>2.14</b>		<b>0.508</b>	JT	<b>0.809</b>	JT	<b>3.41</b>	
PCB-156/157	<b>421</b>		<b>80.2</b>		<b>137</b>		<b>1360</b>	
PCB-167	<b>133</b>		<b>27.9</b>		<b>47.2</b>		<b>319</b>	
PCB-169	2.04	U	0.575	U	0.634	U	5.41	U
PCB-189	<b>20.9</b>		<b>5.84</b>		<b>6.16</b>		<b>83.6</b>	

Table C–T3. Concentrations of COPCs in Port Angeles Lingcod Tissue Samples

PCB Aroclors (mg/kg ww)								
Station	IE21TL (Whole Body)		IE22TL (Fillet)		IE23TL (Fillet)		IE24TL (Whole Body)	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Aroclor 1016	0.0032	U	0.0032	U	0.0029	U	0.003	U
Aroclor 1221	0.0079	U	0.0079	U	0.0074	U	0.0074	U
Aroclor 1232	0.007	U	0.0069	U	0.0065	U	0.0065	U
Aroclor 1242	0.0021	U	0.0021	U	0.0019	U	0.0019	U
Aroclor 1248	0.0013	U	0.0013	U	0.0012	U	0.0012	U
Aroclor 1254	0.0021	U	0.0021	U	0.0019	U	0.0019	U
Aroclor 1260	<b>0.021</b>		<b>0.0059</b>	<b>J</b>	<b>0.0097</b>		<b>0.027</b>	
PAHs (µg/kg ww)								
Station	IE21TL (Whole Body)		IE22TL (Fillet)		IE23TL (Fillet)		IE24TL (Whole Body)	
Parameter	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
1-Methylphenanthrene	0.0708	U	0.0944	U	<b>0.055</b>	J	0.0997	U
2,3,5-Trimethylnaphthalene	0.125	U	0.1	U	0.113	U	0.145	U
2,6-Dimethylnaphthalene	0.099	U	0.049	U	0.073	U	0.096	U
2-Methylnaphthalene	0.516	U	0.242	U	0.405	U	0.403	U
Acenaphthene	<b>0.271</b>	J	<b>0.102</b>	J	<b>0.201</b>	J	<b>0.144</b>	J
Acenaphthylene	<b>0.125</b>	NJ	0.0608	U	<b>0.088</b>	NJ	<b>0.109</b>	NJ
Anthracene	0.132	U	0.0136	U	0.107	U	0.198	U
Benz[a]anthracene	<b>0.034</b>	NJ	0.0121	U	0.04	NJ	<b>0.048</b>	J
Benzo[a]pyrene	<b>0.046</b>	NJ	0.0163	U	0.0346	U	<b>0.034</b>	NJ
Benzo[b/j/k]fluoranthene	0.0168	U	0.0104	U	0.0216	U	0.0142	U
Benzo[b]fluoranthene	0.0168	U	0.0104	U	0.0216	U	<b>0.021</b>	NJ
Benzo[e]pyrene	<b>0.045</b>	NJ	0.0144	U	0.0306	U	<b>0.044</b>	NJ
Benzo[ghi]perylene	<b>0.093</b>	NJ	0.028	U	0.0393	U	<b>0.158</b>	NJ
Benzo[j,k]fluoranthenes	<b>0.036</b>	NJ	0.0129	U	0.026	U	<b>0.028</b>	NJ
Chrysene	<b>0.036</b>	NJ	0.015	U	<b>0.02</b>	NJ	<b>0.086</b>	J
Dibenz[a,h]anthracene	0.0412	U	0.0234	U	0.0307	U	0.0513	U
Dibenzothiophene	<b>0.042</b>	NJ	<b>0.021</b>	NJ	<b>0.041</b>	NJ	<b>0.049</b>	NJ
Fluoranthene	0.094	U	0.038	U	<b>0.112</b>	J	<b>0.255</b>	J
Fluorene	<b>0.12</b>	NJ	0.0546	U	<b>0.095</b>	J	<b>0.108</b>	NJ
Indeno[1,2,3-cd]pyrene	<b>0.067</b>	NJ	0.0295	U	0.0408	U	0.0398	U
Naphthalene	1.34	U	0.721	U	0.757	U	0.898	U
Perylene	0.0264	U	0.018	U	0.0373	U	0.0231	U
Phenanthrene	0.303	U	0.107	U	0.271	U	0.351	U
Pyrene	0.059	U	0.038	U	0.054	U	0.134	U

Key:

**Bold** = Text denotes detected concentration.

JT = Analyte was positively identified. Reported result is an estimate below the associated quantitation limit but above the MDL.

mg/kg = milligrams per kilogram

ng/kg = nanograms per kilogram

ww = wet weight

U = Analyte was not detected at or above the reported result.



