Former Petro Marine Tank Farm Haines, Alaska
Site Characterization Report

Ledger Code: 14147760
ADEC Contaminated Site File: 1508.38.020

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March 2012

Table of Contents

Background 3
Location 3
Project Team 4
Methodology 4
Field Observations 5
Soil Screening Results 5
Laboratory Sampling Results 6
Conceptual Site Model 13
Conclusions 14
Recommendations 14
Signatiure of Qualified Environmental Professional 14
Photolog 15

Figure 1: Site location 4
Figure 2: Soil Screening Results 6
Figure 3: Site Drawing showing Test Pit Locations 7
Figure 4: Soil Results for GRO 7
Figure 5: Soil Results for DRO and RRO 8
Figure 6: Part 1: Soil Results for VOC 9
Figure 6: Part 2: Soil Results for VOC 10
Figure 7: Soil for Results SVOC 11
Figure 8: Soil Results for SVOC SIM 11
Figure 9: Water Results for DRO, RRO and GRO 12
Figure 10: Water Results for VOC 12
Figure 11: Water for Results SVOC 13
Figure 12: Water Results for SVOC 13

Attachment A: ADEC Letter to Delta Western May 20, 2011
Attachment B: ADEC Letter to Petro Marine May 19, 1998
Attachment C: Phase 1 Environmental Audit April 27, 2001
Attachment D: Free Product Characterization Laboratory Report: FBI 107159
Attachment E: Site Characterization Workplan and Approval
Attachment F: Project Permits
Attachment G: Soil and Water Sampling Laboratory Report: FBI 109245
Attachment H: Conceptual Site Model

Background

This report was prepared to satisfy request by Alaska Department of Environmental Conservation (ADEC) May 20, 2011 (Attachment A) for a workplan to assess those locations of Haines II where petroleum contamination cleanup was performed in 1998 because confirmation sampling of clean soil at the limits of the removal required by 18 AAC 75. 341 and final reporting requirements under 18 AAC 75 380 were not performed by the former owner Petro Marine Services.

The 2011 request was pursuant to a ADEC request addressed to Petro Marine Services in 1998 (Attachment B) defining requirements for soil and groundwater site assessment for the truck rack and the area between the truck rack and the Beach Road ditch. The letter was received by Petro Marine before they made the facility upgrades that included paving of the truck rack and installation of the oil/water separator (OWS) and its shot rock drain field. This 1998 ADEC letter was included in the Phase 1 Environmental Audit performed by Smith, Bayliss, LeResche Inc. for the property transfer to Delta Western Inc. (Attachment C). The audit concluded;

> *"Based on the site inspection and review of photographs, site records and interviews with regulatory agencies and the owner, we find that no evidence exists of any environmental problems at this site."*

The 2011 letter from ADEC requires that the terms of the 1998 letter had not been satisfied and requests a workplan to characterize the site. Before developing the workplan Chilkat Environmental visited the site and observed 4 inches of fuel on water in the OWS. One sample was analyzed to describe the age and type of fuel. Friedman and Bruya laboratory report FBI 107159 (Attachment D) was received Aug 10 and described the product was well preserved in the airtight OWS containment and therefore was largely undegraded. This finding is consistent with the assumption that the fuel had been in the system for many years. The fuel was removed before preparation of this report. Chilkat Environmental was requested to develop the workplan that was submitted Aug 9, 2011 and approved by ADEC Aug 23, 2011 (Attachment E).

This report presents findings from the characterization conducted September 15, 2011. The purpose of the characterization was to; recommend a source of the historic release, confirm that excavation of contaminated soil was completed to acceptable levels and confirm there is no off-site migration of petroleum contamination.

Location

The Former Petro Marine Tank Farm (Haines II) is centrally located with frontage along the Haines Highway across the street from the community post office and store. Refer to Figure 1. The property is fenced to prevent access and is perched on a 20-foot bench positioned over Front Street parallel to the coastline and providing a sidewalk between the cruise ship dock and the Haines Harbor. The northern portion of the site is adjacent to Tlingit Park and a historic cemetery.

Project Team

The Principal Investigator, Elijah Donat, is a Qualified Environmental Professional as defined in 18 AAC 75.990. He has a BS in Environmental Science, a BA in Federal Indian Law an MS in Environmental Engineering with certification by the Project Management Institute as a Project Management Professional (PMP). He has been a Principal Investigator in Alaska for 14 years with extensive experience conducting Phase I Assessments, Phase II Characterization and Phase III Remediation. Elijah managed site activity as required by 18 AAC 75.360 and authored this report. Environmental Technician, Eric Forster, provided fieldwork assistance and Jack Smith Jr. of Jack Smith Trucking advanced test pits. ADEC Project Manager Bruce Wanstall provided regulatory and technical guidance. Bev Niemann managed the project for Delta Western Inc.

***Figure 1**: Haines II (Former Petro Marine) site location*

Methodology

The three objectives of the approved workplan were to (1) Excavate portions of the roadside ditch along Beach Road where product was historically collected from the ditch to assess soil and water; (2) Excavate test pits between the truck rack and the hill slope to access soil and water for sampling, and; (3) purge and sample water in the outfall of the OWS if it was found to be connected to groundwater. It was determined that the volume of flow at the outfall of the OWS was directly related to rainfall and not groundwater. This sampling was therefore not conducted. Rather, three test pits were advanced with two soil samples and one water sample collected from each.

Excavation of Test Pit #3 along Front Street required three permits. These include Right of Way Permit and Planning and Zoning / Land Use Application from the Haines Borough and the Alaska Department of Transportation Special Use Permit 11-032. These three permits are included as (Attachment F). Test pits were advanced to clay or groundwater. Proper signage was placed on Front Street as per permit requirements.

Field Observations

The Haines II property is well restricted with fences and proper signage to discourage visitors. Test Pit #1 was advanced alongside the truck rack where minor contamination was present at the surface with about 2 feet of clean fill placed atop contaminated soil and clay observed at about 4 feet with groundwater. Test Pit #2 also encountered about 2 feet of clean fill over contaminated soil. Soil samples were collected from the most contaminated soil horizon and excavation water was collected for analyses. Test Pit #3 is located on Front Street and features contaminated soil and water at the surface.

The sewer access on Front Street was opened and flow observed into the sewer from the subject property. Our team was concerned that the outfall could be associated with the OWS. A sewer clean out was identified at the bathroom facility associated with the historic gas station building. We poured a 5-gallon bucket in the clean out and observed it arrive at the sewer. Further, during excavation of Test Pit #2 we observed that the final outfall of the OWS is a perforated pipe for subsurface discharge atop the shot rock area and therefore is not connected to the sewer.

Soil Screening Results

Soil screening was conducted using heated PID headspace, heated odor and sheen. Chilkat Environmental uses the heated headspace technique for PID analyses. This includes use of canning jars with lids to contain soil and warm it to 70°F as measured by temperature blank using hot water. Once at proper temperature the lid is pierced for PID meter to measure headspace. Significant petroleum contamination was observed beneath clean fill associated with the truck rack and at the surface in the ditch at Front Street.

Sample Pit	PID (ppm)	Depth (inches)	Odor	Sheen
1 (Soil Sample A)	1340	6	strong	light
1	10	12	no	no
1	676	28	moderate	heavy
1	790	35	strong	heavy
1 (Soil Sample B)	730	43	strong	heavy
2	1147	48	strong	heavy
2 (Soil Sample C)	2703	54	strong	heavy
2 (OWS outfall)	1411	60	strong	heavy
2	2640	72	strong	heavy
2 (Soil Sample D)	1960	84	strong	heavy
3 (Soil Sample E)	1140	12	strong	heavy
3 (Soil Sample F)	991	6	strong	heavy

***Figure 2**: Soil screening results*

Laboratory Sampling Results

Sampling was conducted September 15, 2011 to characterize the level of contamination in the soil and water in the test pits. Refer to Figure 3 for locations. Two soil samples and a water sample was collected from each pit. Soil was collected from the headwall of the test pits and water was extracted from excavation water using peristaltic pump.

The soil and water samples were prepared for analyses of; (VOC) Volatile Organic Compounds; (SVOC) Semi-Volatile Organics; (GRO) Gasoline Range Organics; (DRO) Diesel Range Organics; and (RRO) Residual Range Organics. Soil samples for GRO and VOC were preserved in Methanol and water samples for the same were preserved with hydrochloric acid. One duplicate water sample was collected to satisfy data quality requirements while no duplicate was performed for soil analyses.

Samples were shipped September 16, 2011 and received by Friedman and Bruya September 19, 2011 at 4° C. The laboratory report was received September 30, 2011 and is included as **(Attachment G).** This report includes the, laboratory narrative, chain of custody and data quality review checklist.

Soil sampling results indicate the primary contaminants of concern are DRO and VOC while RRO and SVOC are not of concern and GRO is only present in the most contaminated sample just above clean-up level and therefore not of concern. Figure 4 presents soil results for GRO. Figure 5 presents soil results for DRO and RRO. Figure 6 presents soil results for VOC including Benzene and Trimethylbenzene results above clean-up levels. Figure 7 presents SVOC results that are all under cleanup levels however additional SIM (Selected Ion Monitoring) analysis using Anthracene-d10 and Benzo(a)anthracene-d12 as surrogates was performed for SVOC soil samples to produce results with improved data quality. The SVOC SIM results are presented in Figure 8. Following Figures 4-8 water sampling results are presented and discussed.

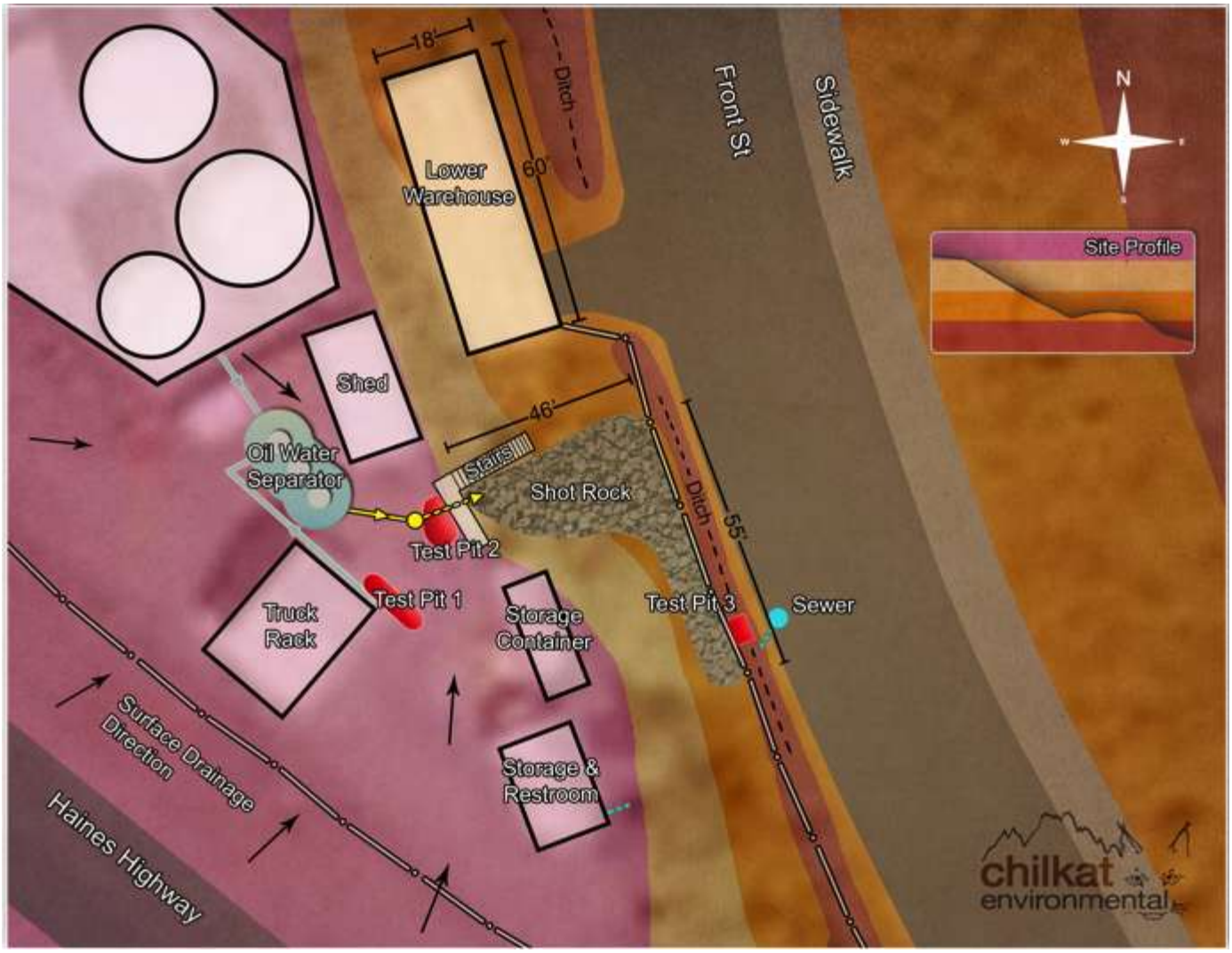


***Figure 3**: Site drawing featuring location of test pits. Site profile demonstrates approximated slope and surface drainage.*

Soil Sample	GRO	Surrogate Recovery (Limit 50-150%)
A	250	563
B	110	942
C	**340**	287
D	170	942
E	110	616
F	120	413
Migration to Groundwater Clean-up Level	260	
Method Blank	>1	113

Figure 4**: Results from F&BI 109245 presented in (ppm) Parts per Million for (GRO) Gasoline Range Organics fell outside normal control limits because compounds in the sample matrix interfered with the quantitation of the analyte. GRO is not a primary contaminant of concern for soil. Exceedences are **Bolded.

