Floyd Snider McCarthy, Inc.
Strategy & Technical Solutions for Contaminated Properties
83 South King Street Suite 614 Seattle, Washington 98104 tel: 206.292.2078 fax: 206.682.7867

June 14, 2004

Mr. Bob Elsner
Director of Planning and Projects
Port of Anacortes
Post Office Box 297
Anacortes, Washington 98221

SUBJECT: LETTER REPORT
RESULTS OF LIMITED ENVIRONMENTAL DUE DILIGENCE INVESTIGATION
CAP SANTE BOAT HAVEN - ANACORTES, WASHINGTON

Dear Mr. Elsner:

This letter report presents the results of the limited environmental due diligence investigation completed by Floyd Snider McCarthy, Inc. (FSM) near the Cap Sante Marine (CSM) facility located at the Cap Sante Boat Haven in Anacortes, Washington (Figure 1). Soil and groundwater sampling was performed to evaluate the potential impact to future development at the site from historical contamination.

Field sampling was completed on May 4, 2004 in accordance with approved FSM Task Order 05-04 dated April 19, 2004. The primary objective of the sampling and analysis was to establish concentrations of petroleum hydrocarbons present in soil and groundwater in an area that may be subject to redevelopment.

Results of this investigation show that benzene and gasoline contamination, as defined by the Washington State Model Toxics Control Act (MTCA) Method A cleanup levels, is present at the site in the depth range of about 5 to 9 feet below ground surface (bgs). In accordance with MTCA cleanup regulations (WAC 173-340-300), these findings should be reported to the Washington State Department of Ecology (Ecology) within ninety days of discovery.

PROPERTY HISTORY

In the early 1980's, petroleum fuel was observed seeping into the marine waters at the CSM boat basin at several locations near the fuel dock. In 1983, under order from the U.S. Coast Guard, the Port of Anacortes (POA) installed a trench to control the seepage of fuel. The trench intercepted the fuel flowing through the soil. According to the available site documentation, several thousand gallons of fuel were recovered from the trench and the seepage stopped.

The seepage was thought to be a result of leakage from the underground storage tanks (USTs) that supply the fuel docks at Cap Sante Boat Haven. In 1985, POA replaced these USTs with two new tanks. Impacts to the soils and groundwater in the vicinity of fuel leaks and recovery trench were not evaluated.

PROJECT AREA DESCRIPTION

The project area is located along the shoreline, east of the CSM property between Docks B and C. The ground surface is paved with asphalt and is fairly level. The approximate elevation of the ground surface is 12 feet above mean lower low water (MLLW).

The project area is located on fill material comprised mainly of dredged sand and silty sand as well as imported sand and gravel. At each of the sampling locations, groundwater was encountered at depths of 5 to 6 feet bgs at the time of drilling. It is assumed that the groundwater is tidally influenced with an overall flow and discharge to the waters of the Cap Sante Boat Haven.

FIELD INVESTIGATION

Six locations near the former fuel recovery trench, as shown on Figure 1, were sampled to determine the type and concentration of petroleum hydrocarbons in subsurface soil and groundwater. The subsurface exploration areas were cleared of underground utilities prior to drilling. Three sample cores were collected from each location using a hydraulically-powered Geoprobe® sampling device. The first core was advanced to a depth of 4 feet bgs, the second from 4 to 8 feet bgs and the third from 8 to12 feet bgs. After the core was retrieved, the core liner was cut open, and the soil sample examined and described. Each sample was screened for volatile organic vapors using a photoionization detector (PID). Petroleum odors or sheen were noted and soil samples were collected in laboratory-supplied jars. The presence of sheen was determined by mixing small amounts of soil with water to visually observe iridescence. The depth to groundwater was measured and also checked for free product at each sampling location. This was accomplished by lowering a steel tape coated with water-finding paste into the boring after the drilling rods were removed. No evidence of free (or floating) product were observed at any of the boring locations. Field observations were recorded on boring logs as presented in Attachment A.

A groundwater sample was collected from each boring after retrieving the deepest soil core. This was accomplished by advancing the rods with an expendable well point and retractable screen to a depth of about 3 to 4 feet below the observed water table. After the drill rod was retrieved, the screen was exposed to the formation, allowing groundwater to seep into the screen. To collect a sample, a narrow-diameter polyethylene tubing was inserted through the hollow drill rod to the base of the screen and the groundwater pumped out using a peristaltic pump. The water was pumped until the turbidity was observed to be reduced, or discharge stopped. After purging, the laboratory-supplied sample bottles were filled.

All down-hole tools and sampling equipment were decontaminated by washing with a solution of Alconox and water and rinsing with tap water. New plastic liners were used for collecting each

soil core. Dedicated polyethylene and silicone tubing were used to collect each water sample and discarded after use.

The samples were stored in an iced cooler and delivered to the laboratory according to chain of custody protocols. Copies of the chain of custody records are included as part of the laboratory reports provided as Attachments B and C.

LABORATORY ANALYTICAL RESULTS

Nineteen soil and six groundwater samples were submitted to the laboratory. A representative subset of the soil samples and all groundwater samples were analyzed for the petroleum hydrocarbon constituents of concern (COCs). The testing program is summarized on Table 1, attached.

Nine soil samples were selected for total petroleum hydrocarbons (TPH) analysis via the hydrocarbon identification method (Method NWTPH-HCID) to determine the presence and concentrations of gasoline, diesel, or heavy (lube oil) range petroleum hydrocarbons. The HCID method is the preferred analytical method if the type of petroleum contamination is unknown. Based on the strong odors noted in the sample and the field PID readings, five soil samples were selected for laboratory testing for TPH-gasoline, benzene, toluene, ethylbenzene and xylenes (TPH-Gasoline/BTEX) and two samples were selected for diesel and heavy oil range hydrocarbons (NWTPH-Dx) analysis.

The soil data were compared to the MTCA Method A cleanup levels for TPH-gasoline, TPH-diesel and BTEX (Table 2). This comparison indicates that gasoline, xylenes, and benzene exceed the cleanup levels at the four interior locations (GP-2, GP-3, GP-4 and GP-5B). Diesel concentrations in soil do not exceed the cleanup level.

The groundwater data indicate that benzene, gasoline, and diesel are present in concentrations that exceed MTCA Method A cleanup levels (Table 3). Similar to the results found for the soil data, benzene exceedances in groundwater were greater than those found for other COCs. However, only two adjacent locations (GP-2 and GP-3) displayed groundwater exceedances, one for benzene/gasoline and the other for diesel. In comparison, soil exceedances were found in four locations.

Overall, the field observations and laboratory soil test data indicate mostly benzene and gasoline contamination is present in soil in the depth range of about 5 to 9 feet bgs in borings closest to the former recovery trench. This depth range likely corresponds to a tidally influenced "smear zone", which is a vertical range in the soil where gasoline has been spread (or smeared) due to tidal and seasonal changes in the water table elevation. The gasoline concentrations in soil decrease rapidly with depth below the bottom of the smear zone. Both the boring log observations and the analytical data show that the TPH concentrations appear to decrease significantly below a depth of about 10 feet bgs.

Please call to discuss any questions you may have regarding the results of this investigation.

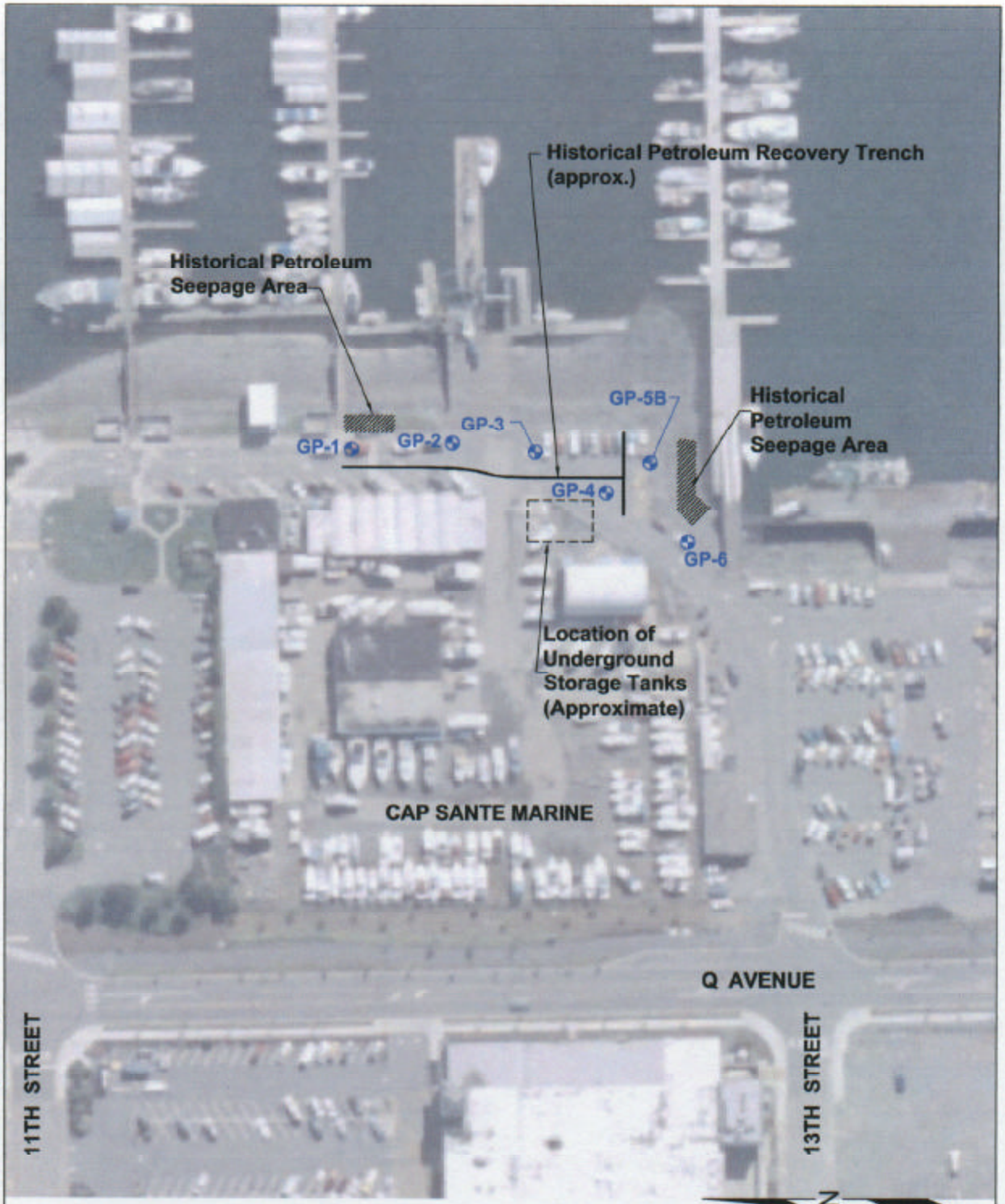
Sincerely yours,
Floyd Snider McCarthy, Inc.

John Herzog, Ph.D.
Principal

Thomas Colligan, L.G.
Senior Scientist

Attachments:
Figure 1 Site Map
Table 1 Summary of Laboratory Testing Program
Table 2 Summary of Soil Test Results
Table 3 Summary of Groundwater Test Results
Attachment A Boring Logs
Attachment B Laboratory Analytical Report for Soil
Attachment C Laboratory Analytical Report for Groundwater

Seal of Licensed Geologist:



DWG NAME: G:\projects\Clients\Floyd and Snider\Port Of\Anacortes\portana003.dwg
DATE: 06/02/04 12:14pm

Floyd Snider McCarthy, Inc.
Strategy & Technical Solutions for Contaminated Properties

Port of Anacortes
Cap Sante Boat Haven
Anacortes, Washington

Figure 1
Site Map: Exploration Locations and Existing Site Features

Table 1
Summary of Laboratory Testing Program

Sample ID	Matrix	TPH-HCID	TPH-Gasoline/ BTEX	TPH-Dx	Comments
GP1-5.0	Soil	X			
GP1-8.0	Soil	X			
GP2-5.0	Soil		X	X	
GP2-10.0	Soil	X			
GP3-6.0	Soil	X	X		
GP3-7.0	Soil		X		Insufficient sample for HCID
GP3-9.0	Soil	X			
GP4-7.0	Soil		X	X	
GP4-10.0	Soil	X			
GP5B-6.0	Soil		X		
GP5B-9.0	Soil	X			
GP6-2.5	Soil	X			
GP6-5.0	Soil	X			
GP1	Water		X	X	
GP2	Water		X	X	
GP3	Water		X		Insufficient sample for TPH-Dx
GP4	Water		X	X	
GP5B	Water		X	X	
GP6	Water		X	X	

Table 2
Summary of Soil Testing

Sample ID	Benzene	Toluene	Ethyl-benzene	Xylenes	Gasoline[a,b]	Diesel[a,b]	Heavy Oil
GP1-5.0	NA	NA	NA	NA	35 U	50 U	100 U
GP1-8.0	NA	NA	NA	NA	31 U	50 U	100 U
GP2-5.0	**0.270**	0.140	0.033 U	0.189	**250**	1800	67 U
GP2-10.0	NA	NA	NA	NA	40 U	50 U	100 U
GP3-6.0	**2.30**	0.600	4.60	**19.2**	**630**	410	340 U
GP3-7.0	**2.30**	0.430	3.10	**12.4**	**320**	NA	NA
GP3-9.0	NA	NA	NA	NA	38 U	50 U	100 U
GP4-7.0	**0.150**	0.035 U	0.035 U	0.071 U	20.0	20	45
GP4-10.0	NA	NA	NA	NA	190 U	190 U	390 U
GP5B-6.0	**0.580**	0.350	0.710	0.560	**510**	NA	NA
GP5B-9.0	NA	NA	NA	NA	**230**	390	330 U
GP6-2.5	NA	NA	NA	NA	31 U	50 U	100 U
GP6-5.0	NA	NA	NA	NA	37 U	50 U	100 U
MTCA Method A Cleanup Level							
	0.03	7.0	6.0	9.0	100/30	2000	2000

Notes:

Concentrations are in mg/Kg dry weight.
Bold font indicates a cleanup level exceedance.
[a] = HCID test results are not shown if NWTPH-G and NWTPH-DX results are also available.
[b] = The cleanup level for gasoline is 30 mg/Kg if benzene is present and 100 mg/Kg if not present.
U = Not detected at the given reporting limit.
NA = Not analyzed.