**Table C–T4. Concentrations of COPCs in Port Angeles Macroalgal Tissue Samples**

<b>Percent Lipids</b>				
<b>Station</b>	<b>IE25TM (Bull Kelp)</b>		<b>IE26TM (Eel Grass)</b>	
<b>Parameter</b>	<b>Result</b>	<b>Qualifier</b>	<b>Result</b>	<b>Qualifier</b>
Percent Lipids	<b>0.18</b>		<b>0.29</b>	
<b>Metals (mg/kg ww)</b>				
<b>Station</b>	<b>IE25TM (Bull Kelp)</b>		<b>IE26TM (Eel Grass)</b>	
<b>Parameter</b>	<b>Result</b>	<b>Qualifier</b>	<b>Result</b>	<b>Qualifier</b>
Antimony	0.001	U	<b>0.057</b>	<b>JT</b>
Arsenic	<b>6</b>		<b>0.72</b>	
Barium	<b>0.97</b>		<b>1.2</b>	
Cadmium	<b>0.18</b>		<b>0.79</b>	
Chromium	<b>0.078</b>	JT	<b>0.32</b>	
Copper	<b>0.3</b>		<b>1</b>	
Lead	0.052	U	0.45	U
Mercury	<b>0.011</b>	JT	<b>0.021</b>	
Nickel	<b>0.11</b>		<b>0.75</b>	
Silver	<b>0.0069</b>	JT	0.0091	U
Zinc	<b>2.9</b>		<b>7.6</b>	
<b>Dioxin/Furan Homologues (ng/kg ww)</b>				
<b>Station</b>	<b>IE25TM (Bull Kelp)</b>		<b>IE26TM (Eel Grass)</b>	
<b>Parameter</b>	<b>Result</b>	<b>Qualifier</b>	<b>Result</b>	<b>Qualifier</b>
Total HpCDD	0.335	U	<b>2.62</b>	
Total HpCDF	0.0495	U	<b>0.335</b>	
Total HxCDD	0.0495	U	<b>0.052</b>	
Total HxCDF	0.0495	U	<b>0.067</b>	
Total PeCDD	0.0495	U	0.0495	U
Total PeCDF	0.0495	U	0.0495	U
Total TCDD	0.0495	U	0.0495	U
Total TCDF	0.0495	U	0.0495	U
<b>Dioxin/Furan TEQ</b>				
TEQ (ND=0)	<b>0.001</b>		<b>0.07</b>	
TEQ (ND=0.5DL)	<b>0.09</b>		<b>0.12</b>	
<b>Dioxin-like PCB Congeners (ng/kg ww)</b>				
<b>Station</b>	<b>IE25TM (Bull Kelp)</b>		<b>IE26TM (Eel Grass)</b>	
<b>Parameter</b>	<b>Result</b>	<b>Qualifier</b>	<b>Result</b>	<b>Qualifier</b>
PCB-077	0.054	U	<b>0.288</b>	JT
PCB-081	0.0445	U	0.0746	U
PCB-105	<b>0.715</b>	JT	<b>2.27</b>	
PCB-114	0.0327	U	0.0798	U
PCB-118	<b>1.84</b>	JT	<b>6.45</b>	
PCB-123	0.0339	U	0.0773	U
PCB-126	0.0339	U	0.0804	U
PCB-156/157	<b>0.256</b>	JT	<b>1.36</b>	JT
PCB-167	0.087	U	<b>0.542</b>	NJ
PCB-169	0.0177	U	0.0398	U
PCB-189	0.017	U	<b>0.107</b>	JT

**Table C–T4. Concentrations of COPCs in Port Angeles Macroalgal Tissue Samples**

<b>PCB Aroclors (mg/kg ww)</b>				
<b>Station</b>	<b>IE25TM (Bull Kelp)</b>		<b>IE26TM (Eel Grass)</b>	
<b>Parameter</b>	<b>Result</b>	<b>Qualifier</b>	<b>Result</b>	<b>Qualifier</b>
Aroclor 1016	0.003	U	0.0032	U
Aroclor 1221	0.0076	U	0.008	U
Aroclor 1232	0.0067	U	0.007	U
Aroclor 1242	0.002	U	0.0021	U
Aroclor 1248	0.0012	U	0.0013	U
Aroclor 1254	0.002	U	0.0021	U
Aroclor 1260	0.0029	U	0.003	U
<b>PAHs (µg/kg ww)</b>				
<b>Station</b>	<b>IE25TM (Bull Kelp)</b>		<b>IE26TM (Eel Grass)</b>	
<b>Parameter</b>	<b>Result</b>	<b>Qualifier</b>	<b>Result</b>	<b>Qualifier</b>
1-Methylphenanthrene	<b>0.309</b>	J	<b>1.33</b>	NJ
2,3,5-Trimethylnaphthalene	0.244	U	<b>0.895</b>	
2,6-Dimethylnaphthalene	0.315	U	<b>3.73</b>	
2-Methylnaphthalene	0.403	U	1.05	U
Acenaphthene	<b>0.152</b>	J	0.119	U
Acenaphthylene	0.09	NJ	<b>0.232</b>	NJ
Anthracene	0.532	U	0.668	U
Benz[a]anthracene	<b>0.918</b>		<b>1.14</b>	
Benzo[a]pyrene	<b>0.67</b>		<b>0.823</b>	
Benzo[b/j/k]fluoranthene	<b>0.995</b>		<b>2.54</b>	
Benzo[b]fluoranthene	<b>0.397</b>	J	<b>1.33</b>	
Benzo[e]pyrene	<b>0.4</b>	NJ	<b>0.893</b>	
Benzo[ghi]perylene	<b>0.265</b>	J	<b>0.719</b>	NJ
Benzo[j,k]fluoranthenes	<b>0.597</b>	J	<b>1.21</b>	
Chrysene	<b>1.04</b>		<b>2.05</b>	
Dibenz[a,h]anthracene	0.101	U	0.203	U
Dibenzothiophene	<b>0.128</b>	NJ	<b>0.169</b>	NJ
Fluoranthene	<b>2.23</b>		<b>3.87</b>	
Fluorene	<b>0.166</b>	NJ	<b>0.359</b>	J
Indeno[1,2,3-cd]pyrene	0.284	J	0.681	
Naphthalene	<b>0.918</b>		1.68	U
Perylene	<b>0.213</b>	J	<b>0.992</b>	
Phenanthrene	<b>2.16</b>		<b>2.65</b>	
Pyrene	<b>2.46</b>		<b>3.07</b>	

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