Soil Sample	DRO	RRO
A	**3,800**	310
B	**5,100 (ip)**	330 (ip)
C	**1,500**	<25
D	**2,200**	<25
E	**560**	<25 (vo)
F	**570**	150
Migration to Groundwater Clean-up Level	230	9,700
Method Blank	>5	113

Figure 5*: Results from F&BI 109245 presented in (ppm) Parts per Million for (DRO) Diesel Range Organics and (RRO) Residual Range Organics.* ***(ip)*** *– Results for Sample B fell slightly outside normal control limits of 50% - 150% with a recovery of 161% because compounds in the sample matrix interfered with the quantitation of the analyte.* ***(vo)*** *– The value reported fell outside the control limits established for this analyte. RRO is not a primary contaminant of concern for soil. Exceedences are* ***Bolded.***

Compounds:	CAS #	Sample ID: A	Sample ID: A (1/20)	Sample ID: B	Sample ID: B (1/10)	Sample ID: C	Sample ID: C (1/20)	Sample ID: D	Sample ID: D (1/20)	Sample ID: E	Sample ID: E (1/10)	Sample ID: F	Sample ID: F (1/20)	Sample ID: MeOH Blank	RL	MDL	Cleanup Limit (Migration to GW)
Dichlorodifluoromethane	75-71-8	ND	<10	<0.5	<5	<0.5	<10	<0.5	<10	<0.5	<5	<0.5	<10	<0.5	0.5	0.007	140
Chloromethane	74-87-3	<0.5	<10	<0.5	<5	<0.5	<10	<0.5	<10	<0.5	<5	<0.5	<10	<0.5	0.5	0.009	0.21
Vinyl chloride	75-01-4	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.007	0.0085
Bromomethane	74-83-9	<0.5	<10	<0.5 ca	<5	<0.5 ca	<10	<0.5 ca	<10	<0.5 ca	<5	<0.5 ca	<10	<0.5	0.5	0.04	0.16
Chloroethane	75-00-3	<0.5	<10 ca	<0.5 ca	<5 ca	<0.5 ca	<10 ca	<0.5 ca	<10 ca	<0.5 ca	<5 ca	<0.5 ca	<10 ca	<0.5	0.5	0.04	580
Trichlorofluoromethane	75-69-4	<0.5	<10	<0.5 ca	<5	<0.5 ca	<10	<0.5 ca	<10	<0.5 ca	<5	<0.5 ca	<10	<0.5	0.5	0.06	86
Acetone	67-64-1	0.28 j lc	1.8 j lc	0.14 j lc	0.73 j l	0.13 j lc	1.5 j lc	0.11 j lc	1.1 j lc	0.13 j lc	0.65 j lc	0.14 j lc	1.2 j lc	0.096	0.5	0.03	88
1,1-Dichloroethene	75-35-4	<0.05	<1	<0.05 ca	<0.5	<0.05 ca	<1	<0.05 ca	<1	<0.05 ca	<0.5	<0.05 ca	<1	<0.05	0.05	0.02	25
Methylene chloride	75-09-2	0.54 lc	2.0 j lc	0.30 j lc	0.93 j l	<0.5	0.78 j lc	<0.5	1.2 j lc	0.15 j lc	0.97 j lc	<0.5 j lc	0.49 j lc	<0.5	0.5	0.06	0.016
Methyl t-butyl ether (MTBE)	1634-04-4	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.005	1.3
trans-1,2-Dichloroethene	156-60-5	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.005	0.37
1,1-Dichloroethane	75-34-3	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.006	25
2,2-Dichloropropane	594-20-7	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.004	n/a
cis-1,2-Dichloroethene	156-59-2	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.006	0.24
Chloroform	67-66-3	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.004	0.46
2-Butanone (MEK)	78-93-3	0.26 j	<10	<0.5	<5	<0.5	1.1	0.17 j	0.95 j	0.066 j	0.60 j	<0.5	0.79 j	0.059	0.5	0.03	59
1,2-Dichloroethane (EDC)	107-06-2	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.009	0.016
1,1,1-Trichloroethane	71-55-6	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.006	0.82
1,1-Dichloropropene	563-58-6	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.004	0.018
Carbon tetrachloride	56-23-5	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.009	0.023
Benzene	71-43-2	**0.17**	<0.6	**0.031**	<0.3	**0.073**	<0.6	**0.096**	<0.6	<0.03	<0.3	<0.03	<0.6	<0.03	0.03	0.006	0.025
Trichloroethene	79-01-6	<0.03	<0.6	<0.03	<0.3	<0.03	<0.6	<0.03	<0.6	<0.03	<0.3	<0.03	<0.6	<0.03	0.03	0.005	0.02
1,2-Dichloropropane	78-87-5	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.004	0.018
Bromodichloromethane	75-27-4	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.007	0.044
Dibromomethane	74-95-3	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.008	1.1
4-Methyl-2-pentanone	108-10-1	<0.5	<10	<0.5	<5	<0.5	<10	<0.5	<10	<0.5	<5	<0.5	<10	<0.5	0.5	0.02	8.1
cis-1,3-Dichloropropene	10061-01-5	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.004	n/a
Toluene	108-88-3	0.89	0.67 j	0.15	0.16 j	0.24	<1	0.28	0.22 j	<0.05	<0.5	0.022 j	<1	<0.05	0.05	0.005	6.5
trans-1,3-Dichloropropene	10061-02-6	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.005	n/a
1,1,2-Trichloroethane	79-00-5	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.005	0.018
2-Hexanone	591-78-6	<0.5	<10	<0.5	<5	<0.5	<10	<0.5	<10	<0.5	<5	<0.5	<10	<0.5	0.5	0.02	n/a
1,3-Dichloropropane	142-28-9	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.005	0.033
Tetrachloroethene	127-18-4	<0.025	<0.5	<0.025	<0.25	<0.025	<0.5	<0.025	<0.5	<0.025	<0.25	<0.025	<0.5	<0.025	0.025	0.006	0.024
Dibromochloromethane	124-48-1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.02	n/a
1,2-Dibromoethane (EDB)	106-93-4	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.01	0.00016
Chlorobenzene	108-90-7	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.006	0.63
Ethylbenzene	100-41-4	0.17	<1	0.046 j	<0.5	1.4	1.3	0.28	0.23 j	0.14	0.14 j	0.031 j	<1	<0.05	0.05	0.004	6.9
1,1,1,2-Tetrachloroethane	630-20-6	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.008	n/a
m,p-Xylene	179601-23-1	12	8.6	0.28	0.27 j	3.5	3	0.35	0.28 j	0.49	0.41 j	0.17	<2	<0.1	0.1	0.01	63 (total)
o-Xylene	95-47-6	25 ve	17	0.057	<0.5	0.11	<1	0.045 j	<1	<0.05	<0.5	0.019 j	<1	<0.05	0.05	0.003	63 (total)
Styrene	100-42-5	0.061	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.003	0.96
Isopropylbenzene	98-82-8	0.16	<1	0.018 j	<0.5	3.4	3	1.2	0.90 j	0.13	0.13 j	0.11	<1	<0.05	0.05	0.004	51
Bromoform	75-25-2	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.005	0.34
n-Propylbenzene	103-65-1	0.25	0.34 j	0.033 j	<0.5	4.7	4.4	2	1.7	0.40	0.40 j	0.62	0.52 j	<0.05	0.05	0.004	15
Bromobenzene	108-86-1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.007	n/a

Figure 6: Part 1*: Soil results from F&BI 109245 presented in (ppm) Parts per Million for (VOC) Volatile Organic Compounds.* ***(ND)*** *– Analyte was not detected above the MDL.* ***(j)*** *- The concentration reported is below the standard laboratory reporting limit.* ***(lc)*** *- The concentration reported is due to laboratory contamination.* ***(ca)*** *– The calibration results for this range fell outside of acceptance criteria. The value is reported as an estimate.* ***(ve)*** *– Estimated calculation calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain accurate quantification for this analyte. Exceedence of Benzene and Trimethylbenzene is* ***bolded*** *and other VOC's were not in exceedence of standards. Refer to Part 2 on following page.*

> The ADEC migration to groundwater cleanup level for this compound is above the laboratory MDL and below the RL.

> The ADEC migration to groundwater cleanup level for this compound is below the laboratory RL and MDL

Compounds:	CAS #	Sample ID:	Sample ID:	Sample ID:	Sample ID:	Sample ID:	Sample ID:	Sample ID:	Sample ID:	Sample ID:	Sample ID:	Sample ID:	Sample ID:	Sample ID:	RL	MDL	Cleanup Limit
1,3,5-Trimethylbenzene	108-67-8	**29 ve**	21	0.74	0.80	16 ve	13	4	2.9	1.3	1.2	5.1	3.4	<0.05	0.05	0.006	23
1,1,2,2-Tetrachloroethane	79-34-5	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.02	0.017
1,2,3-Trichloropropane	96-18-4	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.02	0.00053
2-Chlorotoluene	95-49-8	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.006	n/a
4-Chlorotoluene	106-43-4	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.004	n/a
tert-Butylbenzene	98-06-6	0.28	<1	0.099	<0.5	0.22	<1	0.077	<1	0.042 j	<0.5	0.018 j	<1	<0.05	0.05	0.005	12
1,2,4-Trimethylbenzene	95-63-6	**37 ve**	**26**	0.98	1.1	**32 ve**	**35**	14 ve	9.6	3.5	3.0	13 ve	8	<0.05	0.05	0.005	23
sec-Butylbenzene	135-98-8	0.61	0.58 j	0.054	<0.5	3.9	3.7	1.6	1.2	0.48	0.50	0.57	0.45 j	<0.05	0.05	0.005	12
p-Isopropyltoluene	99-87-6	4.3	3.6	0.41	0.40 j	5.6	4.9	2.1	1.6	0.63	0.64	0.7	0.53 j	<0.05	0.05	0.004	n/a
1,3-Dichlorobenzene	541-73-1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.005	28
1,4-Dichlorobenzene	106-46-7	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.006	0.64
1,2-Dichlorobenzene	95-50-1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	<1	<0.05	<0.5	<0.05	<1	<0.05	0.05	0.02	5.1
1,2-Dibromo-3-chloropropane	96-12-8	<0.5	<10	<0.5	<5	<0.5	<10	<0.5	<10	<0.5	<5	<0.5	<10	<0.5	0.5	0.02	n/a
1,2,4-Trichlorobenzene	120-82-1	<0.25	<5	<0.25	<2.5	<0.25	<5	<0.25	<5	<0.25	<2.5	<0.25	<5	<0.25	0.25	0.009	0.85
Hexachlorobutadiene	87-68-3	<0.25	<5	<0.25	<2.5	<0.25	<5	<0.25	<5	<0.25	<2.5	<0.25	<5	<0.25	0.25	0.02	0.12
Naphthalene	91-20-3	2.4	2.1	1.2 ca	1.1	18 ve ca	25	5.2 ca	3.6	1.2 ca	0.86	2.5 ca	1.4	0.011	0.05	0.01	20
1,2,3-Trichlorobenzene	87-61-6	<0.25	<5	<0.25	<2.5	<0.25	<5	<0.25	<5	<0.25	<2.5	<0.25	<5	<0.25	0.25	0.02	n/a

Figure 6: Part 2*: Soil results from F&BI 109245 presented in (ppm) Parts per Million for (VOC) Volatile Organic Compounds.* ***(ND)*** *– Analyte was not detected above the MDL.* ***(j)*** *- The concentration reported is below the standard laboratory reporting limit.* ***(lc)*** *- The concentration reported is due to laboratory contamination.* ***(ca)*** *– The calibration results for this range fell outside of acceptance criteria. The value is reported as an estimate.* ***(ve)*** *– Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain accurate quantification for this analyte. Exceedence of Benzene and Trimethylbenzene are* ***bolded*** *and other VOC's were not in exceedence of standards.*

> The ADEC migration to groundwater cleanup level for this compound is above the laboratory MDL and below the RL.

> The ADEC migration to groundwater cleanup level for this compound is below the laboratory RL and MDL

Soil Sample	Naphthalene	Fluorene	Phenanthrene	2-Methylnaphthalene
A	<0.3	<0.3	<0.3	0.53 (jr)
B	<0.3	<0.3	<0.3	<0.3
C	5.6	0.98	0.87	13 (jr)
D	1.8	0.71	0.82	5.8 (jr)
E	<0.3	<0.3	<0.3	1.6 (jr)
F	0.34	<0.3	0.53	<0.3
Migration to GW Clean-up Level	20	220	3000	6.1

Figure 7*: Soil results from F&BI 109245 presented in (ppm) Parts per Million for (SVOC) Semi-Volatile Organic Compounds. All other SVOC compounds were non detect.* ***(jr)*** *The RPD result in laboratory control sample associated with this analyte is out of control limits. The reported concentration should be considered an estimate. Additional SIM (Selected Ion Monitoring) analysis using Anthracene-d10 and Benzo(a)anthracene-d12 as surrogates was performed for SVOC soil samples to produce results with improved data quality. See Figure 8.*

Soil Sample	Naphthalene	Fluorene	Phenanthrene	Pyrene	Acenaphthene
A	0.3	0.2	0.31	0.0323	.085
B	<0.02	0.055	<0.02	0.034	.077
C	4.1 (ve)	0.95	0.75	<0.02	0.35
D	2.4 (ve)	0.91	0.87	<0.02	0.18
E	0.34	0.13	0.1	<0.02	0.040
F	0.31	0.26	0.47	0.037	0.074
Migration to GW Clean-up Level	20	220	3000	1000	2.2

Figure 8*: Soil results from F&BI 109245 presented in (ppm) Parts per Million for (SVOC) Semi-Volatile Organic Compounds* Additional SIM (Selected Ion Monitoring) analysis using Anthracene-d10 and Benzo(a)anthracene-d12 was performed for SVOC samples for better data quality.. *All other SVOC compounds were non detect.* ***(ve)-*** *– Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain accurate quantification for this analyte.*

Water results indicate that the primary contaminants of concern are DRO and SVOC while RRO and VOC are not of concern and GRO is only present in the most contaminated sample just above clean-up level and therefore not of primary concern. Figure 9 presents soil results for GRO, DRO and RRO. The groundwater clean-up level is provided, however Sample 3 from Test Pit 3 will may be regulated to the more stringent Direct Contact standard for surface water of <15ppb for (TaqH) Total Aqueous Hydrocarbons and <10ppb for (TAH) Total Aromatic Hydrocarbons. Figure 10 presents water results for VOC with no exceedences. Figure 11 presents SVOC results that are significantly above cleanup levels. Additional SIM (Selected Ion Monitoring) analysis using Anthracene-d10 and Benzo(a)anthracene-d12 as surrogates were performed for SVOC water samples to improved data quality. The SVOC SIM results are presented in Figure 12.