Table 3
Summary of Groundwater Test Results

Sample ID	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-Gasoline[a]	TPH-Diesel	TPH-Motor Oil
GP1	1.0 U	1.0 U	1.0 U	1.0 U	0.25 U	250 U	500 U
GP2	1.0 U	1.0 U	1.0 U	1.3	460	**2400**	500 U
GP3	**390**	18	65	212	**4100**	NA	NA
GP4	1.0 U	1.0 U	1.0 U	1.0 U	250 U	250	500 U
GP5B	3.4	1.4	2.3	1.9	400	370	500 U
GP6	1.0 U	1.0 U	1.0 U	1.0 U	250 U	250 U	500 U
MTCA Method A Cleanup Level							
	5.0	1,000	700	1000	800/1,000	500	500

Notes:

Concentrations are in µg/L.
Bold font indicates a cleanup level exceedance.
[a] = The cleanup level for gasoline is 800 µg/L if benzene is present and 1000 µg/L if not present.
U = Not detected at the given reporting limit.
NA = Not analyzed.

Log of Soil Boring GP1

Floyd Snider McCarthy, Inc.

Boring GP1 Date May 4, 2004 Sheet 1 of 1

Job Cap Sante Marine Job No. POA CSM Field T.2

Logged By John LaManna Weather Light Rain, Breezy, 57 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

Sampling Method Direct Push, 4-Ft Cores

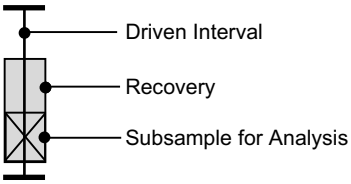
Bottom of Boring 12' ATD Water Level Depth 4.6'

Ground Surface Elevation Approx. 12' MLLW

Obs. Well Install. Yes [X] No

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					GW	Gray sandy GRAVEL, angular gravel. Dry. H_2S odor.	
					SP	Brown fine SAND with silty SAND lamellae and a dark brown peat bed 0.1-Ft. thick. Wet at 3 Ft. FILL.	
GP1-2.0	5	2.0	3.0				No Sheen
						Gray fine SAND with silt, locally some minor silty fine sand beds, gray silt beds, dark brown peat, and shell fragments. Wet below 5 Ft. FILL. H_2S odor.	
GP1-5.0	4	5.0	6.0				No Sheen
					SP		
GP1-8.0	5	8.0	9.0				No Sheen
						Bottom of Boring at 12'	
						Note: Water sample GP-1 collected from temporary well point.	

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14



Log of Soil Boring GP2

Floyd Snider McCarthy, Inc.

Boring GP2 Date May 4, 2004 Sheet 1 of 1

Job Cap Sante Marine Job No. POA CSM Field T.2

Logged By John LaManna Weather Cloudy, Breezy, 57 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

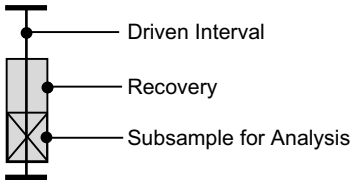
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 5.6'

Ground Surface Elevation Approx. 12' MLLW

Obs. Well Install. Yes [X] No

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					SW	Gray gravelly SAND, well graded, dry, FILL	
					SP	Brown, fine SAND with silty fine sand, lamellae. Moist. FILL. Slight H_2S odor.	No Sheen
GP2-2.5	2	2.5	3.5		SP	Gray fine SAND with minor silty sand beds with shell fragments, wood fragments, and with brown peat lumps and lamellae. Moist to wet. FILL. Slight gasoline odor at 3 Ft.	
GP2-5.0	210	4.7	5.7				Sheen
							Sheen on Sluff over undisturbed sample
GP2-10.0	9	10.0	11.0		ML	Gray SILT with sandy silt and silty fine sand beds. No odor.	No Sheen at 9' and 10'
						Bottom of Boring at 12'	
						Note: Water sample GP-2 collected from temporary well point.	



Log of Soil Boring GP3

Floyd Snider McCarthy, Inc.

Boring GP3 Date May 4, 2004 Sheet 1 of 1

Job Cap Sante Marine Job No. POA CSM Field T.2

Logged By John LaManna Weather Raining, Breezy, 53 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

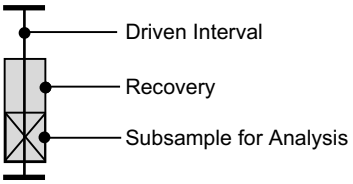
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 6.2'

Ground Surface Elevation Approx. 12' MLLW

Obs. Well Install. Yes [X] No

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					GW	Gray sandy GRAVEL, angular. Dry. FILL	
					SM	Gray silty fine SAND with dark brown peat lamellae. Moist. FILL. H_2S odor.	
GP3-2.0	2	2.0	3.0		SM	Gray silty fine SAND with dark brown peat lamellae and some shell fragments. Moist. FILL.H_2S odor.	No Sheen
					SM	Gray fine SAND with silt, locally some minor silty fine sand beds, gray silt beds, dark brown peat, and shell fragments. Wet below 5 Ft. Probably FILL. H_2S odor.	
GP3-6.0	550	6.0	7.0		SP-SM	Gray fine SAND with silt and shell fragments. Wet. Strong gasoline odor.	Sheen at 6 Ft.
GP3-7.0 (sluff)							Sheen at 8 Ft.
GP3-9.0	21	9.0	10.0		ML	Dark gray SILT with dark brown peat lamellae. Moist	No Sheen at 9 Ft., but sudsy.
						Bottom of Boring at 12' Note: Water sample GP-3 collected from temporary well point.	



Log of Soil Boring GP4

Floyd Snider McCarthy, Inc.

Boring GP4 Date May 4, 2004 Sheet 1 of 1

Job Cap Sante Marine Job No. POA CSM Field T.2

Logged By John LaManna Weather Raining, Breezy, 53 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

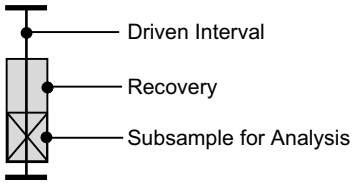
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 6.2'

Ground Surface Elevation Approx. 12' MLLW

Obs. Well Install. Yes [X] No

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					GW	Gray and brown sandy GRAVEL, angular to rounded. FILL.	
GP4-3.0	32	2.8	3.8		SM	Mottled yellowish brown and brownish gray fine to medium SAND with white shell fragments. Fuel oil odor. Moist. Fill.	No Sheen but sudsy
GP4-7.0	300	5.6	6.6		SP	Gray fine to medium SAND with shell fragments, brown fiberous peat and local beds of sandy SILT and silty SAND. Moist to wet. Fuel oil odor above water table. Moist to wet. H_2S odor below 8 Ft..	No Sheen
GP4-10.0	20	9.8	10.8				No Sheen
						Bottom of Boring at 12'	
						Note: Water sample GP-4 collected from temporary well point.	



Log of Soil Boring GP5 B

Floyd Snider McCarthy, Inc.

Boring GP5 B Date May 4, 2004 Sheet 1 of 1

Job Cap Sante Marine Job No. POA CSM Field T.2

Logged By John LaManna Weather Raining, Breezy, 53 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

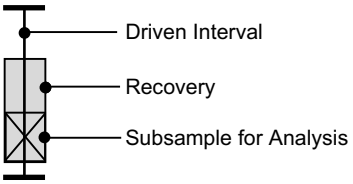
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 5.8'

Ground Surface Elevation Approx. 12' MLLW

Obs. Well Install. Yes [X] No

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					GW	Gray, fine to coarse GRAVEL with sand, angular. Dry FILL. No odor.	
					SP	Mottled, gray and brown, silty fine SAND. Moist. FILL. No odor	
GP5B-1.5	6	1.7	2.7		ML	Gray SILT and SILT with sand, brown peat lamellae. Wet at 5 Ft. FILL. Gasoline odor.	No Sheen
GP5B-6.0	190	5.7	6.7		SP-SM	Gray fine SAND with silt and beds of silty fine sand and fine to medium sand, lamellae of brown peat, trace rounded to angular coarse gravel. Wet. Gasoline odor.	Sheen
GP5B-9.0	70	9.0	10.0		ML	Black SILT with shell fragments. Wet. Gasoline odor.	Sheen on soil at 9 Ft.
						Bottom of Boring at 12' Note: Water sample GP-5B collected from temporary well point.	



Log of Soil Boring GP6

Floyd Snider McCarthy, Inc.

Boring GP6 Date May 4, 2004 Sheet 1 of 1

Job Cap Sante Marine Job No. POA CSM Field T.2

Logged By John LaManna Weather Cloudy, Breezy, 55 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

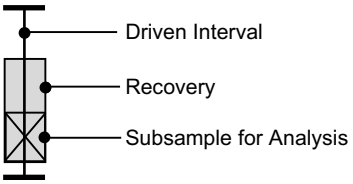
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 6.1'

Ground Surface Elevation Approx. 12' MLLW

Obs. Well Install. Yes ~~No~~

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					GW	Gray to dark gray sandy GRAVEL, well graded angular gravel. Dry. FILL.	
GP6-2.5	0.2	2.0	3.0		SM	Light brown, silty fine SAND with sandy silt and round gravel. No odor. FILL	
GP6-5.0	0.4	4.2	5.2		ML	Gray gravelly sandy SILT with red brick (?) and shell fragments, wood fibers. Some laminations. H_2S odor. FILL.	No Sheen
GP6-9.0	0.1	8.9	9.9		SP	Gray SAND with silty sand and abundant shell fragments, brown peat laminations. Wet. H_2S odor.	No Sheen
						Bottom of Boring at 12' Note: Water sample GP-6 collected from temporary well point.	



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: GP 78	Turn-around Requested: 2 week
ARI Client Company: Floyd Snider McCarthy	Phone: 206-292-2078
Client Contact: Tom Colligan	
Client Project Name: Cap Sante Marine Environmental	
Client Project #: POACSMF	Samplers: LaManna

Date: May 6 2004
Page: 1 of 3
No. of Coolers: 2 Cooler Temps: 5.5, 5.5

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-HCID	TPH-G/BTEX	TPH-Dx						Notes/Comments
GP1-2.0	5-4-04	252	S	2									
GP1-5.0		301		2	✓								
GP1-8.0		314		2	✓								
GP2-2.5		411		2									
GP2-5.0		423		2		✓	✓						
GP2-10.0		439		2	✓								Analysis requests added per John LaManna 1MF 5/7/04
GP3-2.0		112		2									
GP3-6.0		120		2	✓	✓							
GP3-7.0		147		1		✓							2 oz only
GP3-9.0	↓	139	↓	2	✓								

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Hold for instructions	Printed Name: John LaManna	Printed Name: Jeff Hamy	Printed Name:	Printed Name:
	Company: Floyd Snider McCarthy	Company: ARI	Company:	Company:
	Date & Time: 5-6-04 250	Date & Time: 5/6/04 1450	Date & Time:	Date & Time:

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: GP70	Turn-around Requested: 2 week	Date: MAY 6, 2004	
ARI Client Company: FLOYD SNIDER MCGREGOR	Phone: 206-292-2078	Page: 2 of 3	
Client Contact: TOM COLLIGAN		No. of Coolers: 2	Cooler Temps: 5.5, 5.5
Client Project Name: GAP SANTE MARINE ENVIRONMENTAL			
Client Project #: POACSMF	Samplers: LAMANNA		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-HCID	TPH-G/BTEX	TPH-Dx						Notes/Comments
GP4-3.0	5-4-04	0947	S	2									
GP4-7.0		1003	S	3		✓	✓						EXTRA 8-oz
GP4-10.0		1011	S	2	✓								
GP5B-1.5		1103		2									
GP5B-6.0		1112		2		✓							
GP5B-9.0		1130		2	✓								~~2 oz only~~
GP6-2.5		821		2	✓								
GP6-5.0		828		2	✓								
GP6-9.0		835		2									~~8 oz only~~
GP6-9.0													

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: JOHN LAMANNA	Printed Name: JEFF HAM	Printed Name:	Printed Name:
	Company: FLOYD SNIDER MCGREGOR	Company: ARI	Company:	Company:
	Date & Time: 5-6-04 250	Date & Time: 5/6/04 1450	Date & Time:	Date & Time:

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Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alernate retention schedules have been established by work-order or contract.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
NWTPHg by GC/FID
Page 1 of 1

Sample ID: MB-051304
METHOD BLANK

Lab Sample ID: MB-051304
LIMS ID: 04-7160
Matrix: Soil
Data Release Authorized:
Reported: 05/17/04

QC Report No: GP70-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled: NA
Date Received: NA

Date Analyzed: 05/13/04 12:44
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Sample Amount: 0.10 g
Percent Moisture: NA

CAS Number	Analyte	RL	Result
71-43-2	Benzene	25	< 25 U
108-88-3	Toluene	25	< 25 U
100-41-4	Ethylbenzene	25	< 25 U
	m,p-Xylene	50	< 50 U
95-47-6	o-Xylene	25	< 25 U

			GAS ID
Gasoline Range Hydrocarbons	5.0	< 5.0 U	---

BETX Surrogate Recovery

Trifluorotoluene	108%
Bromobenzene	103%

Gasoline Surrogate Recovery

Trifluorotoluene	110%
Bromobenzene	97.1%

BETX values reported in µg/kg (ppb)
Gasoline values reported in mg/kg (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: GP2-5.0**
NWTPHg by GC/FID **SAMPLE**
Page 1 of 1

Lab Sample ID: GP70E
LIMS ID: 04-7160
Matrix: Soil
Data Release Authorized:
Reported: 05/17/04

QC Report No: GP70-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Analyzed: 05/13/04 14:20
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Sample Amount: 0.075 g-dry-wt
Percent Moisture: 26.4%

CAS Number	Analyte	RL	Result	
71-43-2	**Benzene**	**33**	**270**	
108-88-3	**Toluene**	**33**	**140**	
100-41-4	Ethylbenzene	33	< 33 U	
	m,p-Xylene	**67**	**79**	
95-47-6	**o-Xylene**	**33**	**110**	
	Gasoline Range Hydrocarbons	**6.7**	**250**	GAS ID **GRO**