Water Sample	GRO	DRO	RRO
1	<50	**7,000**	890
1-D	<50	**7,200**	910
2	650 (ip)	**180,000** (ip)	**1,200**
3	680 (ip)	**3,600**	620
Method Blank	<50	<50	<250
GW Clean-up Level	2,200	1,500	1,100

Figure 9**: Water Results from F&BI 109245 presented in (ppb) Parts per Billion for (GRO) Gasoline Range Organics; (DRO) Diesel Range Organics; and (RRO) Residual Range Organics. (ip) – Results fell slightly outside normal control limits because compounds in the sample matrix interfered with the quantitation of the analyte. GRO and RRO are not primary contaminants of concern for water. The groundwater clean-up level is provided, however Sample 3 from Test Pit 3 will likely be regulated to the more stringent Direct Contact standard for surface water of <15ppb for (TaqH) Total Aqueous Hydrocarbons and <10ppb for (TAH) Total Aromatic Hydrocarbons. Exceedences are **Bolded.

	Sample 1	Sample 1-D	Sample 2	Sample 3	GW clean-up Level
Acetone	<10	<1	<1	36	33,000
Benzene	<0.35	<0.35	3.1	<3.5	5
Toluene	<1	<1	12	<10	1,000
Ethylbenzene	<1	<1	28	29	700
m,p-Xylene	<2	<2	65	190	10,000 total
o-Xylene	<1	<1	11	<10	10,000 total
Isopropylbenzene	<1	<1	51	<10	3,700
n-Propylbenzene	<1	<1	77	11	370
1,3,5- Trimethylbenzene	1.7	<1	200	53	1,800
1,2,4-Trimethylbenzene	<1	<1	630	180	1,800
Sec-Butylbenzene	<1	<1	44	<10	370
p-Isopropyltoluene	<1	<1	58	<10	NA
Naphthalene	<1	<1	320	48	730

***Figure 10**: Water results from F&BI 109245 presented in (ppb) Parts per billion for (VOC) Volatile Organic Compounds. No exceedences are noted.*

Water Sample	Naphthalene	Fluorene	Phenanthrene	Pyrene	Acenaphthene
1	**12 (ve)**	**2.2**	0.66	0.0323	0.82
1-D	**12 (ve)**	**2.1**	0.85	<0.1	.69
2	**510 (ve)**	**130**	**100**	**<5**	**30**
3	**33 (ve)**	**2.3**	2.2	0.19	0.61
GW Clean-up Level	0.73	1.5	11	1.1	2.2

Figure 11*: Water results from F&BI 109245 presented in (ppb) Parts per Billion for (SVOC) Semi-Volatile Organic Compounds. Additional SIM (Selected Ion Monitoring) analysis using Anthracene-d10 and Benzo(a)anthracene-d12 was performed for SVOC samples for better data quality.. All other SVOC compounds were non detect.* ***(ve)-*** *– Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain accurate quantification for this analyte. Exceedences are* ***bolded****.*

Water Sample	2-Methylnaphthalene	Naphthalene	Fluorene	Phenanthrene	Dibenzofuran
1	**6.8**	**10**	<1	<1	<1
1-D	**8.8**	**11**	**1.8**	<1	<1
2	**1,600**	**470**	**100**	**95**	**<50**
3	**36**	**36**	2	2.2	**1.1**
GW Clean-up Level	0.15	0.73	1.5	11	0.073

Figure 12*: Water results from F&BI 109245 presented in (ppb) Parts per Billion for (SVOC) Semi-Volatile Organic Compounds All other SVOC compounds were non detect.* ***(ve)-*** *– Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain accurate quantification for this analyte. Additional SIM (Selected Ion Monitoring) analysis using Anthracene-d10 and Benzo(a)anthracene-d12 was performed for SVOC samples for improved data quality. Exceedences are* ***bolded****.*

Conceptual Site Model

The ADEC determines clean-up levels based on human health exposure using the (CSM) Conceptual Site Model and has requested one for this site. The CSM is included as (Attachment H). Fencing Site controls access except for the ditch along Front Street. The site topography lends towards migration of contaminants towards the ditch however there is no surface water outfall from the ditch and therefore the fate of collected is under the road where it may daylight or dispell subsurface in the intertidal area. It is likely the ditch has in part functioned as an OWS and concentrated free prodcuct in shallow soils and surface water.

Conclusions

The purpose of this characterization was to; recommend a source of the historic release, confirm that excavation of contaminated soil was completed to acceptable levels and confirm there is no off-site migration of petroleum contamination.

The report finds: (1) that the OWS outfall is the likely source of the historic release; (2) that excavation of contaminated soil was likely not completed to acceptable levels and; (3) that off-site migration of petroleum contamination is occurring. The principal contaminants of concern for soil are DRO and VOC; and for water are DRO and SVOC. Excavation water was sampled to determine contaminants of concern and does not represent groundwater for regulatory purposes.

Delta Western purchased this property from Petro Marine after the clean-up occurred and was presented with a Phase 1 Site Assessment describing the property as free of recognized environmental conditions (Attachment C).

Recommendations

Off-site migration of contaminants can be mitigated by decomissioning the OWS as required and installation of an interception ditch above the roadside ditch on Front Street. Once constructed the water can be observed and managed using absorbents, OWS or filters as required. The state is planning reconstruction of Front Street which may require some consideration of this site to address contaminated media in the right of way. Groundwater monitoring wells are recomended to inform decision-making.

Signature of Qualified Environmental Professional

Qualified Environmental Professional Elijah Donat MS PMP prepared this report.

Elijah Donat MS PMP
Principal Investigator

Photolog

Photo 1: Truck rack photo right. Three green vessels provide access to Oil Water Separator system (OWS) with the first tank featuring 4 inches of fuel prior to removal of 20 drums of mixed oil and water in 2011. Vertical culvert pipe left of far yellow safety post is the subsurface outfall of the system.

Photo 2: This former containment cell is designed to deliver water to the OWS only when pumps are energized and mechanical valves opened. However, it is likely valves are failing because the system flows during rain events.

Photo 3: Outfall of oil water separator

Photo 4: Outfall of oil water separator. White PVC pipe routes outfall from the third OWS tank and a perforated drainpipe distributes the outfall subsurface. Water was observed flowing through this system during rain events at 2 gallons per minute and slowed to a trickle during dry weather.

Photo 5: Alarm and controls for OWS were found energized as evidenced by lit switches. While pumps are not suspected of operating flow through was observed and is a suspected result of failing mechanical valves.

Photo 6: Electronic controls for OWS system are energized inside service building but "chips" are removed from engaged position.

Photo 7: Test Pit #1 located adjacent to former truck rack encountered fuel lines. Excavation was reoriented further south toward the corner of the pad to avoid them.

Photo 8: Test Pit #1 also encountered the drain for the truck rack spill collection system incased in 1.5-inch foam. Besides isolated surface contamination associated with overflow of drain the surface soils did not appear contaminated.

Photo 9: Test Pit #1 encountered contaminated soil at 2.5 feet below ground surface beneath clean fill associated with the paving of the truck rack by Petro Marine.

Photo 10: Test Pit #1 encountered groundwater atop clay at 4 feet below ground surface.

Photo 11: Test Pit #1 presented about 1 foot of significantly contaminated soil atop clay.

Photo 12: Test Pit #1 was closed and the disturbed soil was compacted to minimize impacts to the property. Buried lines were documented with pink spray paint on the truck rack.

Photo 13: Test Pit #2 was forwarded directly between the oil water separator outfall and the stairway that accesses the Front Street.

Photo 14: Test Pit #2. The outfall of the oil water separator was encountered at 6 feet below ground surface.

Photo 15: Test Pit #2. The outfall pipe is perforated with saw blade cuts such that it both dispels discharge into the subsurface and expedites passage of groundwater offsite.

Photo 16: Test Pit #2 was advanced to 10 feet and no clay was encountered. The upper 2 feet featured clean soil while the rest of the soil column featured significant contamination. No groundwater was encountered. Excavation water sampled for Test Pit #2 originated from OWS and flowed into pit from outfall pipe.

Photo 17: Test Pit #3 was advanced at the ditch along Front Street featuring heavy vegetation

Photo 18: Proper signage was placed during fieldwork event.

Photo 19: Test Pit #3 was placed adjacent to sewer access.


Photo 20: Test Pit #3 was only advanced 2 feet and encountered contaminated soil and shallow surface water featuring visible free product released by our disturbance.

Photo #21: Test Pit #3 featured strong petroleum odor, sheen and free product. The site was covered with cut Alders to discourage pedestrian exposure.

Photo #22: Test Pit #3 presented sheen and minor free product.

Photo #23: Photo provided by ADEC September 16, 2011 from site activity in 1996 showing installation of OWS.

Photo #24: Photo provided by ADEC September 16, 2011 from site activity in 1996 showing OWS system, fuel distribution lines and construction of shed.

Photo #24: Photo provided by ADEC September 16, 2011 from site activity in 1996.

Photo #25: Photo provided by ADEC September 16, 2011 from site activity in 1996 showing OWS system, fuel distribution lines and construction of truck rack pad.

Attachment A:

ADEC Letter to Delta Western May 20, 2011

STATE OF ALASKA

SEAN PARNELL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

410 Willoughby Ave., Suite 302
Box 111800 Juneau AK 99801
PHONE: (907) 465-5210
FAX: (907) 465-5218
http://www.state.ak.us/dec/

File: 1508.38.020

May 20, 2011

Via Electronic and Regular Mail
Ms. Bev Niemann
Environmental Manager
Delta Western Incorporated
PO Box 79018
Seattle, WA 98119

Re: Request for Site Investigation
Delta Western Tank Farm Haines
Ledger Code 14147760

Dear Ms. Niemann,

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has determined additional site investigation is needed regarding contaminated soil and/or water from historical release(s) at the Delta Western bulk fuel tank farm located at 12 Beach Road in Haines, Alaska. This letter is to inform you of the Alaska statutes and regulations that outline your responsibilities as landowner and operator to conduct an investigation of the ambient air, soil, ground and surface water and indoor air on the referenced property for the documented petroleum contamination from an unknown source to ensure that exposure from these media pathways are not presenting a risk of exposure that could affect human health and safety or the environment.

Statutory Cleanup Responsibility
The responsibility for the investigation and cleanup of hazardous substance contamination is established by state law. The owner and/or operator that caused the release of the hazardous substances are responsible for its cleanup (Alaska Statutes 46.03.822). However, if the responsible party is not the owner of the property and/or is not willing or able to conduct the necessary cleanup actions, the landowner is liable for the cost of the cleanup actions. If you believe that another party is responsible for the contamination (e.g., a past owner or operator of the site), please provide this information to the DEC Project Manager assigned to investigate your contaminated site.

In addition, state law requires DEC to recover the costs associated with our oversight work from the responsible party/parties incurred by the State in responding to a pollution incident (AS 46.03.010 and AS 46.08.070). The State may bill a responsible party at a later date for State expenditures associated with a pollution incident. State expenditures include the direct costs of staff time and indirect overhead costs, as well as contractual and materials costs incurred making arrangements for

and conducting environmental site assessments under enforcement actions. State staff time includes all time spent on investigation activities related to the incident, including site visits, response and report reviews, telephone conversations, meetings, legal services, and interest.

Regulatory Cleanup Responsibility
We want you to be aware that this request for investigation and cleanup of the referenced property has been listed in DEC's database of contaminated sites under the name Delta Western Tank Farm Haines and information contained in the file is now public record. Our databases are accessible on the Internet at www.dec.state.ak.us/spar/csp/search/default.asp.

It is best to identify and work with all potentially responsible parties from the beginning of the cleanup process so everyone understands their responsibilities. The process requires work plan(s) be submitted to DEC *before* beginning any sampling or cleanup work on the facility. The purpose of this review and approval process is to ensure regulatory requirements are met and, hopefully, accomplish a cost effective approach to resolving environmental issues. A useful guide to the cleanup process, giving a step-by-step description, can be found on the internet at http://www.dec.state.ak.us/spar/csp/process.htm. The March 2009 fact sheet briefly summarizes the major elements of Alaska's Contaminated Site Regulations (Alaska Statutes Title 46 and Title 18 of Alaska's Administrative Code of regulations, Chapter 75, or "18 AAC 75" See article 3) and describes the general cleanup process. The full text of chapter 75 and/or recent revisions can be downloaded at http://www.dec.state.ak.us/spar/csp/reg_rev.htm

In accordance with 18 AAC 75.325, all work plans and reports submitted for this contaminated site must demonstrate that the individuals that performed the work (field and preparing/signing the report) are qualified third parties per 18 AAC 75. Assessment and cleanup actions on the property or adjacent properties must seek permanent remedies and be completed in a timely manner.

In addition, DEC requires additional information to evaluate the trend in contaminant concentrations and the various exposure pathways that may pose an unacceptable risk to hazardous substances. In order to evaluate both the contamination and the exposure pathways, a Conceptual Site Model (CSM) is required that provides the basis for evaluating risk at a site. Please refer to the following webpage http://www.dec.state.ak.us/spar/guidance.htm#risk for more information regarding the CSM process. This should assist your consultant in addressing the information that is still required to evaluate the possible risks at the site and/or make a determination regarding its environmental status. A CSM must be submitted prior to any consideration for closure of a site.

In order to avoid any delays in the future regarding the data collected at your site, you (or your consultant) should be aware of the need to ensure that the soil and water samples meet the data quality objectives established by DEC. Again, I refer you to the DEC webpage to access: http://www.dec.state.ak.us/spar/guidance.htm#methods and a Laboratory Data Review Checklist in Word: http://www.dec.state.ak.us/spar/csp/guidance/amqa/lab-data-review-checklist.docx or in portable document format (pdf): http://www.dec.state.ak.us/spar/csp/guidance/amqa/lab-data-review-checklist.pdf. Please note that a Laboratory Data Review Checklist must be submitted with all future analytical data.

In order to identify the nature of contamination at the site, soil and water samples at the site must be analyzed for the contaminants of concern at the site which may include benzene, ethylbenzene, toluene, total xylenes (BTEX) and polycyclic aromatic hydrocarbon (PAH) volatile organic compounds; gasoline (GRO), diesel (DRO) and residual (RRO) petroleum hydrocarbon fractions and Resource Conservation and Recovery Act total metals silver, arsenic, barium, cadmium, chromium, mercury, lead and selenium.

Facility Cleanup History

Oily water was observed in the Beach Road ditch-line in 1996 and 1998. DEC site inspection of this tank farm facility took place in 1996 after release event identified as Petro Marine Services ID#096110120001. Plant supervisor Rich Kaloostian explained that during facility upgrade work to meet DEC C-plan requirements, petroleum soil contamination was discovered near a set of line pumps. During the 1998 rebuild, Petro Marine used sorbents to collect the oil, excess water was processed and the ditch was grubbed of oily soil without submitting a cleanup work plan to DEC for approval required by AAC 75.360. The ditch-line was backfilled with clean rock before soil confirmation samples could be collected to determine the effectiveness of the cleanup and no final cleanup report was submitted for DEC approval.

In May 1998 DEC sent a letter with formal notice to the Petro Marine Services, the current owner and operator of the bulk fuel facility in Haines that corrective action and site investigation was necessary for the interception trench along Beach Road and the source of a free product seep from subsurface soil under the bulk fuel tank farm property in Haines. In May 2004, DEC sent a letter to Petro Marine Services requesting that the owner perform a Site Assessment of the truck rack and barrel storage area spill sites before making upgrades in those areas of the facility previously agreed to in a COBC issued in 1995 by IPP.

Current Cleanup Responsibility

DEC requests that Delta Western Inc., as current facility owner/operator, prepare and submit for approval a workplan to assess those locations on the property where petroleum soil contamination cleanup was performed in 1998 under the Compliance Order by Consent issued by IPP for facility upgrades. Although contaminated soil was removed from the site and remediation of the off-site soil stockpile was later approved by DEC, confirmation sampling of clean soil at the limits of the removal excavation required in 18 AAC 75.341 was not performed and final reporting requirements in 18 AAC 75.380 was not performed. In recent conversation Delta Western stated that it would comply with a DEC request to conduct such an investigation to fill these data gaps.

I look forward to working with your consultant to develop a work plan to investigate the effectiveness of the historical cleanup at the Haines facility. I can be reached at 410 Willoughby Suite 302 in Juneau by telephone at 907-465-5210 or by email at bruce.wanstall@alaska.gov .

Sincerely,

Bruce Wanstall

Bruce Wanstall
Project Manager, Southeast Field Investigations
State & Private Contaminated Sites Program

cc: Paula Wright, Litigation Assistant, Dept. of Law via email
Sally Schlichting, Program Manager, via email
Fred Grey, Delta Western, via email

Attachment C:

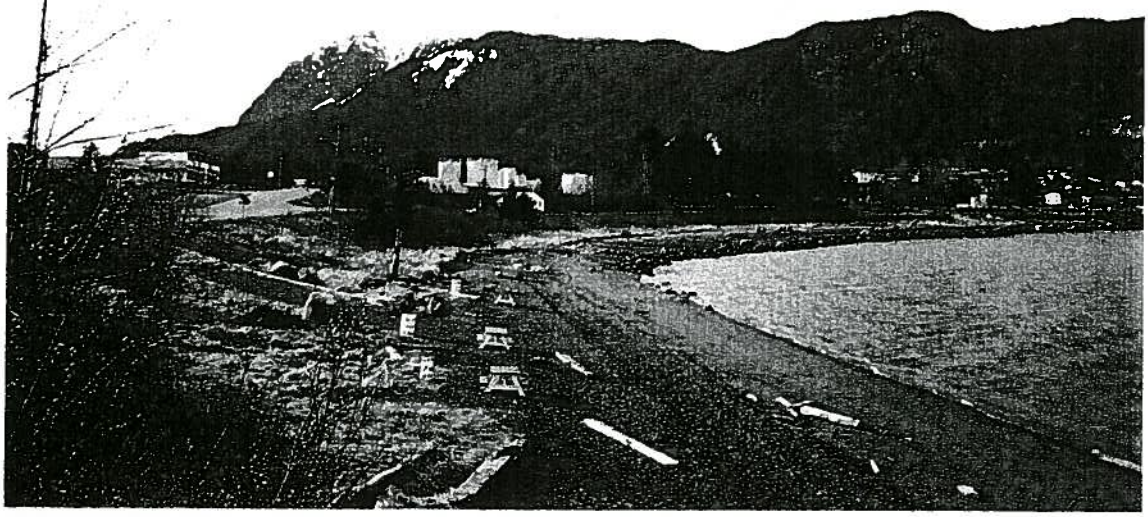
Phase 1 Environmental Audit April 27, 2001

Smith Bayliss LeResche Inc
Richard Smith P.E. (907) 747-5775
Randolph Bayliss P.E. (907) 586-6813
Robert LeResche PhD (907) 586-8338
Environmental Consultants and Engineers
119 Seward Street #10
Juneau Alaska 99801
fax (907) 586-6819

Phase I Environmental Audit

Petro Marine Services Tank Farm

Petro Marine Services
Mile 0 Haines Highway
Haines, Alaska



SUMMARY: I found this property to comply with environmental laws and found no evidence of contamination. No further study is recommended.

STATE OF ALASKA
49TH
RANDOLPH BAYLISS
#EC3539
REGISTERED PROFESSIONAL ENGINEER

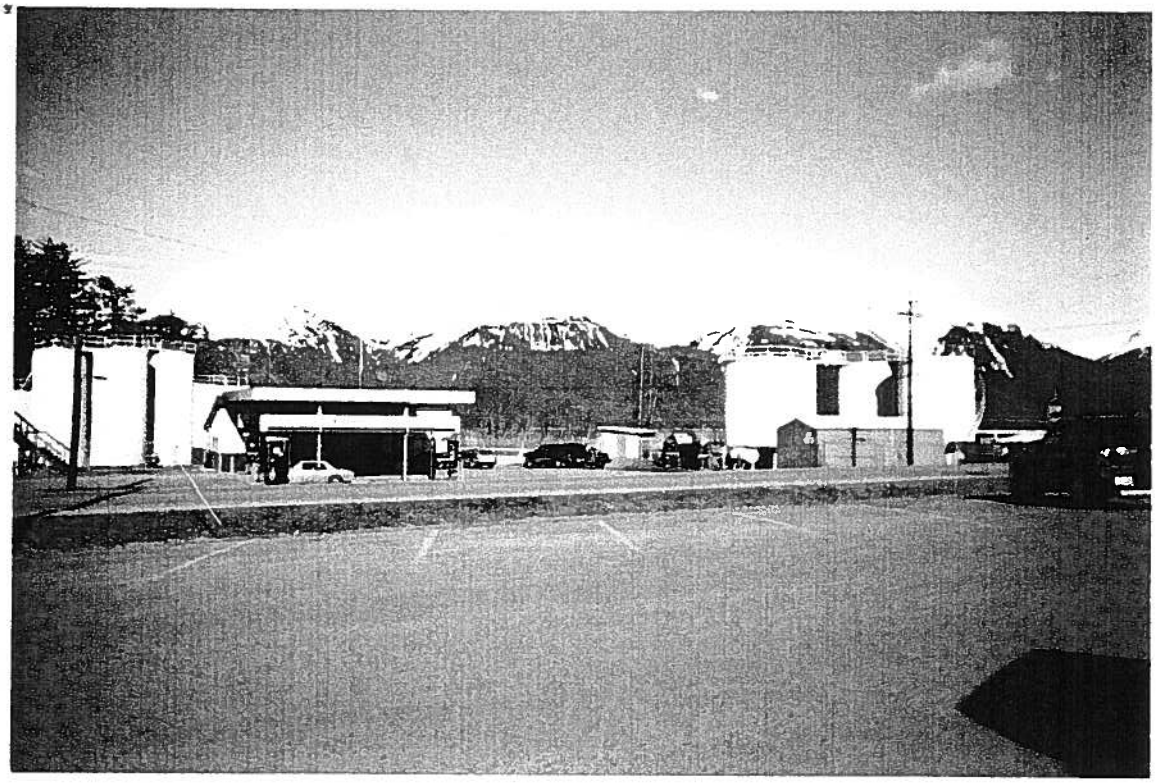


Figure 13. Petro Marine Haines Facility

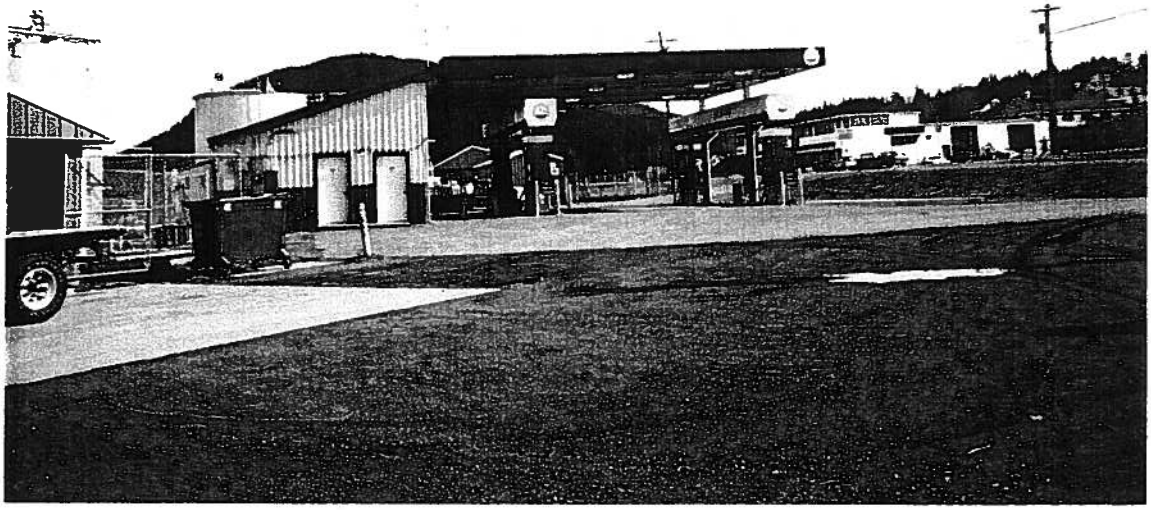


Figure 14. Petro Marine Haines Gas Station
Photographs by Amy Randolph April 12, 2001