BETX Surrogate Recovery

Trifluorotoluene	76.3%
Bromobenzene	68.2%

Gasoline Surrogate Recovery

Trifluorotoluene	63.6%
Bromobenzene	72.3%

BETX values reported in µg/kg (ppb)
Gasoline values reported in mg/kg (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: GP3-6.0**
NWTPHg by GC/FID **SAMPLE**

Lab Sample ID: GP70H
LIMS ID: 04-7163
Matrix: Soil
Data Release Authorized:
Reported: 05/17/04

QC Report No: GP70-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Analyzed: 05/13/04 14:47
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Sample Amount: 0.079 g-dry-wt
Percent Moisture: 23.6%

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	32	2,300	
108-88-3	Toluene	32	600	
100-41-4	Ethylbenzene	32	4,600	
	m,p-Xylene	64	17,000	
95-47-6	o-Xylene	32	2,200	
	Gasoline Range Hydrocarbons	6.4	630	GAS ID GAS

BETX Surrogate Recovery

Trifluorotoluene	96.2%
Bromobenzene	94.5%

Gasoline Surrogate Recovery

Trifluorotoluene	83.5%
Bromobenzene	104%

BETX values reported in µg/kg (ppb)
Gasoline values reported in mg/kg (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: GP3-7.0**
NWTPHg by GC/FID **SAMPLE**
Page 1 of 1

Lab Sample ID: GP70I
LIMS ID: 04-7164
Matrix: Soil
Data Release Authorized:
Reported: 05/17/04

QC Report No: GP70-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental POACSMF
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Analyzed: 05/13/04 15:15
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Sample Amount: 0.070 g-dry-wt
Percent Moisture: 32.1%

CAS Number	Analyte	RL	Result	
71-43-2	**Benzene**	**36**	**2,300**	
108-88-3	**Toluene**	**36**	**430**	
100-41-4	**Ethylbenzene**	**36**	**3,100**	
	m,p-Xylene	**72**	**11,000**	
95-47-6	**o-Xylene**	**36**	**1,400**	
	Gasoline Range Hydrocarbons	**7.2**	**320**	GAS ID **GAS**

BETX Surrogate Recovery

Trifluorotoluene	74.0%
Bromobenzene	66.8%

Gasoline Surrogate Recovery

Trifluorotoluene	61.3%
Bromobenzene	67.9%

BETX values reported in µg/kg (ppb)
Gasoline values reported in mg/kg (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
NWTPHg by GC/FID
Page 1 of 1

Sample ID: GP4-7.0
SAMPLE

Lab Sample ID: GP70L
LIMS ID: 04-7167
Matrix: Soil
Data Release Authorized:
Reported: 05/17/04

QC Report No: GP70-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Analyzed: 05/13/04 15:42
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Sample Amount: 0.071 g-dry-wt
Percent Moisture: 30.6%

CAS Number	Analyte	RL	Result	
71-43-2	**Benzene**	**35**	**150**	
108-88-3	Toluene	35	< 35 U	
100-41-4	Ethylbenzene	35	< 35 U	
	m,p-Xylene	71	< 71 U	
95-47-6	o-Xylene	35	< 35 U	
	Gasoline Range Hydrocarbons	**7.1**	**20**	GAS ID **GRO**

BETX Surrogate Recovery

Trifluorotoluene	62.6%
Bromobenzene	60.5%

Gasoline Surrogate Recovery

Trifluorotoluene	64.1%
Bromobenzene	61.0%

BETX values reported in µg/kg (ppb)
Gasoline values reported in mg/kg (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: GP5B-6.0**
NWTPHg by GC/FID **SAMPLE**
Page 1 of 1

Lab Sample ID: GP700 QC Report No: GP70-Floyd, Snider, McCarthy
LIMS ID: 04-7170 Project: Cap Sante Marine Environmental
Matrix: Soil POACSMF
Data Release Authorized: Date Sampled: 05/04/04
Reported: 05/17/04 Date Received: 05/06/04

Date Analyzed: 05/13/04 16:09 Purge Volume: 5.0 mL
Instrument/Analyst: PID2/AAR Sample Amount: 0.080 g-dry-wt
Percent Moisture: 21.8%

CAS Number	Analyte	RL	Result	
71-43-2	**Benzene**	**31**	**580**	
108-88-3	**Toluene**	**31**	**350**	
100-41-4	**Ethylbenzene**	**31**	**710**	
	m,p-Xylene	**63**	**260**	
95-47-6	**o-Xylene**	**31**	**300**	
	Gasoline Range Hydrocarbons	**6.3**	**510**	GAS ID **GRO**

BETX Surrogate Recovery

Trifluorotoluene	94.1%
Bromobenzene	94.6%

Gasoline Surrogate Recovery

Trifluorotoluene	73.9%
Bromobenzene	112%

BETX values reported in µg/kg (ppb)
Gasoline values reported in mg/kg (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: LCS-051304**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-051304 QC Report No: GP70-Floyd, Snider, McCarthy
LIMS ID: 04-7160 Project: Cap Sante Marine Environmental
Matrix: Soil POACSMF
Data Release Authorized: Date Sampled: NA
Reported: 05/17/04 Date Received: NA

Instrument/Analyst LCS: PID2/AAR Sample Amount LCS: 0.10 g
LCSD: PID2/AAR LCSD: 0.10 g
Date Analyzed LCS: 05/13/04 13:11
LCSD: 05/13/04 13:38

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	1000	950	105%	1020	950	107%	2.0%
Toluene	4280	4410	97.1%	4300	4410	97.5%	0.5%
Ethylbenzene	1080	1390	77.7%	1100	1390	79.1%	1.8%
m,p-Xylene	4960	5410	91.7%	5000	5410	92.4%	0.8%
o-Xylene	1880	1990	94.5%	1910	1990	96.0%	1.6%

Results reported in µg/kg (ppb).
RPD calculated using sample concentrations per SW846.

Gasoline Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	120%	117%
Bromobenzene	106%	107%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHg - Toluene to Naphthalene **Sample ID: LCS-051304**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-051304 QC Report No: GP70-Floyd, Snider, McCarthy
LIMS ID: 04-7160 Project: Cap Sante Marine Environmental
Matrix: Soil POACSMF
Data Release Authorized: Date Sampled: NA
Reported: 05/17/04 Date Received: NA

Instrument/Analyst LCS: PID2/AAR Sample Amount LCS: 0.10 g
LCSD: PID2/AAR LCSD: 0.10 g
Date Analyzed LCS: 05/13/04 13:11
LCSD: 05/13/04 13:38

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	128	125	102%	128	125	102%	0.0%

Results reported in mg/kg (ppm).
RPD calculated using sample concentrations per SW846.

Gasoline Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	103%	101%
Bromobenzene	99.8%	99.3%

ANALYTICAL RESOURCES INCORPORATED

SOIL BETX SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Soil

QC Report No: GP70

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
04-7160MB	051304MB	Method Blank	108%	103%	0
04-7160LC	051304LC	Lab Control	120%	106%	0
04-7160LCD	051304LCD	LCDuplicate	117%	107%	0
04-7160	GP70E	GP2-5.0	76%	68%	0
04-7163	GP70H	GP3-6.0	96%	94%	0
04-7164	GP70I	GP3-7.0	74%	67%	0
04-7167	GP70L	GP4-7.0	63%	60%	0
04-7170	GP70O	GP5B-6.0	94%	95%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(78-125)	(10-123)
(BB) = Bromobenzene	(78-123)	(10-149)

Limits Updated - 12/01/99

* Values outside of advisory QC limits

D System Monitoring Compound diluted out

FORM-II BETX

ANALYTICAL RESOURCES INCORPORATED

SOIL TPHg SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Soil

QC Report No: GP70

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
04-7160MB	051304MBS	Method Blank	110%	97%	0
04-7160LC	051304LCS	Lab Control	103%	100%	0
04-7160LCD	051304LCDS	LCDuplicate	101%	99%	0
04-7160	GP70E	GP2-5.0	64%	72%	0
04-7163	GP70H	GP3-6.0	84%	104%	0
04-7164	GP70I	GP3-7.0	61%	68%	0
04-7167	GP70L	GP4-7.0	64%	61%	0
04-7170	GP70O	GP5B-6.0	74%	112%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(66-130)	(10-118)
(BB) = Bromobenzene	(74-118)	(10-158)

Limits Updated - 04/26/04

\# Column to be used to flag recovery values

D System Monitoring Compound diluted out

FORM-II TPHg

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPH-HCID Method by GC/FID
Page 1 of 1
Matrix: Soil

QC Report No: GP70-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF

Data Release Authorized:
Reported: 05/24/04

ARI ID	Sample ID	Extraction Date	Analysis Date	DL	Range	Result mg/kg
MB-051204 04-7157	Method Blank	05/12/04	05/21/04	1.0	Gas Diesel Oil o-Terphenyl	< 25 U < 50 U < 100 U 91.9%
GP70B 04-7157	GP1-5.0	05/12/04	05/21/04	1.0	Gas Diesel Oil o-Terphenyl	< 35 U < 50 U < 100 U 104%
GP70C 04-7158	GP1-8.0	05/12/04	05/21/04	1.0	Gas Diesel Oil o-Terphenyl	< 31 U < 50 U < 100 U 101%
GP70F 04-7161	GP2-10.0	05/12/04	05/21/04	1.0	Gas Diesel Oil o-Terphenyl	< 40 U < 50 U < 100 U 120%
GP70H 04-7163	GP3-6.0	05/12/04	05/21/04	1.0	**Gas** **Diesel** Oil o-Terphenyl	**220** **410** < 340 U 97.1%
GP70J 04-7165	GP3-9.0	05/12/04	05/21/04	1.0	Gas Diesel Oil o-Terphenyl	< 38 U < 50 U < 100 U 102%
GP70M 04-7168	GP4-10.0	05/12/04	05/21/04	1.0	Gas Diesel Oil o-Terphenyl	< 190 U < 190 U < 390 U 102%
GP70P 04-7171	GP5B-9.0	05/12/04	05/21/04	1.0	**Gas** **Diesel** Oil o-Terphenyl	**230** **390** < 330 U 117%
GP70Q 04-7172	GP6-2.5	05/12/04	05/21/04	1.0	Gas Diesel Oil o-Terphenyl	< 31 U < 50 U < 100 U 107%
GP70R 04-7173	GP6-5.0	05/12/04	05/21/04	1.0	Gas Diesel Oil o-Terphenyl	< 37 U < 50 U < 100 U 98.7%

Gas value based on total peaks in the range from Toluene to C12.
Diesel value based on the total peaks in the range from C12 to C24.
Oil value based on the total peaks in the range from C24 to C38.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPH-HCID Method by GC/FID
Page 1 of 1

Sample ID: LCS-051204
LAB CONTROL

Lab Sample ID: LCS-051204
LIMS ID: 04-7157
Matrix: Soil
Data Release Authorized:
Reported: 05/24/04

QC Report No: GP70-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Extracted: 05/12/04
Date Analyzed: 05/21/04 14:36
Instrument/Analyst: FID/LJR

Sample Amount: 10.0 g
Final Extract Volume: 10 mL
Dilution Factor: 1.0

Range	Lab Control	Spike Added	Recovery
Diesel	1220	1500	81.3%

HCID Surrogate Recovery

o-Terphenyl	115%

Results reported in mg/kg

ANALYTICAL RESOURCES INCORPORATED

HCID SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: GP70-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF

Client ID	O-TER	TOT OUT
051204MB	91.9%	0
051204LCS	115%	0
GP1-5.0	104%	0
GP1-8.0	101%	0
GP2-10.0	120%	0
GP3-6.0	97.1%	0
GP3-9.0	102%	0
GP4-10.0	102%	0
GP5B-9.0	117%	0
GP6-2.5	107%	0
GP6-5.0	98.7%	0

	LCS/MB LIMITS	QC LIMITS
(O-TER) = o-Terphenyl	(68-122)	(45-136)

Prep Method: SW3550B
Log Number Range: 04-7157 to 04-7173

ANALYTICAL RESOURCES INCORPORATED

TOTAL HCID RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: GP70
Matrix: Soil Project: Cap Sante Marine Environmental
Date Received: 05/06/04 POACSMF

ARI ID	Client ID	Sample Amt	Final Vol	Basis	Prep Date
04-7157-051204MB	Method Blank	10.0 g	10.0 mL	-	05/12/04
04-7157-051204LCS	Lab Control	10.0 g	10.0 mL	-	05/12/04
04-7157-GP70B	GP1-5.0	7.17 g	10.0 mL	D	05/12/04
04-7158-GP70C	GP1-8.0	7.95 g	10.0 mL	D	05/12/04
04-7161-GP70F	GP2-10.0	6.29 g	10.0 mL	D	05/12/04
04-7163-GP70H	GP3-6.0	1.46 g	10.0 mL	D	05/12/04
04-7165-GP70J	GP3-9.0	6.62 g	10.0 mL	D	05/12/04
04-7168-GP70M	GP4-10.0	1.29 g	10.0 mL	D	05/12/04
04-7171-GP70P	GP5B-9.0	1.50 g	10.0 mL	D	05/12/04
04-7172-GP70Q	GP6-2.5	8.06 g	10.0 mL	D	05/12/04
04-7173-GP70R	GP6-5.0	6.82 g	10.0 mL	D	05/12/04

Basis: D=Dry Weight W=As Received

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: 2 week
ARI Client Company: Floyd Snider McCarthy	Phone: 206-292-2078
Client Contact: TOM GOLIGAN	
Client Project Name: CAP SANTE MARINE ENVIRONMENTAL	
Client Project #: PUACSMF	Samplers: LAMANNA

Date: MAY 6 2004

Page: 3 of 3

No. of Coolers: Cooler Temps: 5.5

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: BTEX TPH-G	Analysis Requested: TPH-Dx	Notes/Comments
TRIP BLANK	—	-	W	2	✓		
GP1	5-4-04	330		5	✓	✓	
GP2		500		5	✓	✓	
GP3		200		3	✓		3-40mL only
GP4		1020		5	✓	✓	
GP5B		1150		5	✓	✓	
GP6		841		5	✓	✓	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: TOM LAMANNA	Printed Name: JEFF HAAN	Printed Name:	Printed Name:
	Company: FLOYD SNIDER McCARTHY	Company: ARI	Company:	Company:
	Date & Time: 5-6-04 250PM	Date & Time: 5/6/04 1450	Date & Time:	Date & Time:

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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
NWTPHg - Toluene to Naphthalene
Page 1 of 1

Sample ID: MB-051404
METHOD BLANK

Lab Sample ID: MB-051404
LIMS ID: 04-7121
Matrix: Water
Data Release Authorized:
Reported: 05/19/04

QC Report No: GP66-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled: NA
Date Received: NA

Date Analyzed: 05/14/04 11:18
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
71-43-2	Benzene	1.0	< 1.0 U
108-88-3	Toluene	1.0	< 1.0 U
100-41-4	Ethylbenzene	1.0	< 1.0 U
	m,p-Xylene	1.0	< 1.0 U
95-47-6	o-Xylene	1.0	< 1.0 U

			GAS ID
Gasoline Range Hydrocarbons	0.25	< 0.25 U	---

BETX Surrogate Recovery

Trifluorotoluene	107%
Bromobenzene	101%

Gasoline Surrogate Recovery

Trifluorotoluene	104%
Bromobenzene	96.5%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
NWTPHg - Toluene to Naphthalene
Page 1 of 1

Sample ID: MB-051804
METHOD BLANK

Lab Sample ID: MB-051804
LIMS ID: 04-7123
Matrix: Water
Data Release Authorized:
Reported: 05/19/04

QC Report No: GP66-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled: NA
Date Received: NA

Date Analyzed: 05/18/04 12:06
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	Toluene	1.0	< 1.0 U	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
	m,p-Xylene	1.0	< 1.0 U	
95-47-6	o-Xylene	1.0	< 1.0 U	
	Gasoline Range Hydrocarbons	0.25	< 0.25 U	GAS ID ---

BETX Surrogate Recovery

Trifluorotoluene	109%
Bromobenzene	100%

Gasoline Surrogate Recovery

Trifluorotoluene	108%
Bromobenzene	97.8%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
NWTPHg - Toluene to Naphthalene
Page 1 of 1

Sample ID: Trip Blank
SAMPLE

Lab Sample ID: GP66A
LIMS ID: 04-7121
Matrix: Water
Data Release Authorized:
Reported: 05/19/04

QC Report No: GP66-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled:
Date Received: 05/06/04

Date Analyzed: 05/14/04 12:40
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	GAS ID
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	Toluene	1.0	< 1.0 U	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
	m,p-Xylene	1.0	< 1.0 U	
95-47-6	o-Xylene	1.0	< 1.0 U	
	Gasoline Range Hydrocarbons	0.25	< 0.25 U	---

BETX Surrogate Recovery

Trifluorotoluene	95.4%
Bromobenzene	91.8%

Gasoline Surrogate Recovery

Trifluorotoluene	97.3%
Bromobenzene	90.6%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: GP1**
NWTPHg - Toluene to Naphthalene **SAMPLE**

Lab Sample ID: GP66B
LIMS ID: 04-7122
Matrix: Water
Data Release Authorized:
Reported: 05/19/04

QC Report No: GP66-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental POACSMF
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Analyzed: 05/14/04 14:30
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	Toluene	1.0	< 1.0 U	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
	m,p-Xylene	1.0	< 1.0 U	
95-47-6	o-Xylene	1.0	< 1.0 U	
	Gasoline Range Hydrocarbons	0.25	< 0.25 U	GAS ID ---

BETX Surrogate Recovery

Trifluorotoluene	97.7%
Bromobenzene	97.9%

Gasoline Surrogate Recovery

Trifluorotoluene	106%
Bromobenzene	98.4%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: GP2**
NWTPHg - Toluene to Naphthalene **SAMPLE**

Lab Sample ID: GP66C
LIMS ID: 04-7123
Matrix: Water
Data Release Authorized:
Reported: 05/19/04

QC Report No: GP66-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental POACSMF
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Analyzed: 05/18/04 13:01
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	Toluene	1.0	< 1.0 U	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
	m,p-Xylene	**1.0**	**1.3**	
95-47-6	o-Xylene	1.0	< 1.0 U	
				GAS ID
	Gasoline Range Hydrocarbons	**0.25**	**0.46**	**GAS**

BETX Surrogate Recovery

Trifluorotoluene	106%
Bromobenzene	99.7%

Gasoline Surrogate Recovery

Trifluorotoluene	100%
Bromobenzene	95.6%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: GP3**
NWTPHg - Toluene to Naphthalene **SAMPLE**

Lab Sample ID: GP66D
LIMS ID: 04-7124
Matrix: Water
Data Release Authorized:
Reported: 05/19/04

QC Report No: GP66-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Analyzed: 05/18/04 12:33
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	GAS ID
71-43-2	Benzene	1.0	390	
108-88-3	Toluene	1.0	18	
100-41-4	Ethylbenzene	1.0	65	
	m,p-Xylene	1.0	190	
95-47-6	o-Xylene	1.0	22	
	Gasoline Range Hydrocarbons	0.25	4.1	GAS

BETX Surrogate Recovery

Trifluorotoluene	116%
Bromobenzene	98.7%

Gasoline Surrogate Recovery

Trifluorotoluene	93.7%
Bromobenzene	90.8%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod
NWTPHg - Toluene to Naphthalene

Sample ID: GP4
SAMPLE

Lab Sample ID: GP66E
LIMS ID: 04-7125
Matrix: Water
Data Release Authorized:
Reported: 05/19/04

QC Report No: GP66-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Analyzed: 05/14/04 13:07
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	Toluene	1.0	< 1.0 U	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
	m,p-Xylene	1.0	< 1.0 U	
95-47-6	o-Xylene	1.0	< 1.0 U	
	Gasoline Range Hydrocarbons	0.25	< 0.25 U	GAS ID ---

BETX Surrogate Recovery

Trifluorotoluene	91.7%
Bromobenzene	89.7%

Gasoline Surrogate Recovery

Trifluorotoluene	91.8%
Bromobenzene	89.5%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: GP5B**
NWTPHg - Toluene to Naphthalene **SAMPLE**

Lab Sample ID: GP66F
LIMS ID: 04-7126
Matrix: Water
Data Release Authorized:
Reported: 05/19/04

QC Report No: GP66-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSMF
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Analyzed: 05/14/04 13:35
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	**Benzene**	**1.0**	**3.4**	
108-88-3	**Toluene**	**1.0**	**1.4**	
100-41-4	**Ethylbenzene**	**1.0**	**2.3**	
	m,p-Xylene	**1.0**	**1.9**	
95-47-6	o-Xylene	1.0	< 1.0 U	
				GAS ID
	Gasoline Range Hydrocarbons	**0.25**	**0.40**	**GAS**

BETX Surrogate Recovery

Trifluorotoluene	102%
Bromobenzene	98.5%

Gasoline Surrogate Recovery

Trifluorotoluene	97.8%
Bromobenzene	92.0%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: GP6**
NWTPHg - Toluene to Naphthalene **SAMPLE**

Lab Sample ID: GP66G
LIMS ID: 04-7127
Matrix: Water
Data Release Authorized:
Reported: 05/19/04

QC Report No: GP66-Floyd, Snider, McCarthy
Project: Cap Sante Marine Environmental
POACSFM
Date Sampled: 05/04/04
Date Received: 05/06/04

Date Analyzed: 05/14/04 14:57
Instrument/Analyst: PID2/AAR

Purge Volume: 5.0 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result	
71-43-2	Benzene	1.0	< 1.0 U	
108-88-3	Toluene	1.0	< 1.0 U	
100-41-4	Ethylbenzene	1.0	< 1.0 U	
	m,p-Xylene	1.0	< 1.0 U	
95-47-6	o-Xylene	1.0	< 1.0 U	
	Gasoline Range Hydrocarbons	0.25	< 0.25 U	GAS ID ---

BETX Surrogate Recovery

Trifluorotoluene	88.3%
Bromobenzene	90.1%

Gasoline Surrogate Recovery

Trifluorotoluene	89.6%
Bromobenzene	88.8%

BETX values reported in µg/L (ppb)
Gasoline values reported in mg/L (ppm)

GAS: Indicates the presence of gasoline or weathered gasoline.
GRO: Positive result that does not match an identifiable gasoline pattern.

Quantitation on total peaks in the gasoline range from Toluene to Naphthalene.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: LCS-051404**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-051404 QC Report No: GP66-Floyd, Snider, McCarthy
LIMS ID: 04-7121 Project: Cap Sante Marine Environmental
Matrix: Water POACSMF
Data Release Authorized: Date Sampled: NA
Reported: 05/19/04 Date Received: NA

Instrument/Analyst LCS: PID2/AAR Sample Amount LCS: 5.0 mL
LCSD: PID2/AAR LCSD: 5.0 mL
Date Analyzed LCS: 05/14/04 11:45
LCSD: 05/14/04 12:12

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	19.6	19.0	103%	20.5	19.0	108%	4.5%
Toluene	83.9	88.2	95.1%	88.1	88.2	99.9%	4.9%
Ethylbenzene	21.5	27.8	77.3%	22.5	27.8	80.9%	4.5%
m,p-Xylene	98.0	108	90.7%	103	108	95.4%	5.0%
o-Xylene	37.8	39.8	95.0%	39.5	39.8	99.2%	4.4%

Results reported in µg/L (ppb).
RPD calculated using sample concentrations per SW846.

BETX Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	113%	114%
Bromobenzene	101%	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHg - Toluene to Naphthalene **Sample ID: LCS-051404**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-051404 QC Report No: GP66-Floyd, Snider, McCarthy
LIMS ID: 04-7121 Project: Cap Sante Marine Environmental
Matrix: Water POACSMF
Data Release Authorized: Date Sampled: NA
Reported: 05/19/04 Date Received: NA

Instrument/Analyst LCS: PID2/AAR Sample Amount LCS: 5.0 mL
LCSD: PID2/AAR LCSD: 5.0 mL
Date Analyzed LCS: 05/14/04 11:45
LCSD: 05/14/04 12:12

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	2.48	2.50	99.2%	2.64	2.50	106%	6.2%

Results reported in mg/L (ppm).
RPD calculated using sample concentrations per SW846.

Gasoline Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	100%	101%
Bromobenzene	93.8%	93.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
BETX by Method SW8021BMod **Sample ID: LCS-051804**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-051804 QC Report No: GP66-Floyd, Snider, McCarthy
LIMS ID: 04-7123 Project: Cap Sante Marine Environmental
Matrix: Water POACSMF
Data Release Authorized: Date Sampled: NA
Reported: 05/19/04 Date Received: NA

Instrument/Analyst LCS: PID2/AAR Sample Amount LCS: 5.0 mL
LCSD: PID2/AAR LCSD: 5.0 mL
Date Analyzed LCS: 05/18/04 14:23
LCSD: 05/18/04 14:50

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	18.3	19.0	96.3%	19.2	19.0	101%	4.8%
Toluene	78.7	88.2	89.2%	83.2	88.2	94.3%	5.6%
Ethylbenzene	20.0	27.8	71.9%	21.0	27.8	75.5%	4.9%
m,p-Xylene	91.0	108	84.3%	95.7	108	88.6%	5.0%
o-Xylene	34.8	39.8	87.4%	36.6	39.8	92.0%	5.0%

Results reported in µg/L (ppb).
RPD calculated using sample concentrations per SW846.

BETX Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	108%	94.6%
Bromobenzene	96.4%	89.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHg - Toluene to Naphthalene **Sample ID: LCS-051804**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-051804 QC Report No: GP66-Floyd, Snider, McCarthy
LIMS ID: 04-7123 Project: Cap Sante Marine Environmental
Matrix: Water POACSMF
Data Release Authorized: Date Sampled: NA
Reported: 05/19/04 Date Received: NA

Instrument/Analyst LCS: PID2/AAR Sample Amount LCS: 5.0 mL
LCSD: PID2/AAR LCSD: 5.0 mL
Date Analyzed LCS: 05/18/04 14:23
LCSD: 05/18/04 14:50

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Gasoline Range Hydrocarbons	2.41	2.50	96.4%	2.44	2.50	97.6%	1.2%

Results reported in mg/L (ppm).
RPD calculated using sample concentrations per SW846.