Figure 15. Oil/Water Separator

Figure 16. Truck rack
Photographs by Amy Randolph April 12, 2001

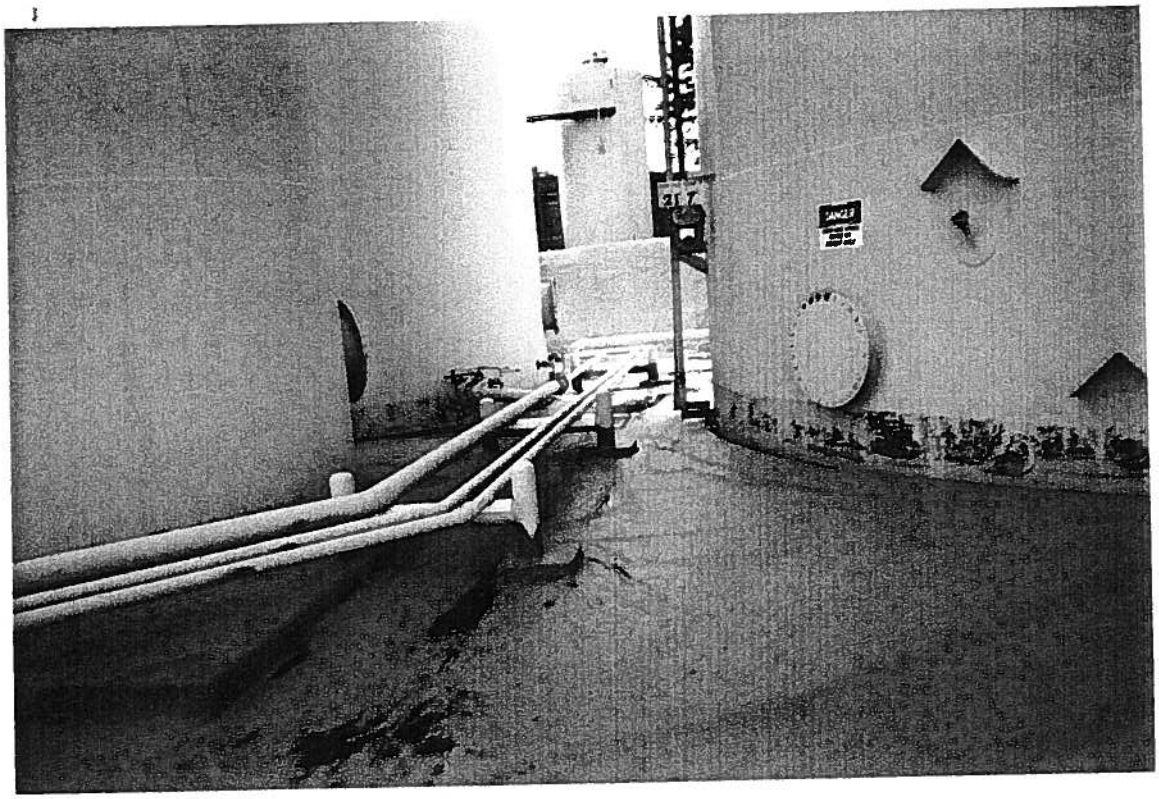


Figure 17. Containment area for tanks

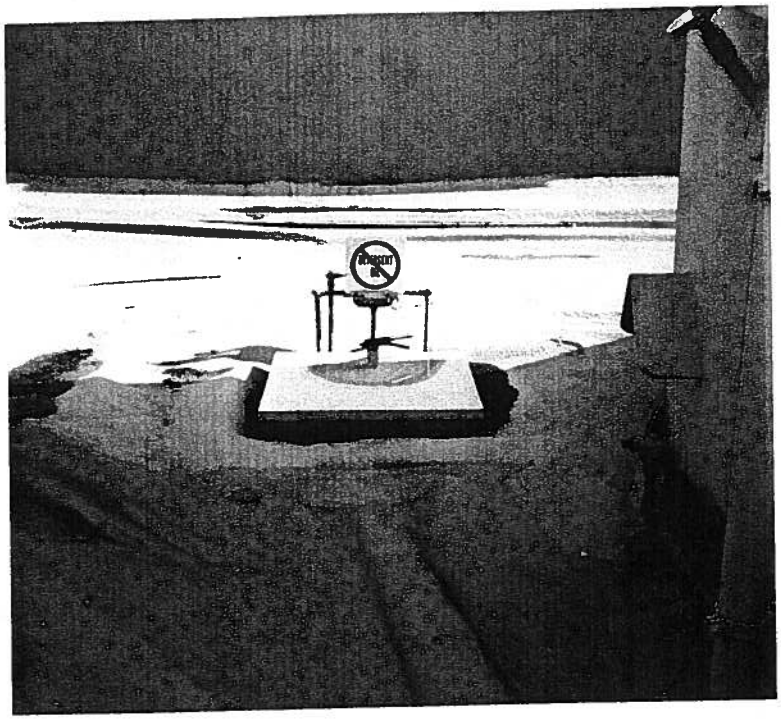


Figure 18: Drain within the tank containment area. Drains to oil/water separator

Photographs by Amy Randolph April 12, 2001

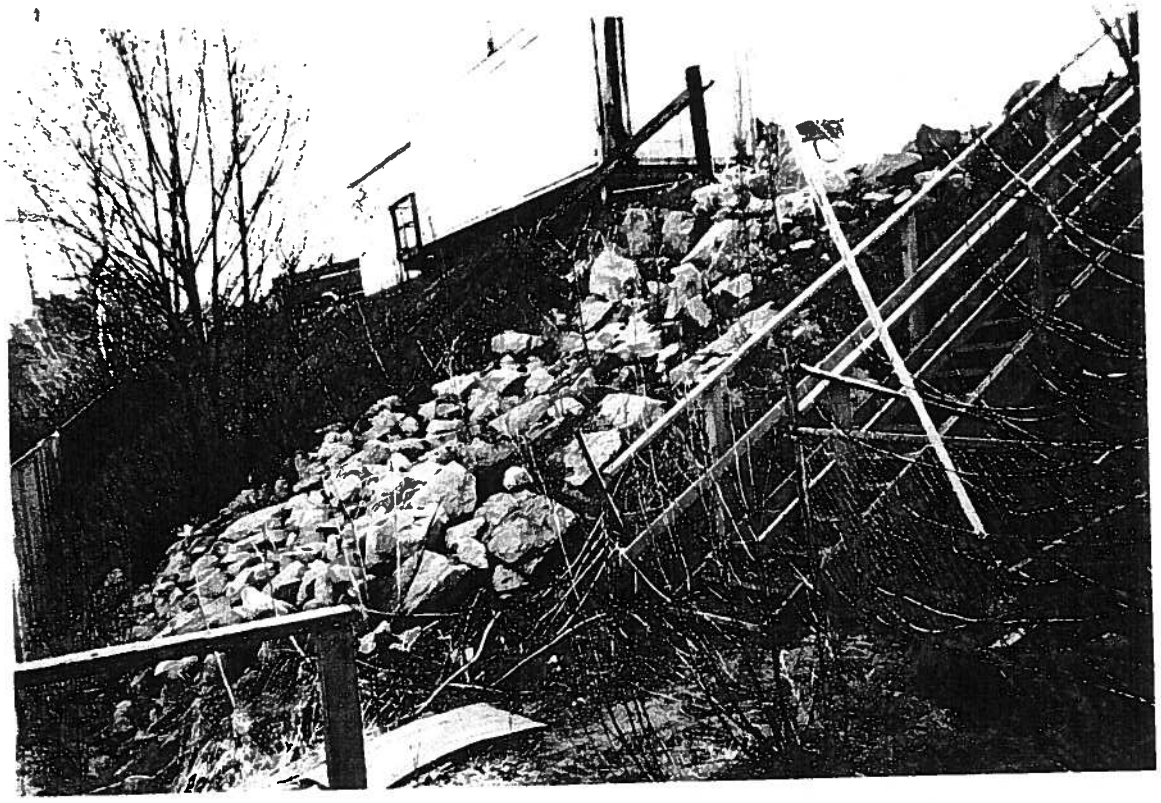


Figure 19. Shotrock on western edge of Petro Marine Haines property

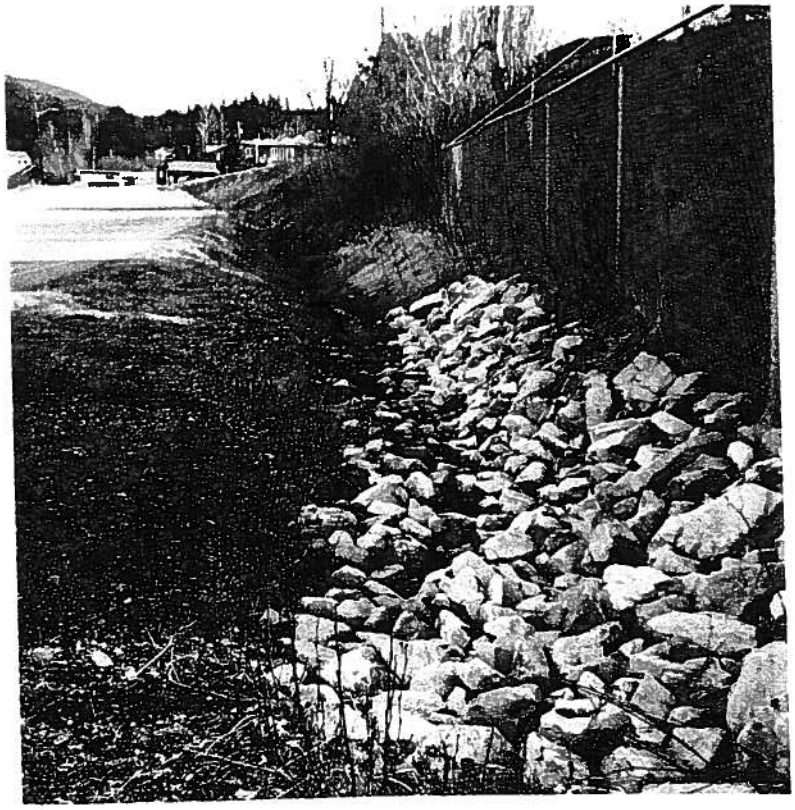


Figure 20. Shotrock in ditch beside Petro Marine Haines property

Photographs by Amy Randolph April 12, 2001

Figure 21. Petro Marine Haines fuel dock

Figure 22. Piping to Haines fuel dock

Photographs by Amy Randolph April 12, 2001

Phase I Environmental Audit
Petro Marine Services Tank Farm

Petro Marine Services
Mile 0 Haines Highway
Haines, Alaska

Table of Contents

	Title	Page
1.0	Purpose and Scope	3
2.0	Site History	3
3.0	Site Description	4
4.0	Interviews	4
5.0	Site Investigation	7
6.0	Findings and Conclusions	7
	Figures	
Fig 1	Vicinity Map	8
Fig 2	Aerial Photograph of Site, 1948	9
Fig 3	Aerial Photograph of Site, 1961	10
Fig 4	Aerial Photograph of Site, 1992	11
Fig 5	Property Plat Map, 1908	12
Fig 6	Sanborn Map, 1948	13
Fig 7	Property Plat Map, 1957	14
Fig 8	City of Haines Map	15
Fig 9	Facility Overall Site Plan	16
Fig 10	Facility Site Plan	17
Fig 11	Facility Drainage Plan	18
Fig 12	Contaminated Sites in Haines Map	19
Figs 13-14	Site photographs	20
Figs 15-16	Site Photographs	21
Figs 17-18	Site Photographs	22
Figs 19-20	Site Photographs	23
Figs 21-22	Site Photographs	24

Appendix A: May 19, 1998 Letter from ADEC to Petro Marine
Appendix B: Facility Changes and Improvements Since June 1995
Appendix C: Legal Documents
Appendix D: References Cited
Appendix E: SBL Resume

1.0 Purpose and Scope

Jim Soriano of Delta Western asked me to conduct a Phase 1 Environmental Audit of the Petro Marine Services facility in Haines, Alaska. The purpose of a Phase I Environmental Audit is to determine if any visual or documentary evidence exists of hazardous material, contaminant, or pollutant at a site.

I followed normally accepted procedures for preliminary assessments as outlined in state and federal environmental agency guidance manuals. My approach generally conformed with that outlined in the *ASTM Standards on Environmental Site Assessments for Commercial Real Estate E 1527-93 and E 1528-93*, 1993. I also followed guidance in my *Quality Assurance Program Plan* for underground storage tanks, approved by ADEC 10 October 1990, and in the State of Alaska *Standard Quality Assurance Program Plan* for underground storage tanks (Draft 3/26/92), and in the *FHWA Interim Guidance: Hazardous Waste Sites Affecting Highway Project Development*, August 1988.

A Phase I Audit usually results in either a finding that no contamination is evident, or a recommendation for further study involving sampling plans for laboratory testing.

2.0 Site History

The facility was originally built around 1932 by Chevron. Chevron sold it to David Karl Black in 1984. Mr. Black operated the facility as a Chevron station under the name Valley Fuel Services, Inc. In 1986 he sold it to Haines Terminal and Highway Company (AKA White Pass). The facility was sold to the current owner, Petro Marine Services, in 1995.

The facility was refurbished in 1996-1998. A new oil/water separator was plumbed in 1996. New above liner and below liner sumps were plumbed in the tank farm containment areas in 1997 and 1998. (see Facility Changes and Improvements since June 1995, Appendix B).

In January 1996 and again in May 1998 oily water began collecting in a ditch alongside Beach Road, downgradient of the Petro Marine (PM) facility near the Lower Warehouse (see Facility Site Plan, Figure 10). PM removed the oil with absorbent pads and in 1998 sent the water through an oil/water separator. During the facility refurbishing process 1998, PM removed soil leading to the ditch from their property and replaced this with shotrock fill (see Site Photographs, Figures 19 and 20).

The soil removed during the excavation was stockpiled on the northern edge of the facility parking lot. Smith Bayliss LeResche Inc sampled the soil in February 2001 to be analyzed for diesel range organics (DRO), residual range organics (RRO) and gasoline range organics (GRO). The sample results meet ADEC Method One cleanup levels.

Environmental History of Local Properties

Table 1: Contaminated Sites in Haines, Alaska

Site #	Name	Type of Contamination/Problem	Status	Priority
1	Haines POL Terminal	Contaminated soil and groundwater	Active	High
2	Haines Fuel Terminal	Asphalt and diesel	Active	High
3	Haines Tank Farm	Contaminated soils	Active	High
4	FAA Haines Station	Lead, arsenic, zinc, copper	Inactive	Medium
5	Haines Light & Power	Hydrocarbons, PCBs	Active	Medium
6	Haines Sawmill	Petroleum hydrocarbons	Active	High
7	Skyline Estates	Diesel contamination	Inactive	Low
8	Mt. Ripinski Repeater	Diesel contamination	Active	Low

3.0 Site and Area Description

The Petro Marine Services Haines Bulk Plant site contains a tank farm, two warehouses, a pumping station, a tank truck loading rack, and a marine header on a dock (see Figures 9 and 10). The tank list can be found in Table 2. The facility operates nine hours a day during the summer. Operation hours are restricted during the winter.

Table 2: Haines Fuel Tank Farm Oil Container Information

Tank No.	Diameter	Height	Volume (gallons)	Date built	Product	Construction	Foundation	Date Lined
3	20	30	69,295	1944	Jet A-50	welded steel	gravel	1996
4	26	30	117,322	1944	AVGas	welded steel	concrete ring	1996
5	28	23	2,522	1944	gasoline	riveted/welded	gravel	1996
6	37	27	5,170	1944	#2 diesel	welded steel	gravel	1996
8	24	30	2,417	1944	Jet A-50	welded steel	gravel	1996
9	13	33	780	1980	gasoline	welded steel	concrete pad	1997
10	13	33	780	1980	gasoline	welded steel	concrete pad	1997
11	13	33	780	1980	gasoline	welded steel	concrete pad	1997
12	13	28	662	1980	gasoline	welded steel	concrete pad	1997

Geology
The property is primarily rock fill on native soil.

Topography, Vegetation, and Soils
There is little vegetation on the site. The site is graded southeastward so that all rain runoff will flow to the drain and then to the oil/water separator (see Facility Drainage Plan, Figure 11).

Wildlife
The Petro Marine Services facility is approximately 350 feet from Portage Cove and is therefore habitat for birds and waterfowl, including eagles, ravens, and seagulls.

Water and Sewer
All Petro Marine buildings are served by city water and sewer.

Adjacent Land Uses
The property is bordered by two roads: Beach Road and Haines Cut Off Highway (see City of Haines Map, Figure 8). Nearby buildings include the Haines Quick Stop and the US Post Office.

Groundwater Contamination
There is no known groundwater contamination in this area.

4.0 Interviews

Bill Schoephoester, Manager/Planning & Projects
Petro Marine Services
Interviewed April 16, 2001 by Amy Randolph

Bill has no environmental concerns about this property.