Gasoline Surrogate Recovery

	LCS	LCSD
Trifluorotoluene	96.9%	84.2%
Bromobenzene	93.1%	83.8%

ANALYTICAL RESOURCES INCORPORATED

WATER BETX SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Water

QC Report No: GP66

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
04-7121MB	051404MB	Method Blank	107%	101%	0
04-7121LCS	051404LCS	Lab Control	113%	101%	0
04-7121LCSD	051404LCSD	Lab Control Dup	114%	101%	0
04-7121	GP66A	Trip Blank	95%	92%	0
04-7122	GP66B	GP1	98%	98%	0
04-7123MB	051804MB	Method Blank	109%	100%	0
04-7123LCS	051804LCS	Lab Control	108%	96%	0
04-7123LCSD	051804LCSD	Lab Control Dup	95%	89%	0
04-7123	GP66C	GP2	106%	100%	0
04-7124	GP66D	GP3	116%	99%	0
04-7125	GP66E	GP4	92%	90%	0
04-7126	GP66F	GP5B	102%	98%	0
04-7127	GP66G	GP6	88%	90%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(74-127)	(54-136)
(BB) = Bromobenzene	(63-129)	(63-129)

Limits Updated - 12/01/99

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

FORM-II BETX

ANALYTICAL RESOURCES INCORPORATED

WATER TPHg SYSTEM MONITORING COMPOUND SUMMARY

Matrix: Water QC Report No: GP66

LIMS ID	Lab ID	Client ID	TFT	BB	TOT OUT
04-7121MB	051404MB	Method Blank	104%	96.5%	0
04-7121LC	051404LC	Lab Control	100%	93.8%	0
04-7121LCD	051404LCD	Lab Control Dup	101%	93.6%	0
04-7121	GP66A	Trip Blank	97.3%	90.6%	0
04-7122	GP66B	GP1	106%	98.4%	0
04-7123MB	051804MB	Method Blank	108%	97.8%	0
04-7123LC	051804LC	Lab Control	96.9%	93.1%	0
04-7123LCD	051804LCD	Lab Control Dup	84.2%	83.8%	0
04-7123	GP66C	GP2	100%	95.6%	0
04-7124	GP66D	GP3	93.7%	90.8%	0
04-7125	GP66E	GP4	91.8%	89.5%	0
04-7126	GP66F	GP5B	97.8%	92.0%	0
04-7127	GP66G	GP6	89.6%	88.8%	0

	MB/LCS QC LIMITS	SAMPLE QC LIMITS
(TFT) = Trifluorotoluene	(66-129)	(31-139)
(BB) = Bromobenzene	(72-118)	(38-141)

Limits Updated - 04/26/04

\# Column to be used to flag recovery values

* Values outside of required QC limits

D System Monitoring Compound diluted out

FORM-II TPHg

Port of Anacortes

Limited Environmental Due Diligence Investigation Report

Former Shell Oil Tank Farm
Cap Sante Marine Lease Area

Prepared for

Port of Anacortes
First Avenue & Commercial
Anacortes, Washington 98221

Prepared by

FLOYD | SNIDER
601 Union Street, Suite 600
Seattle, Washington 98101

November 2005

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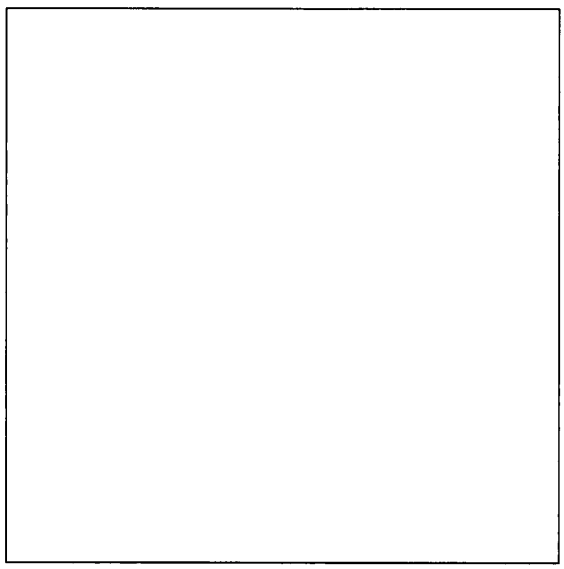
Certification

This letter report was prepared by the staff of Floyd|Snider under the supervision of the Geologist and/or Engineer whose signature and license appears on this page.



Matt Woltman, L.E.G.
Engineering Geologist

1.0 INTRODUCTION

This letter presents the results of the limited environmental due diligence investigation performed for the Port of Anacortes (Port) at the Former Shell Oil Tank Farm (Shell) and Cap Sante Marine Lease Area (CSM) sites located in Anacortes, Washington (Figures 1 and 2). Soil and groundwater sampling were completed at both sites to characterize subsurface environmental conditions relative to known or suspected historical petroleum hydrocarbon contamination. The sampling and analysis at the CSM site is supplemental to the previous investigation of this site completed by Floyd Snider McCarthy, Inc. in 2004 (FSM 2004).

Field sampling was completed from August 24 to 26, 2005 in accordance with the Port-approved Scope of Work dated June 16, 2005. Soil and groundwater samples were collected from a total of 21 sampling locations as shown on Figures 1 and 2. The sampling objective for each location is summarized in Table 1.

The results of this investigation show that soil and groundwater at both sites contain concentrations of petroleum hydrocarbon contaminants at levels greater than the Method A cleanup levels defined by the Washington State Model Toxics Control Act (MTCA). In accordance with MTCA cleanup regulations (WAC 173-340-300), these findings are required to be reported to the Washington State Department of Ecology (Ecology) within 90 days of discovery.

2.0 FORMER SHELL OIL TANK FARM PROPERTY

2.1 Shell Site Description

The Shell site is located between 13th Street and 14th Street on the west side of Q Avenue in Anacortes (Figure 1). The site is owned by the Port and used as a parking lot for vehicles and boat trailers. The site is composed of fill material, mainly dredged sand, with interbedded layers of silt and clay. Coarse gravel overlies the dredged material and comprises the parking lot surface. Groundwater was encountered at each sampling location at depths ranging from 4.5 to 9 feet below ground surface (bgs). Due to the close proximity of the site to Fidalgo Bay, groundwater is assumed to be tidally influenced with a general flow direction to the east.

2.2 Shell Site Use History

The Port acquired the property in 1929 and leased the site to the Shell Oil Company and various distributors of gasoline, diesel, oil, and other chemical products.

Site layout drawings from the 1930s show that the original bulk petroleum storage facility included three 25,000 gallon, aboveground storage tanks (ASTs), one for diesel and two for gasoline. Supply lines connected to the ASTs extended to the east across Q Avenue to a historical pier located in the Cap Sante Federal Waterway. Diesel and gasoline were pumped from the historical pier to the bulk facility ASTs, where the fuel was distributed. The approximate location of the three historical ASTs and associated piping are presented on Figure 1.

Subsequent to the original site layout, two 12,500 gallon ASTs and one 4,000 gallon underground storage tank (UST) were installed in the early 1950s (locations are unknown). Diesel, gasoline, and stove oil were stored in the ASTs and dry cleaning solvent was stored in the smaller UST.

The site was operated as a bulk handling facility until approximately 1985 when it was abandoned and structures demolished.

In 1987, the Port performed an environmental investigation of the site. Two monitoring wells (MW-1 and MW-2) were installed at locations shown on Figure 1 and limited environmental analyses were performed on soil and groundwater samples obtained at these locations (Hart Crowser 1987). Petroleum hydrocarbon contamination was identified by the site investigation and in response, the impacted soil was partially removed. The extent of impacted soil removal is, however, unknown but suspected to be in the vicinity of MW-2.

2.3 Shell Site Field Investigation

The 14 locations shown on Figure 1 were sampled to determine the nature and extent of potential petroleum hydrocarbon contamination in soil and groundwater on, and downgradient from the Shell site. Sampling was performed using a hydraulically-powered Geoprobe® sampling device. Samples were collected in three intervals at each location: 0 to 4 feet bgs, 4 to 8 feet bgs, 8 to12 feet bgs. After each sample interval was retrieved, the core liner was opened, and the recovered soil was examined and logged. Any petroleum odors or sheen were noted and soil samples were collected into laboratory-supplied jars. The presence of sheen was determined by mixing small amounts of soil with water to visually identify iridescence (sheen test). The depth to groundwater was estimated based on moisture observations in recovered soil samples at each sampling location. Field observations were recorded on boring logs, as presented in Appendix A.

A groundwater sample was collected from each sampling location after completion of soil sampling. Groundwater was sampled using an expendable well point and retractable screen placed at a depth of approximately 3 to 4 feet below the observed water table. Samples were collected using a narrow-diameter polyethylene tubing inserted through the drill rod to the base of the screen and the groundwater was pumped with a peristaltic pump. The water was pumped until turbidity was observed to be reduced, or discharge stopped. After purging, the laboratory-supplied sample bottles were filled.

All sampling tools and equipment were decontaminated by washing with a solution of Alconox and water and rinsing with distilled water. New plastic liners were used for each soil sample. Dedicated polyethylene and silicone tubing were used to collect each water sample and discarded after use.

The samples were stored in an iced cooler and delivered to the laboratory according to chain-of-custody protocols. Copies of the Chain-of-Custody Records are included in the analytical laboratory reports, presented as Appendices B and C.

2.4 Shell Site Laboratory Analytical Results

In total, 25 soil samples and 12 groundwater samples were collected and submitted to the analytical laboratory for analysis as shown in Table 2. Additionally, two groundwater samples (at locations CSM04 and CSM14) were collected and archived. All laboratory data was reviewed for quality assurance and completeness, including confirmation that holding and extraction times were in compliance with the NWTPH and EPA methodologies.

Fourteen of the soil samples were selected for total petroleum hydrocarbons (TPH) analysis using the hydrocarbon identification method (Method NWTPH-HCID) to determine the presence and concentrations of gasoline, diesel, or heavy oil range petroleum hydrocarbons. The HCID method is the preferred analytical method if the type of petroleum contamination is unknown. Based on strong odors noted in the samples and results of the NWTPH-HCID tests, 12 soil samples were selected for further laboratory testing including TPH-gasoline, benzene, toluene, ethylbenzene and xylenes (TPH-Gasoline/BTEX) and 16 soil samples were selected for diesel and heavy oil range hydrocarbons (NWTPH-Dx) analysis.

Table 3 presents a comparison of the soil analytical data results to the MTCA Method A cleanup levels for TPH-gasoline, TPH-diesel, and BTEX. This comparison indicates that gasoline and diesel exceed the cleanup levels at three locations (SHL02, SHL05, and CSM13). Heavy oil and BTEX concentrations in the soil do not exceed the cleanup levels. Gasoline and BTEX soil results were qualified as estimated ("J") because the sample analysis was not performed within the recommended holding time as required under the new USEPA Method 5035A. These samples were, however, delivered to the laboratory within the required holding time and then refrigerated.

A specific VOC analysis was performed by the analytical laboratory to investigate the potential loss of VOCs from uncontrolled aerobic processes. Results of this analysis indicate that the difference in VOC concentrations between the samples stored frozen versus those that were only refrigerated is less than the error of the method (Appendix D).

Twelve groundwater samples were analyzed for TPH-Gasoline/BTEX and NWTPH-Dx. The groundwater data indicate that diesel and heavy oil are present in concentrations that exceed MTCA Method A cleanup levels at locations SHL02, SHL04, and CSM12 (Table 4). Gasoline and BTEX concentrations in groundwater do not exceed the cleanup levels.

2.5 Shell Site Summary of Results

The results of the sampling and analysis at the Shell site are summarized on Figure 1. Diesel and gasoline contamination is present in soil located in the vicinity of the historical gasoline and diesel supply lines at the site. Soil contamination in this area ranges from approximately 4 to 9.5 feet bgs. Diesel contamination was identified in groundwater at sampling locations near the supply lines and below the ASTs. Downgradient from the site, near the historical supply lines, soil diesel contamination, and groundwater diesel and heavy oil contamination is present. In this location, the depth of soil contamination was found to be at 10.5 to 11.5 feet bgs

3.0 CAP SANTE MARINE LEASE AREA

3.1 CSM Site Description

The CSM site is located within the Cap Sante Boat Haven. The site is owned by the Port and leased to Cap Sante Marine Ltd., for operation of a boatyard. Cap Sante Marine Ltd. also operates a fuel float offshore from the site. The fuel supply tanks are located within the leased area and are connected to the float by underground pipelines.

The site is composed of fill material, mainly of dredged sand with interbedded layers of silt and clay of variable thickness. The ground surface is asphalt in the roadway and a combination of asphalt, concrete slab, and gravel within the boatyard. Groundwater was encountered at each sampling location at depths ranging from 4 to 5.5 feet bgs. Due to the proximity of the site to Fidalgo Bay, groundwater at the site is assumed to be tidally influenced with a general flow direction to the east.

3.2 CSM Site Use History

The Port acquired the CSM property in 1956. The site has been used as a boatyard since approximately 1959. In the early 1980s, petroleum fuel was observed seeping into the marine waters at the Cap Sante Boat Haven at several locations near the fuel dock. In 1983, under order from the US Coast Guard, the Port installed a trench to control the seepage of fuel. The trench intercepted the fuel flowing through the soil. The trapped fuel was pumped from the trench and disposed at an off-site disposal facility. Several thousand gallons of fuel were recovered from the trench and the seepage was stopped.

The seepage was determined to be a result of leakage from the USTs and supply lines for the fuel dock facility. In 1985, the Port replaced these USTs with two new tanks; however, impacted soil associated with the historical leaks was not removed.

In 2004, the Port conducted a limited due diligence investigation in the roadway near the historical petroleum recovery trench to evaluate the extent of impacted soil. The results from the 2004 investigation indicated that both soil and groundwater in the vicinity of the historical spill exceeded MTCA criteria for petroleum hydrocarbon contaminants. During this investigation, samples were not collected from within the Cap Sante Marine Lease Area, hence the purpose of this investigation.

3.3 CSM Site Field Investigation

The CSM Site field investigation was performed to supplement the 2004 investigation of the site. A total of nine sampling locations were completed within the project area shown on Figure 2. Four borings (CSM07 through CSM10) are located adjacent to the fuel float USTs. One boring (CSM11) is located along the southern end of the existing Cap Sante Marine office building. Two borings (CSM05 and CSM06) are located adjacent to the former waste oil tank location within the CSM site. Two of the sampling locations (CSM04 and CSM14) were positioned

outside of the lease boundary to establish boundary conditions for the site. The sampling location objectives for each location are summarized in Table 1.

CSM site sampling was completed using the same methodology as employed at the Shell site, as described above. Boring logs for the CSM sampling locations are presented in Appendix A and copies of the Chain–of-Custody Records are included as part of the laboratory reports presented in Appendices B and C.

3.4 CSM Site Laboratory Analytical Results

In total, 13 soil samples and 5 groundwater samples were collected, submitted to the laboratory, and analyzed for the petroleum hydrocarbon contaminants as shown in Table 5. Four additional groundwater samples were collected and archived (from locations CSM04, CSM05, CSM06, and CSM14). All laboratory data was reviewed for quality assurance and completeness, including confirmation that holding and extraction times were in compliance with the NWTPH and EPA methodologies.

Six of the soil samples were selected for TPH analysis by method NWTPH-HCID to determine the presence and concentrations of gasoline, diesel, or heavy oil (lube oil). Based on strong odors and other indicators observed in the recovered soil, seven soil samples were selected for laboratory testing for TPH-Gasoline/BTEX and NWTPH-Dx analysis.

Table 6 presents a comparison of the soil analytical data results to the MTCA Method A cleanup levels for TPH-gasoline, TPH-diesel and BTEX. This comparison shows that gasoline and benzene exceed the cleanup levels at five locations (CSM07 through CSM11). Diesel soil concentrations exceed cleanup levels at three locations (CSM08, CSM10, and CSM11). Heavy oil, toluene, ethylbenzene, and xylene concentrations in soil do not exceed cleanup levels. Gasoline and BTEX soil results were qualified as estimated ("J") because the sample analysis was not performed within the recommended holding time as required under the new USEPA Method 5035A. These samples were, however, delivered to the laboratory within the required holding time and then refrigerated.