Bob Cox, Senior Vice President/ Operations
Petro Marine Services
Interviewed April 19, 2001 by Amy Randolph

Bob stated that Petro Marine refurbished the Haines facility a few years ago. They plan to repair the truck rack containment pad this spring in accordance with ADEC request. He knows of no contamination on site.

Rich Kaloostian, former Plant Manager
Petro Marine Services, Haines
Interviewed April 19, 2001 by Amy Randolph

Rich worked for White Pass and then Petro Marine at the Haines facility until May 1999. He said that in the process of installing an oil/water separator on site in 1997 they found some diesel contaminated soil, which he believes may have originated at a diesel tank (this has since been removed). He said the removed soil was placed on a tarp and left to self-remediate over the course of a few years, during which time Petro Marine employees turned the soil over occasionally. Rich said the soil was considered remediated by ADEC in the spring of 1999.

David Black, previous owner
Interviewed April 19, 2001 by Amy Randolph

David owned the facility from 1984 until 1986 and operated it under the name Valley Fuel Services, Inc. He bought it from Chevron, whom he believes built the original facilities in1932 or 1934. He sold the facility in 1986 to White Pass.

Dan Hopson, Environmental Specialist
Spill Prevention and Response
Alaska Department of Environmental Conservation
Interviewed April 6, 2001 by Amy Randolph

Dan gave me access to the ADEC files for the Petro Marine Services facilities in Haines. He has their Contingency Plan, valid 12/03/00 until 12/22/02, on file.

Dan stated that oily water was found in a ditch alongside Beach Road, downgradient of the Petro Marine facility in 1996 and 1998. According to ADEC records, in January 1996 and again in May 1998 oily water began collecting in a ditch alongside Beach Road, downgradient of the Petro Marine (PM) facility near the Lower Warehouse (see Figures 9 and 10). PM removed the oil with absorbent pads and in 1998 sent the water through an oil/water separator. During the facility refurbishing process 1998, PM removed soil leading to the ditch from their property and replaced this with shotrock (see Site Photographs, Figures 19 and 20).

Dan conducted a routine site investigation of the facility on November 28, 2000 to verify compliance with the State Oil and Hazardous Substances Pollution Prevention Regulations of 18 AAC 75 and the approved Oil Discharge Prevention and Contingency Plan. In a letter to Petro Marine dated December 14, 2000 Dan requested action on five items:

Actions Required
1. Submit proposal for re-attaching Polyshield liner to all tank bottoms.
2. Submit plan for upgrading truck rack to meet standards for impermeability and collision protection.
3. Clean debris away from all piping and insert chafe pads where they are lacking
4. Ensure that all pipes removed from service more than one year are drained, identified as to origin, marked with the words "Out of Service", and capped or blank flanged
5. Contact DEC contaminated sites staff regarding sampling plan for truck rack renovation and disposition of contaminated soil from prior tank farm renovations

Bill Schoephoester of Petro Marine stated in a letter dated January 30, 2001 that these actions will be completed by Spring 2001.

Chris Race, Environmental Specialist
Spill Prevention and Response
Alaska Department of Environmental Conservation
Interviewed April 6, 2001 by Amy Randolph

Chris said Petro Marine has a Certificate of Financial Responsibility on file with ADEC.

Scott Tiernan, Environmental Specialist
Spill Prevention and Response
Alaska Department of Environmental Conservation
Interviewed April 19, 2001 by Amy Randolph

Scott stated that the Petro Marine Haines facility had an on-site spill of about 130 gallons of heating oil in April 2001. The fuel spilled from a 275-gallon off-spec diesel tank. All but 8 to 10 gallons of fuel remained within the containment area. Petro Marine reported that the containment area was cleaned out and all clean up materials were burned in a waste oil burner.

Bruce Wanstall, Environmental Specialist
Contaminated Sites
Alaska Department of Environmental Conservation
Interviewed April 17, 2001 by Amy Randolph

Bruce reviewed the contaminated sites database and found several c-sites in Haines. He emailed this information to us (see Table 1).

Anne Marie Palmieri, Environmental Specialist
Spill Prevention and Response
Alaska Department of Environmental Conservation
Interviewed April 19, 2001 by Amy Randolph

Anne Marie was concerned about the 1998 appearance of oil in the ditch downgradient from the facility. She believes this may have originated at the truck rack. She stated that Sally Schlichting was overseeing work at the facility in 1996 and may have more information about the soil stockpiles.

Sally Schlichting, former Environmental Specialist
Alaska Department of Conservation
Interviewed April 23, 2001 by Amy Randolph

Sally said that Petro Marine had a soil stockpile on site in 1996 but she does not know what happened to it.

Mike Caldwell, Marine Science Technician
Marine Safety Office
United States Coast Guard, Juneau
Interviewed April 17, 2001 by Amy Randolph

Petty Officer Caldwell stated that Petro Marine is one of the cleanest fuel companies he has seen. He hasn't had a single report of a spill at a Petro Marine site in his 5 years in Juneau.

Vince Hanson, City Administrator
City of Haines
Interviewed April 24, 2001 by Amy Randolph

Vince has no environmental concerns for this property.

John Shaw, Wastewater Operator
City of Haines
Interviewed April 24, 2001 by Jason Ginter

John has no environmental concerns for this property.

Scott Bradford, Fire Chief
City of Haines Fire Department
Interviewed April 24, 2001 by Jason Ginter

Scott has no environmental concerns for this property.

5.0 Site Investigation

Amy Randolph of Smith Bayliss LeResche Inc (SBL) visited the site on April 12, 2001. Charlie Roberts, the plant manager since July 1999, gave her a tour of the facilities. Petro Marine Tank Farm has an annual throughput of about 2 million gallons. The tank farm was refurbished about three years ago. The containment area has concrete walls and a concrete and rock fill bottom which are fully lined with Polyshield. The entire containment area drains through an oil/water separator and then into the groundwater beneath the property (see Facility Drainage Plan, Figure 11).

The gas station pumps directly from the tank farm. The site is graded and an underground drainage system collects all liquids and drains to the oil/water separator (see Site Photograph, Figure 15 and Facility Drainage Plan, Figure 11).

There are two warehouses on site (see Facility Site Plan, Figure 10), known as Warehouse and Lower Warehouse. The Warehouse contains boxes of brake cleaner, brake fluid, transmission fluid, kerosene, motor oil and paper towels. There are also eight bales of sorbents here. The Lower Warehouse contains about 60 bales of sorbents, 32 sorbent booms, a rope mop and skimmer, and rolls of sorbent material. Boxes of motor oil, hydraulic oil, chair bar oil and gear lubricant are also stored in this warehouse. Material Safety Data Sheets for all stored materials are kept in the gas station office (see Facility Site Plan, Figure 10).

There is a small building on the dock that contains spill response gear, including 300 feet of curtain. An additional 500 feet of curtain is stored near the truck rack. Charlie stated that they have a practice deployment of spill response equipment twice a year in Portage Cove.

A fuel spill log is kept in the gas station office along with the ADEC Certificate for Proof of Financial Responsibility and Certificate for Oil Discharge Prevention and Contingency Plan. The facility has also completed a Spill Prevention Control and Countermeasure (SPCC) Plan, as required by the Environmental Protection Agency.

6.0 Findings and Conclusions

Based on the site inspection and review of photographs, site records and interviews with regulatory agencies and the owner, we find that no evidence exists of any environmental problems at this site.

Smith Bayliss LeResche Inc by
Randolph Bayliss, P.E., Environmental Engineer,
Managing Principal
27 April 2001

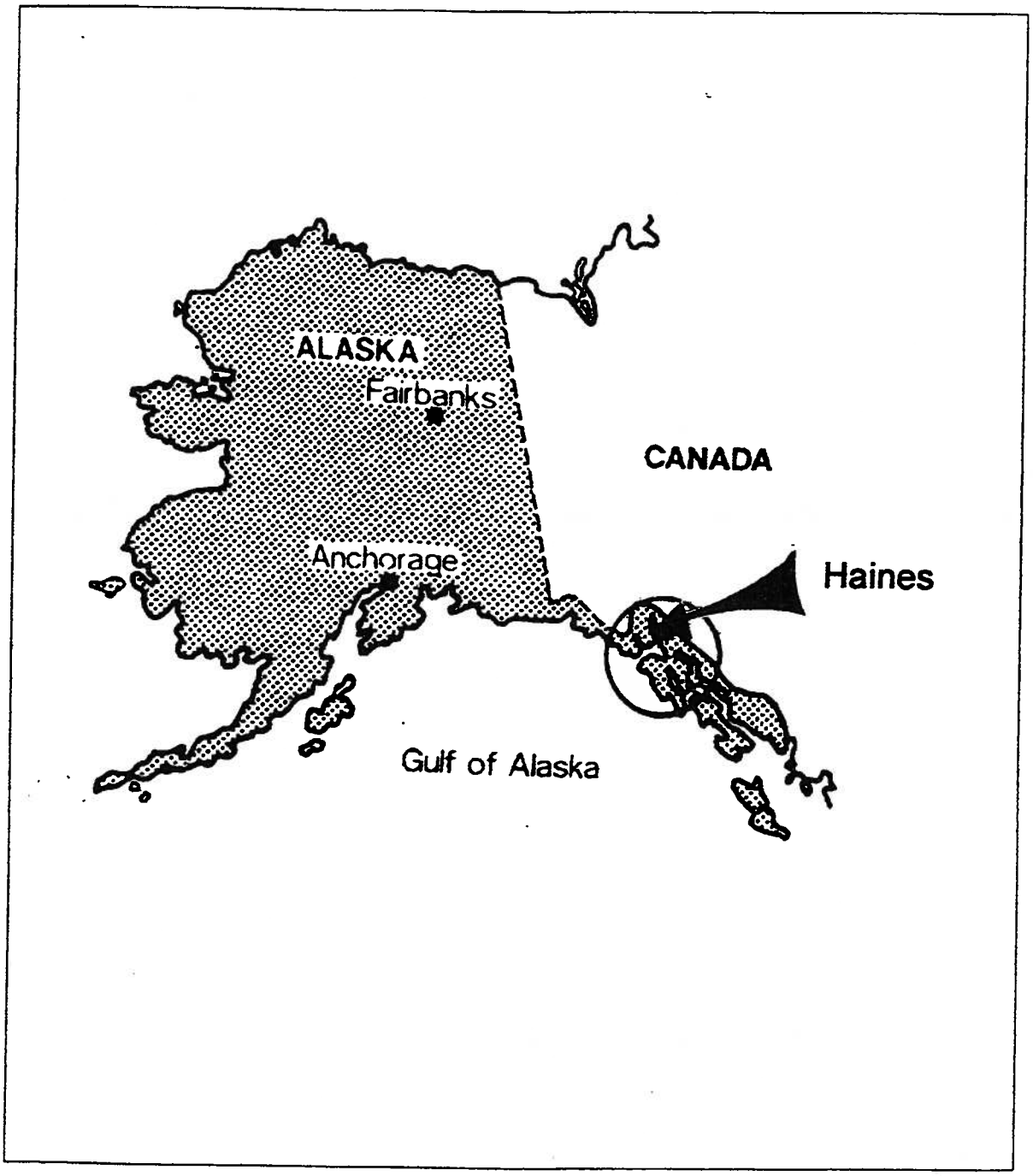
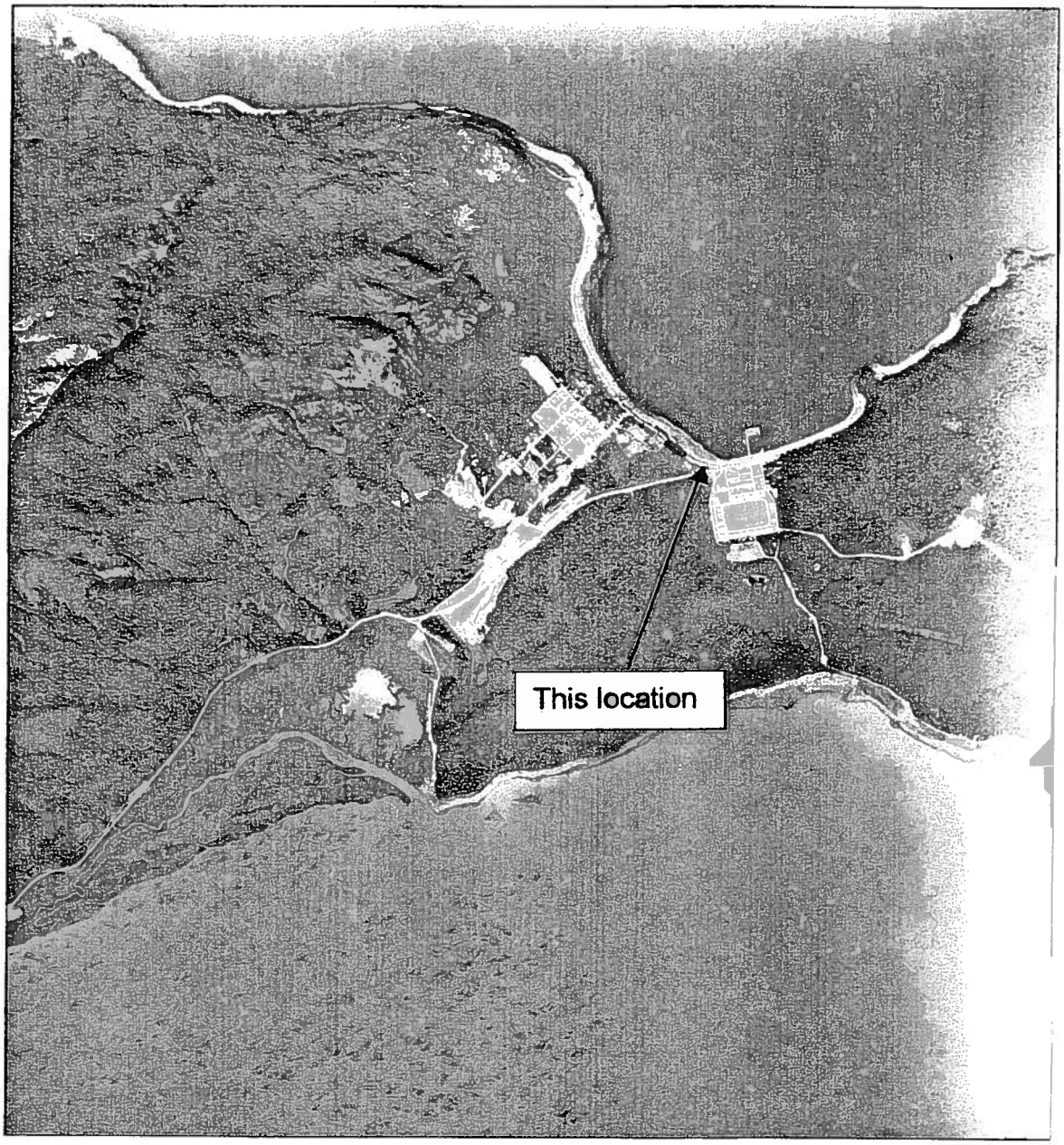
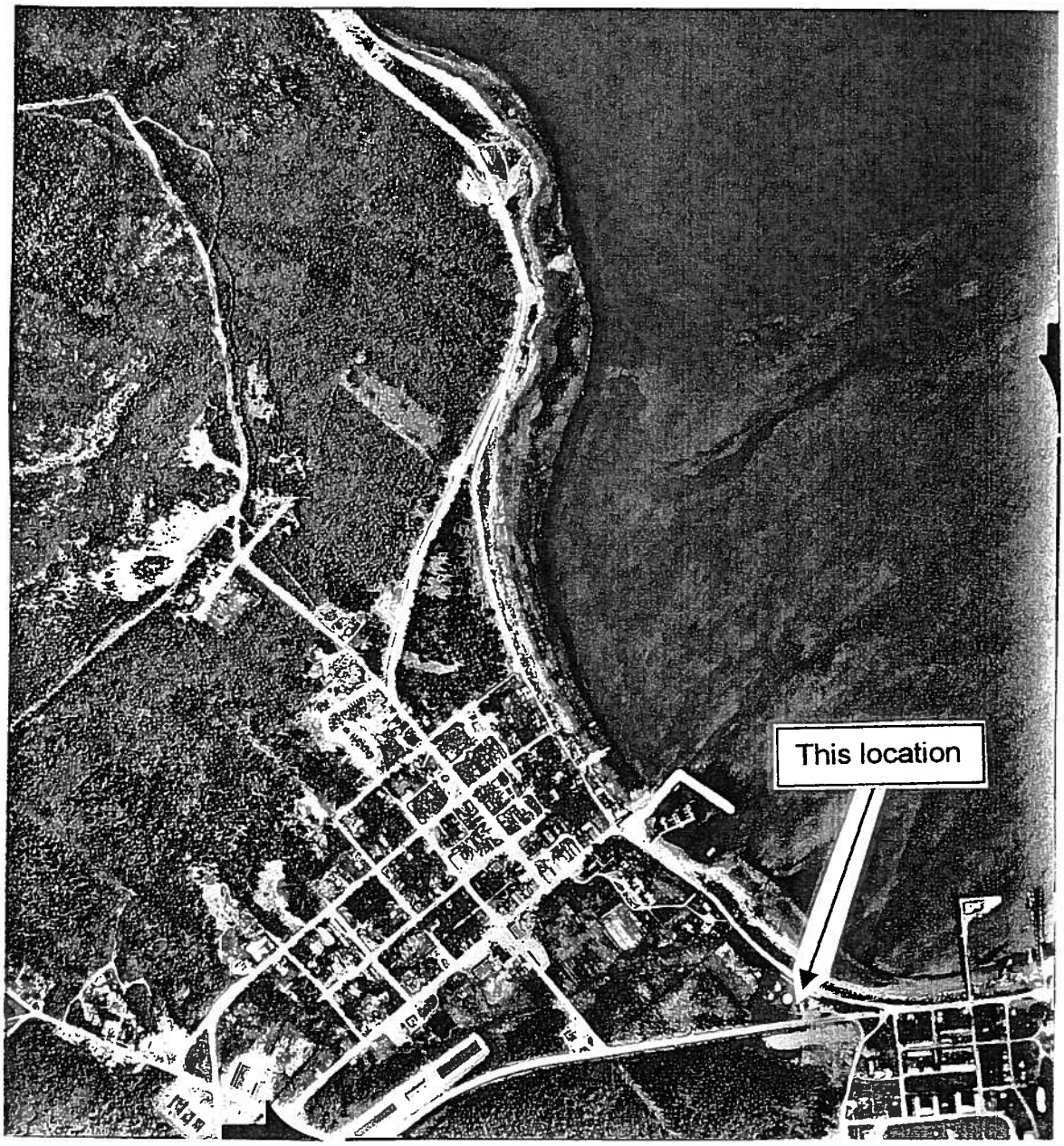


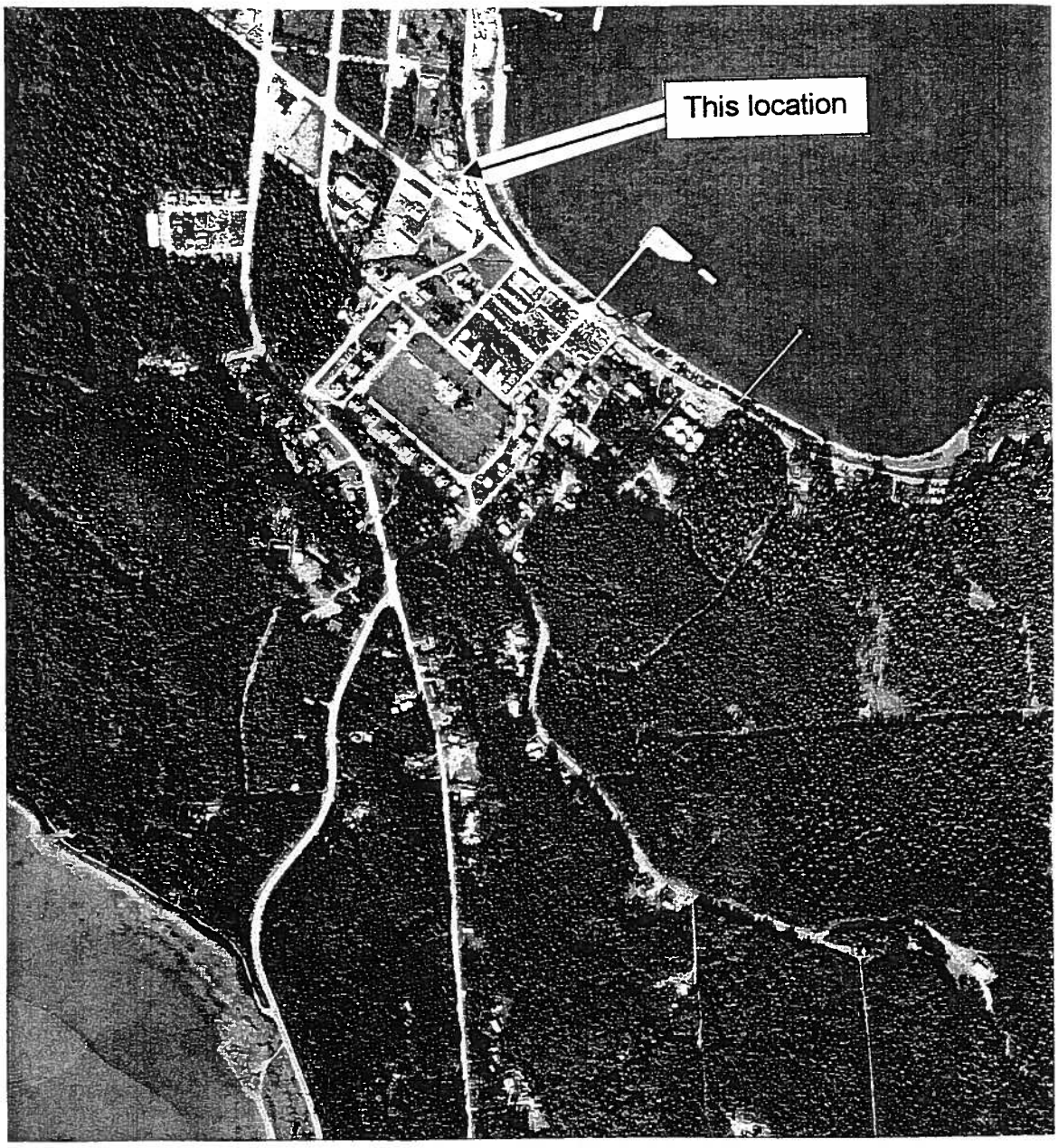
Figure 1. Vicinity Map



Aerial Photograph of Site, 1948
Photo by R & M Engineering



Aerial Photograph of Site, 1961
Photo by R & M Engineering



Aerial Photograph of Site, 1992
Photo by R & M Engineering

735

735

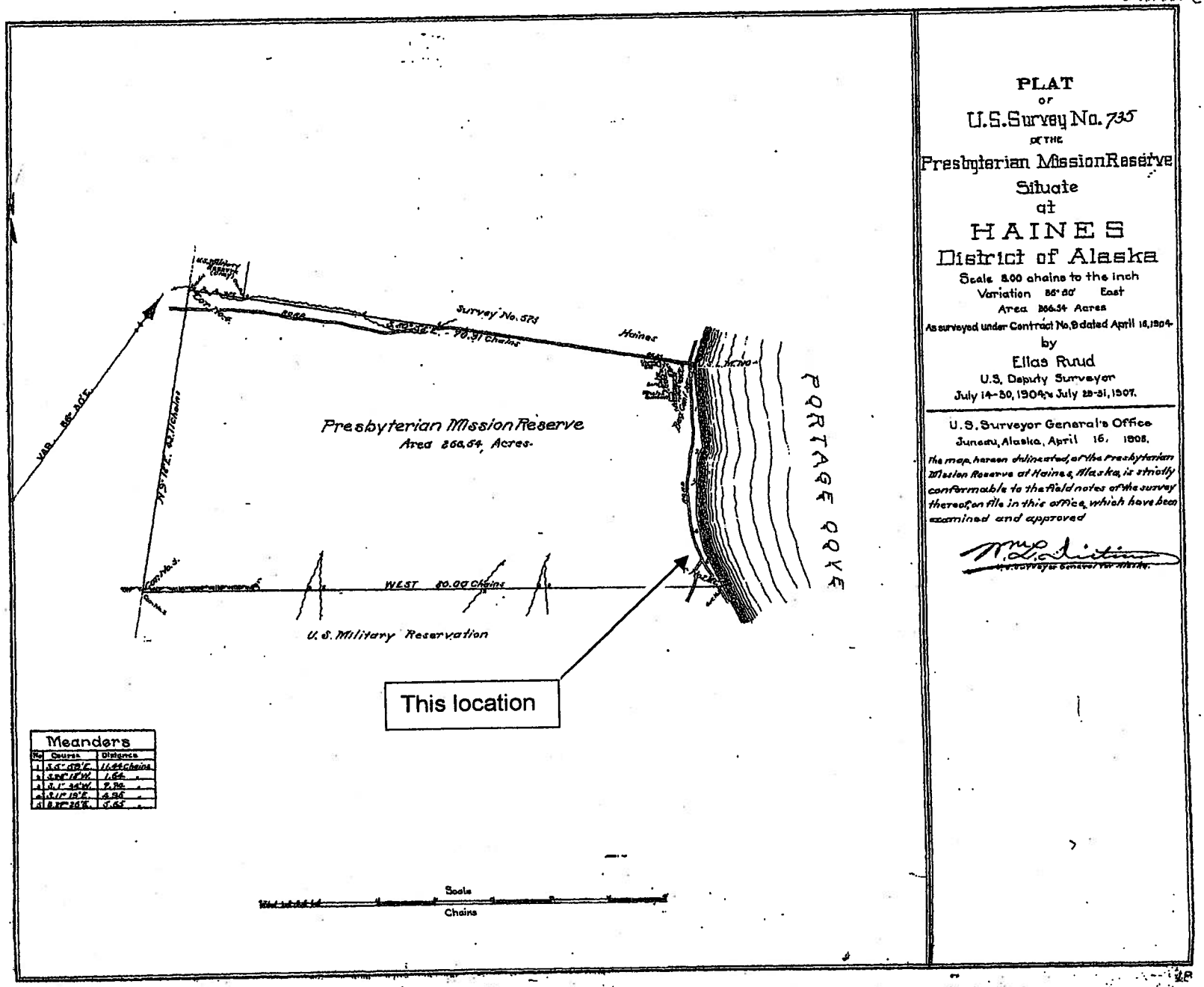


Figure 5. Property Plat Map, 1908