A specific VOC analysis was performed by the analytical laboratory to investigate the potential loss of VOCs from uncontrolled aerobic processes. Results of this analysis indicate that the difference in VOC concentrations between the samples stored frozen versus those that were only refrigerated is less than the error of the method (Appendix D).

Five groundwater samples were analyzed for TPH-Gasoline/BTEX and NWTPH-Dx. The groundwater data indicate that gasoline, diesel, and benzene are present in concentrations that exceed MTCA Method A cleanup levels at locations CSM07 through CSM11 (Table 7). Heavy oil, toluene, ethylbenzene, and xylene concentrations in the groundwater do not exceed the cleanup levels.

3.5 CSM Site Summary of Results

The results of the sampling and analysis at the CSM site are summarized on Figure 2. Gasoline, diesel, and benzene contamination is present in the soil and groundwater adjacent to

the existing USTs at the site. The soil and groundwater contamination was found to extend north of the USTs to the CSM office building. Previous investigations indicate that downgradient of the USTs, soil contamination exists and is associated with the historical tank and supply line leaks. Contamination was detected at depths ranging from approximately 4 to 13 feet bgs. No soil or groundwater contamination was identified near the former waste oil tank location or at the boundary sampling locations.

4.0 REFERENCES

Floyd Snider McCarthy, Inc. 2004. Letter Report re: Results of Limited Environmental Due Diligence Investigation, Cap Sante Boat Haven – Anacortes, Washington. Prepared for Port of Anacortes. 14 June.

Hart Crowser, Inc. 1987. *Preliminary Environmental Site Assessment, Petroleum Bulk Storage Facility, Anacortes, Washington*. Prepared for Port of Anacortes.

Port of Anacortes

Limited Environmental Due Diligence Investigation Report

Former Shell Oil Tank Farm
Cap Sante Marine Lease Area

Tables

Table 1A
Sampling Location Objectives—Former Shell Oil Tank Farm

Sampling Location	Objective
SHL01	Lateral boundary at NE corner of Former Shell Oil Tank Farm.
SHL02	Lateral boundary along east perimeter of Former Shell Oil Tank Farm (near historical supply line).
SHL03	Lateral boundary at SE corner of Former Shell Oil Tank Farm (near historical pump house).
SHL04	Lateral boundary along south perimeter of Former Shell Oil Tank Farm (near historical aboveground storage tank).
SHL05	Interior Former Shell Oil Tank Farm (near historical underground storage tank and supply line).
SHL06	Lateral boundary at NW corner of Former Shell Oil Tank Farm.
SHL07	Lateral boundary along north perimeter of Former Shell Oil Tank Farm.
CSM01	Downgradient boundary, approximately 150 feet east of Former Shell Oil Tank Farm.
CSM02	Downgradient boundary, approximately 150 feet east of Former Shell Oil Tank Farm.
CSM03	Downgradient boundary, approximately 250 feet east of Former Shell Oil Tank Farm.
CSM04	Downgradient boundary, approximately 350 feet east-northeast of Former Shell Oil Tank Farm.
CSM12	Downgradient boundary, approximately 150 feet northeast of Former Shell Oil Tank Farm.
CSM13	Downgradient boundary, approximately 200 feet northeast of Former Shell Oil Tank Farm.
CSM14	Downgradient boundary, approximately 250 feet northeast of Former Shell Oil Tank Farm.

Table 1B
Sampling Location Objectives—Cap Sante Marine Lease Area

Sampling Location	Objective
CSM04	Lateral boundary along south perimeter of Cap Sante Marine Lease Area.
CSM05	Lateral boundary along north perimeter of Cap Sante Marine Lease Area (near former waste oil tank).
CSM06	Lateral boundary along north perimeter of Cap Sante Marine Lease Area (near former waste oil tank).
CSM07	Interior Cap Sante Marine Lease Area (near underground storage tanks).
CSM08	Interior Cap Sante Marine Lease Area (near underground storage tanks).
CSM09	Interior Cap Sante Marine Lease Area (near underground storage tanks).
CSM10	Interior Cap Sante Marine Lease Area (near underground storage tanks).
CSM11	Lateral boundary at NE corner of Cap Sante Marine Lease Area.
CSM14	Upgradient boundary at SW corner of Cap Sante Marine Lease Area.

Table 2
Former Shell Oil Tank Farm Summary of Laboratory Analyses

Sample ID	Matrix	Depth (feet)	TPH-HCID	TPH-Gasoline/ BTEX	NWTPH-Dx	Archive
SHL01-S1	Soil	8.0 - 8.5		X	X	
SHL01-W1	Water	> 4.9		X	X	
SHL02-S1	Soil	4.0 - 5.0		X	X	
SHL02-S2	Soil	5.0 - 6.0		X	X	
SHL02-S3	Soil	8.0 - 9.5	X	X	X	
SHL02-W1	Water	> 4.5		X	X	
SHL03-S1	Soil	4.0 - 5.5	X			
SHL03-S2	Soil	5.5 - 6.2		X	X	
SHL03-W1	Water	> 5.5		X	X	
SHL04-S1	Soil	2.0 - 3.5	X			
SHL04-S2	Soil	9.5 - 10.5		X	X	
SHL04-W1	Water	> 8.0		X	X	
SHL05-S1	Soil	2.0 - 3.5		X	X	
SHL05-S2	Soil	4.4 - 6.2		X	X	
SHL05-S3	Soil	8.0 - 10.0		X	X	
SHL05-W1	Water	> 9.0		X	X	
SHL06-S1	Soil	4.0 - 6.0	X			
SHL06-W1	Water	> 5.0		X	X	
SHL07-S1	Soil	4.0 - 5.1	X			
SHL07-W1	Water	> 5.5		X	X	
CSM01-S1	Soil	4.0 - 5.0	X		X	
CSM01-S2	Soil	10.0 - 11.8	X			
CSM01-W1	Water	> 5.0		X	X	
CSM02-S1	Soil	8.0 - 8.7	X		X	
CSM02-W1	Water	> 8.0		X	X	
CSM03-S1	Soil	4.0 - 5.0	X		X	
CSM03-S2	Soil	8.0 - 9.0		X	X	

Table 2
Former Shell Oil Tank Farm Summary of Laboratory Analyses

Sample ID	Matrix	Depth (feet)	TPH-HCID	TPH-Gasoline/ BTEX	NWTPH-Dx	Archive
CSM03-W1	Water	> 8.0		X	X	
CSM04-S1	Soil	4.5 - 5.8	X			
CSM04-S2	Soil	10.3 - 12.0	X			
CSM04-W1	Water	> 4.5				X
CSM12-S1	Soil	5.0 - 6.0	X		X	
CSM12-S2	Soil	10.0 - 11.0		X	X	
CSM12-W1	Water	> 4.0		X	X	
CSM13-S1	Soil	5.0 - 5.5	X			
CSM13-S2	Soil	10.5 - 11.5		X	X	
CSM13-W1	Water	> 4.0		X	X	
CSM14-S1	Soil	4.3 - 6.0	X			
CSM14-W1	Water	> 4.5				X

Table 3
Former Shell Oil Tank Farm Analytical Results for Soil

Sample ID	Interval (feet bgs)		Total Petroleum Hydrocarbons (mg/kg)			Volatile Organic Compounds (mg/kg)			
	Upper	Lower	Gas[1]	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Xylenes
SHL01-S1	8.0	8.5	26 UJ	7.6 U	21	0.064 UJ	0.130 UJ	0.130 UJ	0.260 UJ
SHL02-S1	4.0	5.0	**1,600 J**	**22,000**	1,200 U	0.036 UJ	0.071 UJ	0.670 J	0.400 J
SHL02-S2	5.0	6.0	**1,100 J**	510	720	0.024 UJ	0.048 UJ	0.660 J	0.360 J
SHL02-S3	8.0	9.5	**2,200 J**	**5,100**	620 U	0.040 UJ	0.100 J	1.800 J	0.001 J
SHL03-S2	5.5	6.2	58 J	11	20	0.027 UJ	0.053 UJ	0.110 J	0.064 J
SHL04-S2	9.5	10.5	21 UJ	110	150	0.053 UJ	0.110 UJ	0.110 UJ	0.210 UJ
SHL05-S1	2.0	3.5	13 UJ	120	11 U	0.032 UJ	0.065 UJ	0.065 UJ	0.130 UJ
SHL05-S2	4.4	6.2	**2,100 J**	1,100	64 U	0.037 UJ	0.074 UJ	1.700 J	1.100 J
SHL05-S3	8.0	10.0	84 J	180	92	0.029 UJ	0.057 UJ	0.057 UJ	0.110 UJ
CSM01-S1[2]	4.0	5.0	NA	180	1,300	NA	NA	NA	NA
CSM02-S1[2]	8.0	8.7	NA	87	330	NA	NA	NA	NA
CSM03-S1[2]	4.0	5.0	NA	85	280	NA	NA	NA	NA

Table 3
Former Shell Oil Tank Farm Analytical Results for Soil

Sample ID	Interval (feet bgs)		Total Petroleum Hydrocarbons (mg/kg)			Volatile Organic Compounds (mg/kg)			
	Upper	Lower	Gas[1]	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Xylenes
CSM03-S2	8.0	9.0	15 UJ	32 U	140	0.037 UJ	0.074 UJ	0.074 UJ	0.150 UJ
CSM12-S1[2]	5.0	6.0	NA	110 U	440	NA	NA	NA	NA
CSM12-S2	10.0	11.0	34 UJ	800	1,900	0.084 U	0.17 UJ	0.17 UJ	0.34 UJ
CSM13-S2	10.5	11.5	110 J	**16,000**	1,100 U	0.095 U	0.19 UJ	0.19 UJ	0.38 UJ
MTCA Method A Cleanup Level (mg/kg)									
			100/30	2,000	2,000	0.03	7.0	6.0	9.0

Notes:

Concentrations in **bold** exceed MTCA Method A cleanup levels.

1 If benzene and the total of ethylbenzene, toluene, and xylenes are greater than 1% of the gasoline concentration, then the MTCA Method A cleanup level is 30 mg/kg.

2 TPH-G and volatile analyses were not performed.

J Sample exceeded allowable holding time at analytical laboratory.

NA Not analyzed

U Not detected

Table 4
Former Shell Oil Tank Farm Analytical Results for Groundwater

	Total Petroleum Hydrocarbons (µg/L)			Volatile Organic Compounds (µg/L)			
Sample ID	**Gas**	**Diesel**	**Heavy Oil**	**Benzene**	**Toluene**	**Ethylbenzene**	**Xylenes**
SHL01-W1	250 U	250 U	500 U	1.4	1.0 U	1.0 U	1.0 U
SHL02-W1	670	**5,600**	1,000 U	1.0 U	1.0 U	1.0 U	1.0 U
SHL03-W1	500	250 U	500 U	1.0 U	1.0 U	1.0 U	1.6
SHL04-W1	520	**7,200**	1,000 U	1.0 U	1.0 U	1.0 U	1.0
SHL05-W1	250 U	250 U	500 U	1.0 U	1.0 U	1.0 U	1.0 U
SHL06-W1	250 U	250 U	500 U	1.0 U	1.0 U	1.0 U	1.0 U
SHL07-W1	250 U	250 U	500 U	1.0 U	1.0 U	1.0 U	1.0 U
CSM01-W1	250 U	260	500 U	1.0 U	1.0 U	1.0 U	1.0 U
CSM02-W1	250 U	330	500 U	1.0 U	1.0 U	1.0 U	1.0 U
CSM03-W1	250 U	370	500 U	1.0 U	1.0 U	1.0 U	1.0 U
CSM12-W1	250 U	**1900**	**5000**	1.0 U	1.0 U	1.0 U	1.0 U
CSM13-W1	250 U	250 U	500 U	1.0 U	1.0 U	1.0 U	1.0 U
MTCA Method A Cleanup Level (µg/L)							
	1,000/800	500	500	5.0	1,000	700	1,000

Notes:

Concentrations in **bold** exceed MTCA Method A cleanup levels.

1 If benzene and the total of ethylbenzene, toluene, and xylenes are greater than 1% of the gasoline concentration, then the MTCA Method A cleanup level is 800 µg/L.

2 TPH-G and volatile organic compound analyses were not performed.

U Not detected

Table 5
Cap Sante Marine Lease Area Summary of Laboratory Analyses

Sample ID	Matrix	Depth in Feet	TPH-HCID	TPH-Gasoline/ BTEX	TPH-Dx	Archive
CSM04-S1	Soil	4.5 - 5.8	X			
CSM04-S2	Soil	10.3 - 12.0	X			
CSM04-W1	Water	> 4.5				X
CSM05-S1	Soil	5.0 - 6.5	X			
CSM05-S2	Soil	8.0 - 10.0	X			
CSM05-W1	Water	> 5.0				X
CSM06-S1	Soil	1.6 - 3.0	X			
CSM06-W1	Water	> 5.5				X
CSM07-S1	Soil	8.0 - 9.5		X	X	
CSM07-W1	Water	> 4.0		X	X	
CSM08-S1	Soil	4.0 - 5.7		X	X	
CSM08-W1	Water	> 4.0		X	X	
CSM09-S1	Soil	8.0 - 10.0		X	X	
CSM09-S2	Soil	10.0 - 12.0		X	X	
CSM09-W1	Water	> 5.5		X	X	
CSM10-S1	Soil	12.0 - 13.0		X	X	
CSM10-W1	Water	NA		X	X	
CSM11-S1	Soil	4.0 - 5.3		X	X	
CSM11-S2	Soil	8.0 - 10.3		X	X	
CSM11-W1	Water	> 5.5		X	X	
CSM14-S1	Soil	4.3 - 6.0	X			
CSM14-W1	Water	> 4.5				X

Table 6
Cap Sante Marine Lease Area Analytical Results for Soil

Sample ID	Interval (feet bgs)		Total Petroleum Hydrocarbons (mg/kg)			Volatile Organic Compounds (mg/kg)			
	Upper	Lower	Gas[1]	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Xylenes
CSM07-S1	8.0	9.5	**320 J**	1,800	120 U	**0.032 J**	0.064 UJ	0.064 UJ	0.11 J
CSM08-S1	4.0	5.7	**1,500 J**	**4,100**	240 U	**2.5 J**	0.86 J	1.5 J	1.73 J
CSM09-S1	8.0	10.0	**490 J**	1,900	130 U	**0.62 J**	0.22 J	0.82 J	0.53 J
CSM09-S2	10.0	12.0	36 J	280	120	0.086 U	0.17 UJ	0.17 UJ	0.34 UJ
CSM10-S1	12.0	13.0	**1,100 J**	**2,600**	140 U	**0.54 J**	0.25 J	6.7 J	0.97 J
CSM11-S1	4.0	5.3	**400 J**	**3,800**	270 U	**0.25 J**	0.092 UJ	0.56 J	0.12 J
CSM11-S2	8.0	10.3	38 J	6.8 U	14 U	0.04 U	0.08 UJ	0.08 UJ	0.16 UJ
MTCA Method A Cleanup Level (mg/kg)									
			100/30	2,000	2,000	0.03	7.0	6.0	9.0

Notes:

Concentrations in **bold** exceed MTCA Method A cleanup levels.

1 If benzene and the total of ethylbenzene, toluene, and xylenes are greater than 1% of the gasoline concentration, then the MTCA Method A cleanup level is 30 mg/kg.

J Sample exceeded allowable holding time at analytical laboratory.

NA Not analyzed

U Not detected

Table 7
Cap Sante Marine Lease Area Analytical Results for Groundwater

Sample ID	Total Petroleum Hydrocarbons (µg/L)			Volatile Organic Compounds (µg/L)			
	Gas	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Xylenes
CSM07-W1	**1,000**	**2100**	500 U	**80**	3.5	1.0	4.1
CSM08-W1	**3,500**	**6500**	2500 U	**530**	22	34	36.0
CSM09-W1	**6,700**	**14000**	2500 U	**21**	22	190	72.8
CSM10-W1	**4,000**	**28000**	10000 U	**930**	20	260	76.0
CSM11-W1	**2,900**	**12000**	2500 U	**270**	3.9	71	4.0
MTCA Method A Cleanup Level (µg/L)							
	1,000/800	500	500	5.0	1,000	700	1,000

Notes:

Concentrations in **bold** exceed MTCA Method A cleanup levels.

1 If benzene and the total of ethylbenzene, toluene, and xylenes are greater than 1% of the gasoline concentration, then the MTCA Method A cleanup level is 800 µg/L.

U Not detected

Port of Anacortes

Limited Environmental Due Diligence Investigation Report

Former Shell Oil Tank Farm
Cap Sante Marine Lease Area

Figures

Note : All historical feature locations are approximate.

⊕ MW-1	Previous Monitoring Well Location and Number (Hart Crowser 1987)
◐ SHL01	Sampling Location and Number
◐	Sampling Location Exceeds MTCA A Criteria for Soil
◑	Sampling Location Exceeds MTCA A Criteria for Groundwater

N

0 100 200

Approximate Scale in Feet

DWG NAME: F:\projects\PortOfAnacortes\POA-CSMSHELL\Figures\Figure1.dwg
DATE: 9/29/2005

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Figure 1
Former Shell Oil Tank Farm
Exploration Locations &
Existing Site Features

Note : All historical feature and UST locations are approximate.

● GP-1	Previous Sampling Location and Number (FSM 2004)
⦶ SHL01	Sampling Location and Number
◍	Sampling Location Exceeds MTCA A Criteria for Soil
◑	Sampling Location Exceeds MTCA A Criteria for Groundwater

N

0 100 200

Approximate Scale in Feet

DWG NAME: F:\projects\PortOfAnacortes\POA-CSM Shell\Figures\Figure2.dwg
DATE: 9/29/2005

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Figure 2
Cap Sante Marine
Exploration Locations &
Existing Site Features

Log of Soil Boring CSM01

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Boring CSM01 Date August 24, 2005 Sheet 1 of 1

Job Former Shell Tank Farm Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 75 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

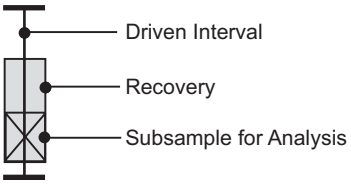
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 5.0'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
						4-inches asphalt over 3-inches crushed base course gravel.	
					ML	Dark brown, dry, sandy SILT with rounded gravels.	
CSM01-S1		4.0	5.0			Soil transitions from dry to moist.	
					CL	Gray, moist to wet, silty CLAY.	
					SP	Gray, wet, silty SAND with trace gravel.	
					CL	Gray, moist to wet, silty CLAY.	
CSM01-S2		10.0	11.8			Fine fibers of wood and layers of decayed organic matter to depth of 11 feet.	
						Bottom of Boring at 12'	
						Note: Water sample CSM01-W1 collected from temporary well point.	



Log of Soil Boring CSM02

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Floyd | Snider

Boring CSM02 Date August 24, 2005 Sheet 1 of 1

Job Former Shell Tank Farm Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 75 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

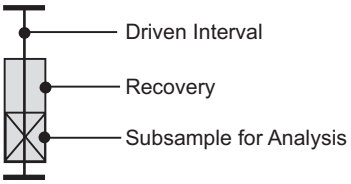
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 8.0'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
						2-inches asphalt over 5-inches crushed base course gravel.	
					SW	Dark gray to brown, dry to moist, very gravelly SAND.	
					SW	Dark gray, moist, slightly silty, slightly gravelly SAND.	
					ML	Gray to brown, moist, sandy SILT with wood fibers.	
					CL	Dark gray, moist to wet, silty CLAY with abundant wood fibers.	
CSM02-S1		8.0	8.7			Sand lenses and abundant wood debris.	
						No sand lenses and reduction in organic material below depth 10 feet.	
						Bottom of Boring at 12'	
						Note: Water sample CSM02-W1 collected from temporary well point.	



Log of Soil Boring CSM03

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Boring CSM03 Date August 24, 2005 Sheet 1 of 1

Job Former Shell Tank Farm Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 75 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

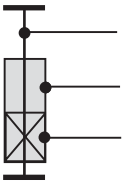
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 8.0'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
						6-inches asphalt over 6-inches crushed base course gravel.	
					SW	Dark brown to light gray, dry, slightly silty, very gravelly SAND.	
					ML	Light gray, dry to moist, slightly gravelly, sandy SILT with wood fibers and faint organic odor.	
CSM03-S1		4.0	5.0			Faint hydrocarbon odor.	
					CL	Gray, moist, silty CLAY.	
					SP	Dark brown to gray, moist to wet, slightly silty, slightly clayey SAND.	
CSM03-S2		8.0	9.0		CL	Dark brown to gray, wet, slightly sandy, silty CLAY with wood fibers and fuel odor.	
						No wood fibers below depth 9 feet.	
						Bottom of Boring at 12'	
						Note: Water sample CSM03-W1 collected from temporary well point.	



Log of Soil Boring CSM04

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Boring CSM04 Date August 25, 2005 Sheet 1 of 1

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 80 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

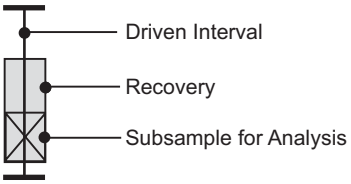
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 4.5'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
						Asphalt.	
					SW	Brown, dry, silty, very gravelly SAND with scattered wood debris.	
					CL	Dark gray, moist, sandy silty CLAY with large wood chunk at depth 1.5 feet.	
CSM04-S1		4.5	5.8		ML	Dark gray, wet, sandy clayey SILT with abundant shell fragments.	No Sheen
					SW	Dark gray, wet, slightly silty, slightly gravelly SAND with abundant shell fragments and decayed organic odor. Chalky-white inclusion at bottom of sand unit.	
CSM04-S2		10.3	12.0		ML	Gray to brown, moist to wet, sandy, clayey SILT with decayed organic odor.	
						Bottom of Boring at 12' Note: Water sample CSM04-W1 collected from temporary well point.	



Log of Soil Boring CSM05

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Boring CSM05 Date August 25, 2005 Sheet 1 of 1

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 65 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

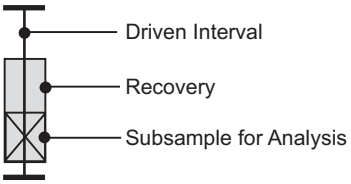
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 5.0'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					ML	1-inch crushed gravel over brown to gray, dry, sandy SILT with wood debris and faint fuel odor.	
					CL	Brown to gray, dry to moist, silty CLAY with wood debris.	
					SW	Brown to gray, moist to wet, slightly silty, gravelly SAND with abundant shell fragments.	
						No shell fragments depth 5 feet and 7.5 feet.	
CSM05-S1		5.0	6.5			Abundant wood debris in soil.	
						Abundant shell fragments.	
CSM05-S2		8.0	10.0		ML	Brown to gray, wet, slightly sandy, slightly clayey SILT with scattered organic material.	
						Bottom of Boring at 12'	
						Note: Water sample CSM05-W1 collected from temporary well point.	



Log of Soil Boring CSM06

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Boring CSM06 Date August 25, 2005 Sheet 1 of 1

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 70 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

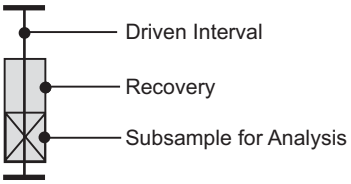
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 5.5'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
CSM06-S1		1.6	3.0		SW	Brown to black, dry, gravelly SAND with black stain and odor.	
					GP	White to light gray, dry, sandy, angular GRAVEL.	
					CL	Dark brown, dry to moist CLAY with wood fibers.	
					SW	Light to dark brown-gray, moist, silty SAND with shell fragments. Decayed wood observed in soil.	
					SW	Dark gray, wet, slightly clayey, silty, gravelly SAND with decayed organic material.	
					CL	Dark gray to brown, moist, slightly sandy, silty CLAY with decayed wood debris and pockets of organic material.	
					CL	Dark olive-green to gray, moist CLAY	
						Bottom of Boring at 12' Note: Water sample CSM06-W1 collected from temporary well point.	



Log of Soil Boring CSM07

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Boring CSM07 Date August 25, 2005 Sheet 1 of 1

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 80 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

Sampling Method Direct Push, 4-Ft Cores

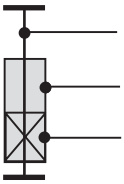
Bottom of Boring 12' ATD Water Level Depth 4.0'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
						12-inches concrete slab over crushed base course gravel over clean SAND (Tank Fill).	
					SW	Gray, wet, gravelly SAND with trace silty clay layers and faint fuel odor (Tank Fill).	
CSM07-S1		8.0	9.5			Strong fuel odor in sample.	Sheen on Sample
						Bottom of Boring at 12'	

Notes:
1) Water sample CSM07-W1 collected from temporary well point.
2) Upper four feet of soil removed by Vac-Truck due to close proximity of boring to underground fuel tanks.



Driven Interval

Recovery

Subsample for Analysis

Log of Soil Boring CSM08

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Boring CSM08 Date August 25, 2005 Sheet 1 of 1

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 80 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

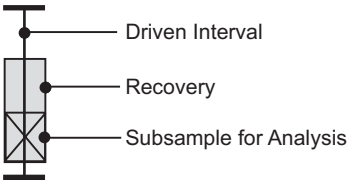
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 6' (See Note 2) ATD Water Level Depth 4.0'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
						2-inches asphalt over 4-inches crushed base course.	
					SW	Light gray, dry to moist, gravelly SAND (Tank Fill) with light fuel odor. Clay lense in recovered sample.	
CSM08-S1		4.0	5.7		ML	Gray, wet, sandy SILT with shell fragments and strong fuel odor.	
						Bottom of Boring at 6' Notes: 1) Water sample CSM08-W1 collected from temporary well point. 2) Boring stopped at depth 6 feet due to presence of buried concrete slab.	



Log of Soil Boring CSM09

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Boring CSM09 Date August 25, 2005 Sheet 1 of 1

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 80 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

Sampling Method Direct Push, 4-Ft Cores

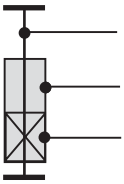
Bottom of Boring 12' ATD Water Level Depth 5.5'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
						12-inches concrete slab over crushed base course gravel.	
					SP	Gray, moist, clayey, very silty SAND with shell fragments, decayed organic matter, and fuel odor.	
						3-inch, gray, silty clay layer with organic material	
					SP	Gray to black, slightly silty SAND with abundant shell fragments. Strong fuel odor in sample.	
CSM09-S1		8.0	10.0				
					ML	Dark gray, moist, clayey SILT with trace organic matter and light fuel odor.	
CSM09-S2		10.0	12.0				
						Bottom of Boring at 12'	

Notes:
1) Water sample CSM09-W1 collected from temporary well point.
2) Upper four feet of soil removed by Vac-Truck due to close proximity of boring to underground fuel tanks.



Log of Soil Boring CSM10

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Boring CSM10 Date August 25, 2005 Sheet 1 of 2

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 80 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

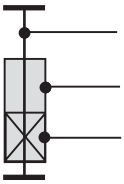
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 16' ATD Water Level Depth See Note 3

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
				No Sample Recovery		12-inches concrete slab over crushed base course gravel.	
CSM10-S1		12.0	13.0	No Sample Recovery	CL	Dark brown to olive gray, moist, slightly silty CLAY with abundant shells and strong fuel odor.	Sheen on Sample



Notes:
1) Water sample CSM010-W1 collected from temporary well point.
2) Upper four feet of soil removed by Vac-Truck due to close proximity of boring to underground fuel tanks.
3) Water table depth not available due to no recovery in top 12 feet of boring.

Log of Soil Boring CSM10

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Boring CSM10 Date August 25, 2005 Sheet 2 of 2

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 80 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

Sampling Method Direct Push, 4-Ft Cores

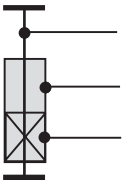
Bottom of Boring 16' ATD Water Level Depth See Note 3

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)		USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					15	CL	Dark brown to olive gray, moist, slightly silty CLAY with abundant shells and strong fuel odor.	
					16		Bottom of Boring at 16'	
					17			
					18			
					19			
					20			
					21			
					22			
					23			
					24			
					25			
					26			
					27			
					28			
					29			

Notes:
1) Water sample CSM010-W1 collected from temporary well point.
2) Upper four feet of soil removed by Vac-Truck due to close proximity of boring to underground fuel tanks.
3) Water table depth not available due to no recovery in top 12 feet of boring.



Driven Interval

Recovery

Subsample for Analysis

Log of Soil Boring CSM11

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Boring CSM11 Date August 25, 2005 Sheet 1 of 1

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 80 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

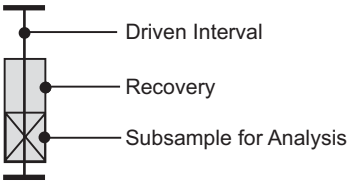
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 5.5'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
						Concrete slab.	
						Crushed base course gravel.	
					SW	Light to dark gray, moist, slightly silty SAND with scattered gravel and abundant shell fragments.	
					SP	Light gray to brown, moist, silty SAND with silt inclusions, organic matter, and scattered shell fragments.	
CSM11-S1		4.0	5.3				No Sheen
					ML	Dark gray, moist to wet, slightly sandy, clayey SILT with shell fragments and decayed organic matter. Strong fuel odor.	
CSM11-S2		8.0	10.3		ML-SW	Dark gray, moist to wet, slightly sandy, clayey SILT with layers of wet, gray, silty SAND and decayed wood debris. Very strong fuel odor. Sheen observed on water within soil sample interval.	
					ML	Dark gray, moist to wet, slightly sandy, clayey SILT with shell fragments and decayed organic matter.	
						Bottom of Boring at 12' Notes: 1) Water sample CSM11-W1 collected from temporary well point.	



Log of Soil Boring CSM12

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Boring CSM12 Date August 26, 2005 Sheet 1 of 1

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 65 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

Sampling Method Direct Push, 4-Ft Cores

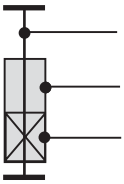
Bottom of Boring 12' ATD Water Level Depth 4.0'

Ground Surface Elevation Approx. 12' MLLW

Obs. Well Install. Yes [X] No

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
						Asphalt with abundant gravel.	
					SW	Light brown to gray, moist to wet, slightly silty, gravelly SAND.	
CSM12-S1		5.0	6.0		ML	Light gray to brown, wet, sandy SILT.	
						Wood fibers present in recovered soil.	
CSM12-S2		10.0	11.0			3-inch layer of black sand with wood debris and oil odor.	Sheen on Sample
						Bottom of Boring at 12'	

Notes:
1) Water sample CSM12-W1 collected from temporary well point.



Log of Soil Boring CSM13

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Boring CSM13 Date August 26, 2005 Sheet 1 of 1

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 65 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

Sampling Method Direct Push, 4-Ft Cores

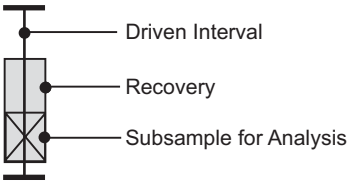
Bottom of Boring 12' ATD Water Level Depth 4.0'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					SW	Light brown to gray, dry, silty, very gravelly SAND.	
					SW	Dark gray, moist to wet, slightly silty to silty SAND with abundant shell fragments.	
					SW	Brown, wet, slightly silty, slightly gravelly SAND with scattered wood fibers and lenses of fine gray sand.	
CSM13-S1		5.0	5.5				
						Faint petroleum odor and large wood debris.	
CSM13-S2		10.5	11.5		CL	Dark gray to olive, moist, silty CLAY with scattered organic debris and scattered shell fragments.	
						Bottom of Boring at 12'	

Notes:
1) Water sample CSM13-W1 collected from temporary well point.



Log of Soil Boring CSM14

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Boring CSM14 Date August 26, 2005 Sheet 1 of 1

Job Cap Sante Marine Phase 2 Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 70 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

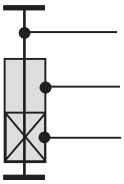
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 4.5'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					SW	Light brown to gray, dry, silty, very gravelly SAND. 2-inch sandy silt layer.	
					SP	Dark gray, dry to moist SAND with black clay inclusions, silt lenses, and abundant shell fragments.	
CSM14-S1		4.3	6.0		ML	Dark gray, moist, sandy SILT with organic inclusions and interbedded layers of sand with shell fragments.	
					CL	Dark gray, moist, silty CLAY.	
						Bottom of Boring at 12' Notes: 1) Water sample CSM14-W1 collected from temporary well point.	



Driven Interval

Recovery

Subsample for Analysis

Log of Soil Boring SHL01

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Boring SHL01 Date August 24, 2005 Sheet 1 of 1

Job Former Shell Tank Farm Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 65 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

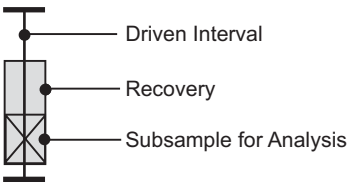
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 4.9'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					SW	Light brown, dry, silty, gravelly SAND with angular debris. FILL.	
					GW-GM	Gray, moist to wet, SAND with varrying amounts of gravel, abundant shells, and scattered wood debris.	
SHL01-S1		8.0	8.5			Slight gas/diesel odor at top of sample.	No Sheen
						Contact with olive-green, sandy SILT at bottom of recovered soil.	
						Bottom of Boring at 12'	
						Note: Water sample SHL01-W1 collected from temporary well point.	



Log of Soil Boring SHL02

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Boring SHL02 Date August 24, 2005 Sheet 1 of 1

Job Former Shell Tank Farm Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 70 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

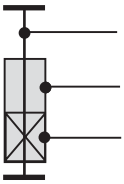
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 4.5'

Ground Surface Elevation Approx. 12' MLLW

Obs. Well Install. Yes [X] No

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					SW	Light brown to gray, dry, gravelly SAND with scattered brick and shell fragments. Light fuel odor.	
					SP	Light brown, dry, silty SAND.	
					SM	Light to dark brown-gray, moist, silty SAND.	
SHL02-S1		4.0	5.0			Diesel odor in sample.	
SHL02-S2		5.0	6.0		SM	Dark gray to black, wet, slightly gravelly SAND with shell fragments. Strong diesel odor.	
SHL02-S3		8.0	9.5		SM-ML	Dark gray, wet, silty, clayey SAND grading to gray, silty CLAY. Slight odor in sample.	
					SW	Light gray, wet, gravelly SAND with shell fragments. Slight odor in soil.	
						Bottom of Boring at 12' Note: Water sample SHL02-W1 collected from temporary well point.	



Log of Soil Boring SHL03

FLOYD | SNIDER

Floyd | Snider

Boring SHL03 Date August 24, 2005 Sheet 1 of 1

Job Former Shell Tank Farm Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 70 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

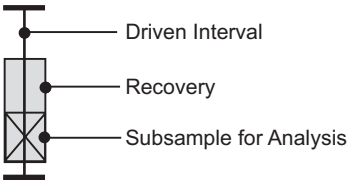
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 5.5'

Ground Surface Elevation Approx. 12' MLLW

Obs. Well Install. Yes [X] No

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					SW	Light brown to gray, gravelly SAND with shell fragments.	
					CL	Light brown, dry, slightly sandy, silty CLAY with trace gravel.	
					SW	Light brown, dry, slightly silty, slightly gravelly SAND with shell fragments.	
					ML	Brown, dry, clayey SILT with some sand, large gravels, shell fragments, and brown reduced veins of organic matter.	
SHL03-S1		4.0	5.5				
SHL03-S2		5.5	6.2		SW	Dark gray, wet, slightly gravelly SAND with abundant shell fragments.	
					ML	Dark gray, wet, clayey SILT with trace sand. Fuel odor on soil.	
					SP	Dark gray, wet, slightly gravelly to gravelly SAND with abundant shell fragments.	
					ML	Dark gray, wet slightly clayey, sandy SILT.	
						Bottom of Boring at 12' Note: Water sample SHL03-W1 collected from temporary well point.	



Log of Soil Boring SHL04

FLOYD | SNIDER

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Boring SHL04 Date August 24, 2005 Sheet 1 of 1

Job Former Shell Tank Farm Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 75 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

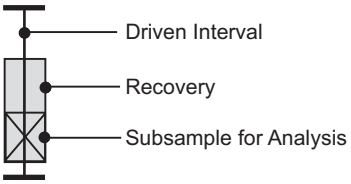
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 8.0'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					SW	Light gray to brown, dry, silty, gravelly SAND.	
					GW-GM	Light gray, dry, silty, sandy GRAVEL.	
SHL04-S1		2.0	3.5		CL	Light to dark brown, moist, slightly sandy, silty CLAY with scattered gravel.	No Sheen
					SP	Brown to gray, moist, clayey, gravelly SAND with shell fragments. Slight fuel odor.	
					ML	Brown to gray, moist to wet, clayey SILT with some sand, shell fragments, and decaying wood. Fuel/petroleum odor on soil.	No Sheen
SHL04-S2		9.5	10.5		SP	Gray, wet SAND. Fuel/petroleum odor on sample.	
						Bottom of Boring at 12' Note: Water sample SHL04-W1 collected from temporary well point.	



Log of Soil Boring SHL05

FLOYD | SNIDER

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Boring SHL05 Date August 24, 2005 Sheet 1 of 1

Job Former Shell Tank Farm Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 75 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

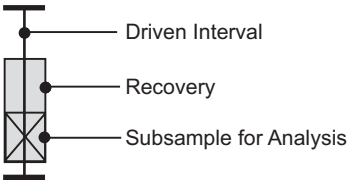
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 9.0'

Ground Surface Elevation Approx. 12' MLLW

Obs. Well Install. Yes [X] No

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					SW	Light brown, dry, silty, gravelly SAND with trace shell fragments.	
						Abundant shell fragments.	
SHL05-S1		2.0	3.5		ML	Light gray, dry, sandy SILT with black banding. Fuel odor on black bands.	
					GW	Dark gray, dry, sandy GRAVEL with shell fragments. Fuel odor on sample.	
SHL05-S2		4.4	6.2		CL	Gray to olive-green, moist, sandy, silty CLAY with shell fragments. Slight fuel odor on sample.	No Sheen
						Large wood fragment at depth 5.4 feet.	
						Heavy fuel odor at depth 5.9 feet.	
					SW	Gray, moist to wet, slightly silty, gravelly SAND with clay inclusions and scattered shell fragments.	
SHL05-S3		8.0	10.0			Slight to strong fuel odor throughout sample.	No Sheen
						Bottom of Boring at 12'	
						Note: Water sample SHL05-W1 collected from temporary well point.	



Log of Soil Boring SHL06

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Boring SHL06 Date August 26, 2005 Sheet 1 of 1

Job Former Shell Tank Farm Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 70 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

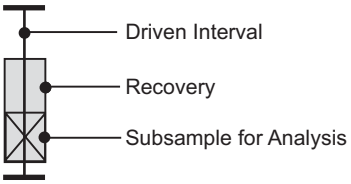
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 5.0'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					SP	3-inches gravel over dark brown, dry, silty, gravelly SAND.	
					ML	Dark brown to gray, dry, slightly clayey, slightly sandy SILT with trace gravel.	
						6-inch layer of light brown, dry, poorly graded sand.	
					ML	Gray, moist to wet, sandy SILT with increasing clay content at bottom of unit.	
SHL06-S1		4.0	6.0				
					SP	Dark gray, wet, slightly silty SAND with abundant shell fragments.	
					SP	Light to dark gray, wet SAND with abundant shell fragments.	
						Bottom of Boring at 12'	
						Note: Water sample SHL06-W1 collected from temporary well point.	



Log of Soil Boring SHL07

FLOYD | SNIDER

Floyd | Snider

Boring SHL07 Date August 26, 2005 Sheet 1 of 1

Job Former Shell Tank Farm Due Diligence Job No. POA CSMSHELL

Logged By Woltman/Satterberg Weather Sunny, 70 degrees F

Drilled By Cascade Drilling

Drill Type/Method Geoprobe

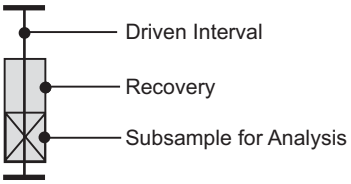
Sampling Method Direct Push, 4-Ft Cores

Bottom of Boring 12' ATD Water Level Depth 5.5'

Obs. Well Install. Yes [X] No

Ground Surface Elevation Approx. 12' MLLW

SAMPLE ID	PID (ppm)	DEPTH From	DEPTH To	SAMPLE RECOVERY (FT)	USCS Symbol	DESCRIPTION: color, texture, moisture MAJOR CONSTITUENT. NON-SOIL SUBSTANCES: Odor, staining, sheen, scrap, slag, etc.	Sheen Test
					SW	3-inches sandy GRAVEL over 3-inches dry, brown, silty SAND with gravel over 6-inches dry, light brown, gravelly SAND.	
					SP	Dark gray, moist, slightly gravelly SAND with silty clay inclusions.	
SHL07-S1		4.0	5.1		ML	Dark gray, moist to wet, slightly clayey, sandy SILT.	
					SP	Dark gray, wet, slightly gravelly, SAND with abundant shell fragments and silt inclusions.	
						Bottom of Boring at 12' Note: Water sample SHL07-W1 collected from temporary well point.	



Port of Anacortes

Limited Environmental Due Diligence Investigation Report

Former Shell Oil Tank Farm
Cap Sante Marine Lease Area

Appendix B
Laboratory Analytical Report for Soil

AVAILABLE UPON REQUEST

Port of Anacortes

Limited Environmental Due Diligence Investigation Report

Former Shell Oil Tank Farm
Cap Sante Marine Lease Area

Appendix C
Laboratory Analytical Report for Groundwater

AVAILABLE UPON REQUEST

Port of Anacortes

Limited Environmental Due Diligence Investigation Report

Former Shell Oil Tank Farm
Cap Sante Marine Lease Area

Appendix D
ARI Case Study
VOC Hold Time Analysis

AVAILABLE UPON REQUEST