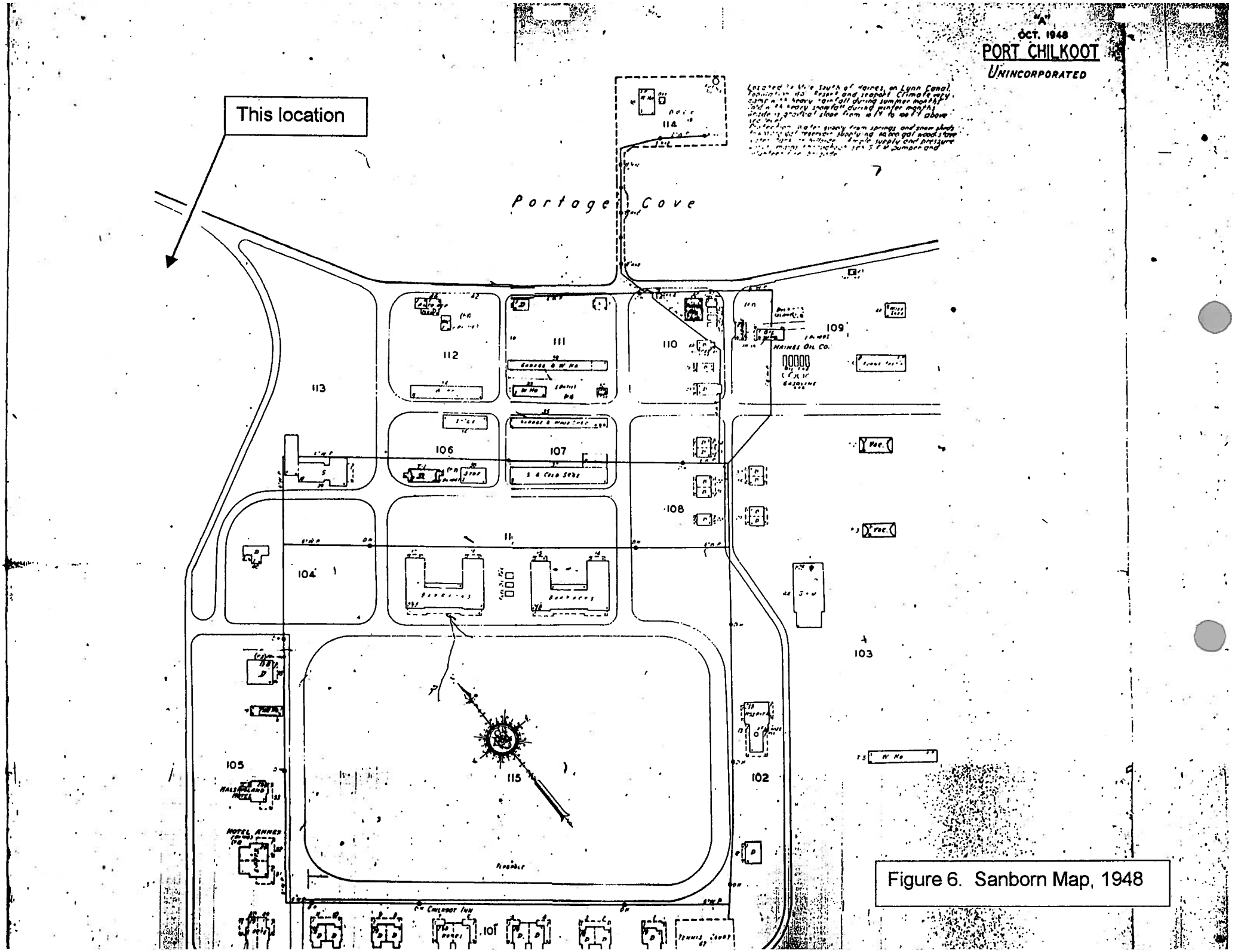


Figure 6. Sanborn Map, 1948

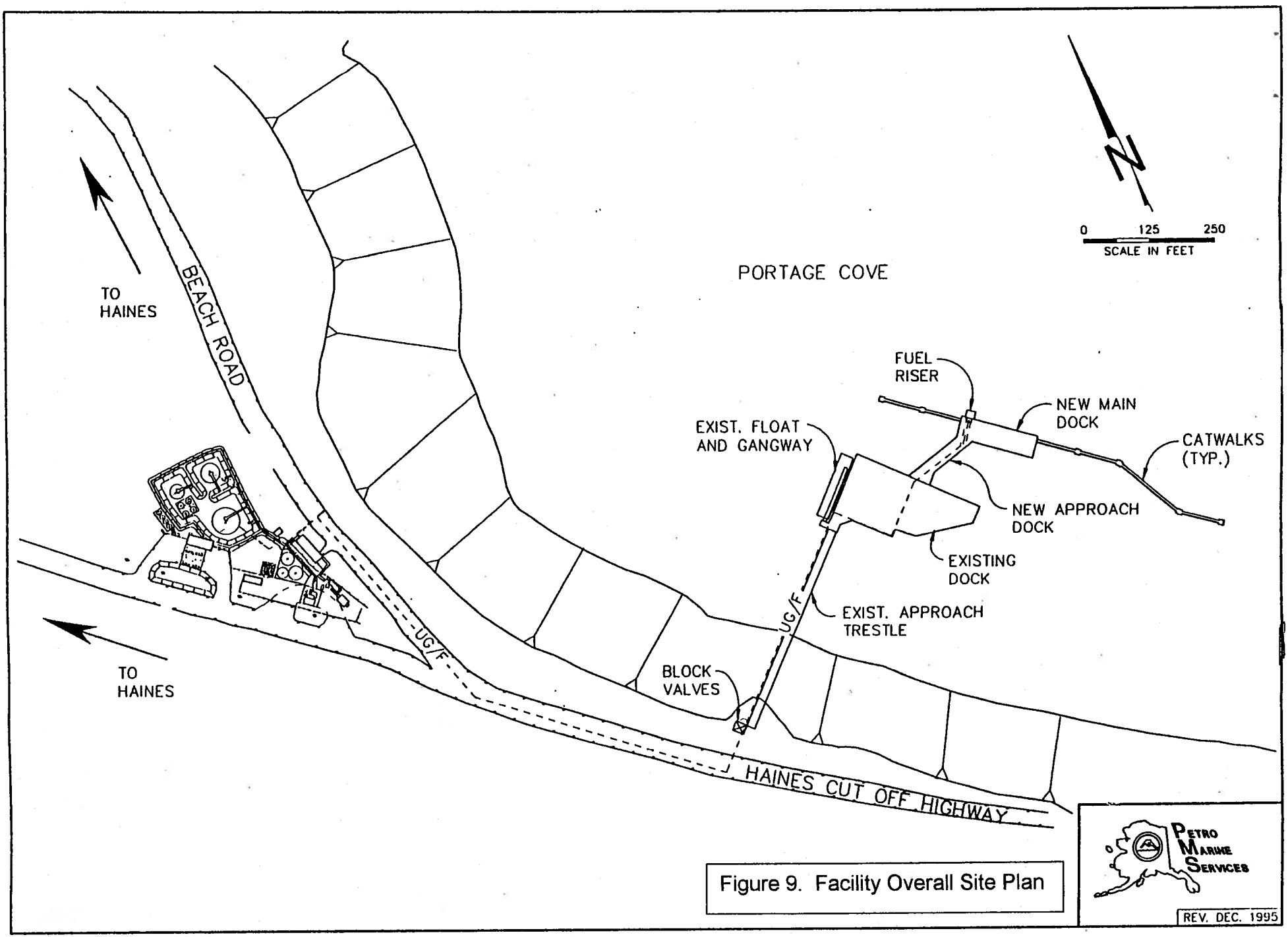


Figure 9. Facility Overall Site Plan

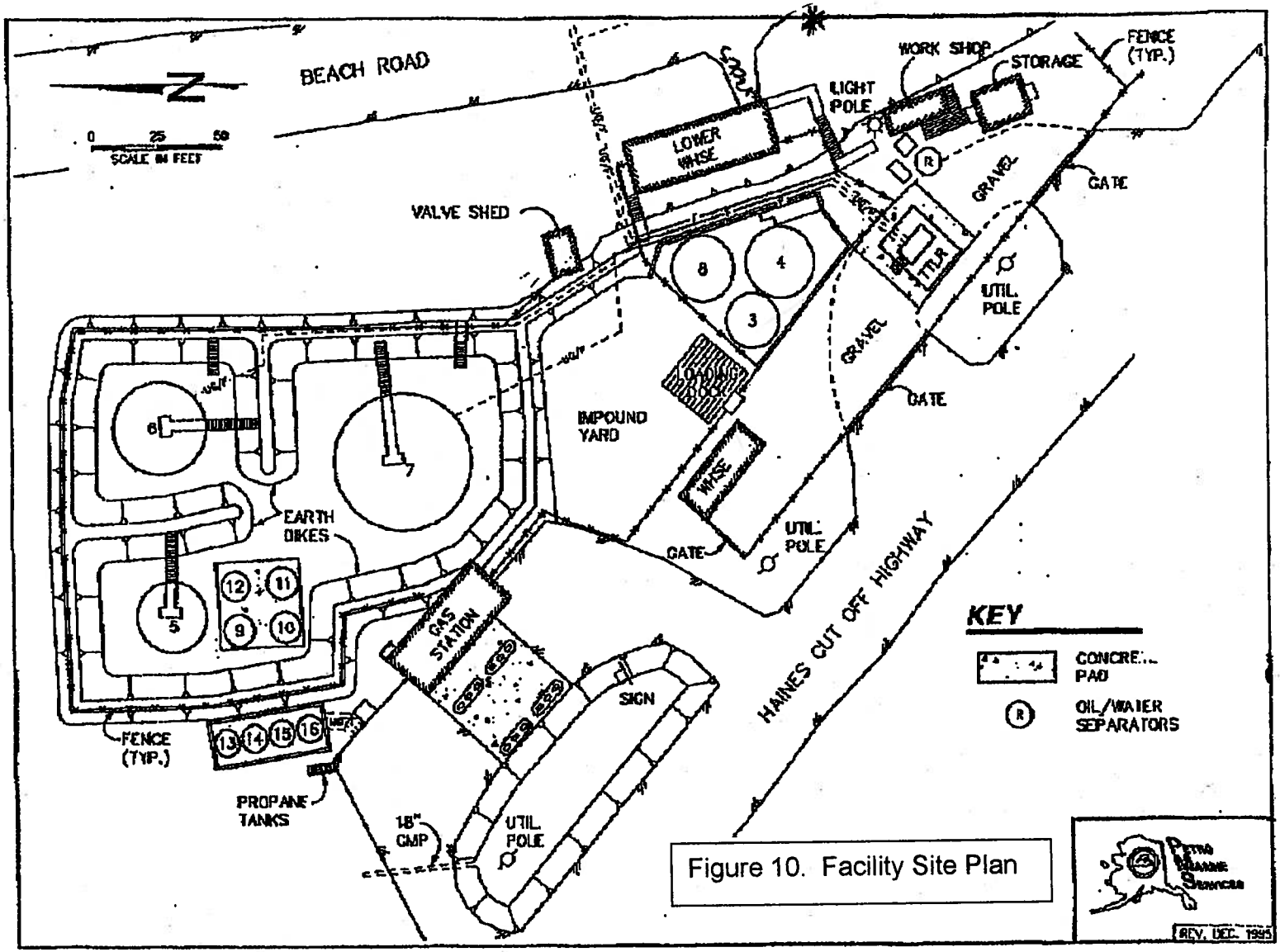


Figure 10. Facility Site Plan

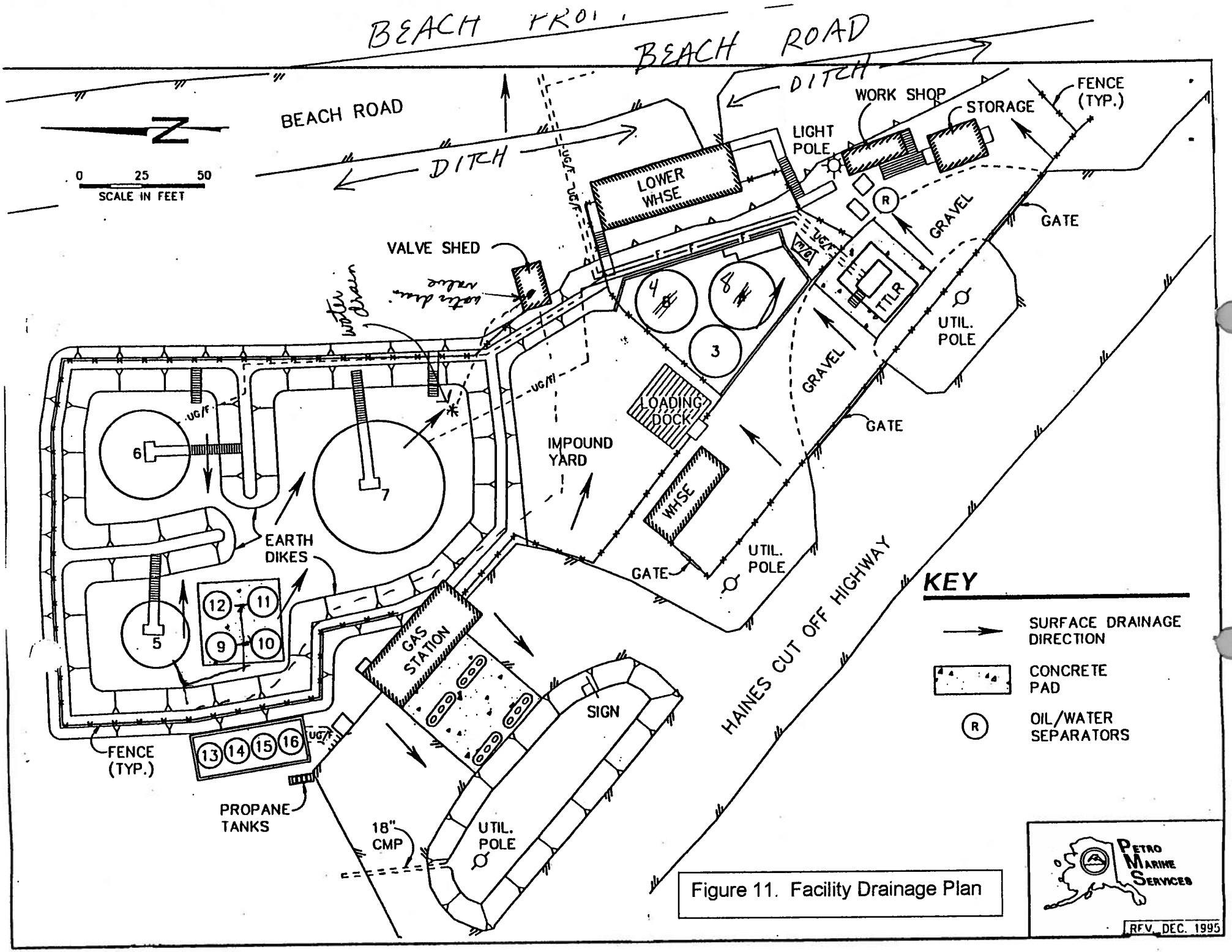


Figure 11. Facility Drainage Plan

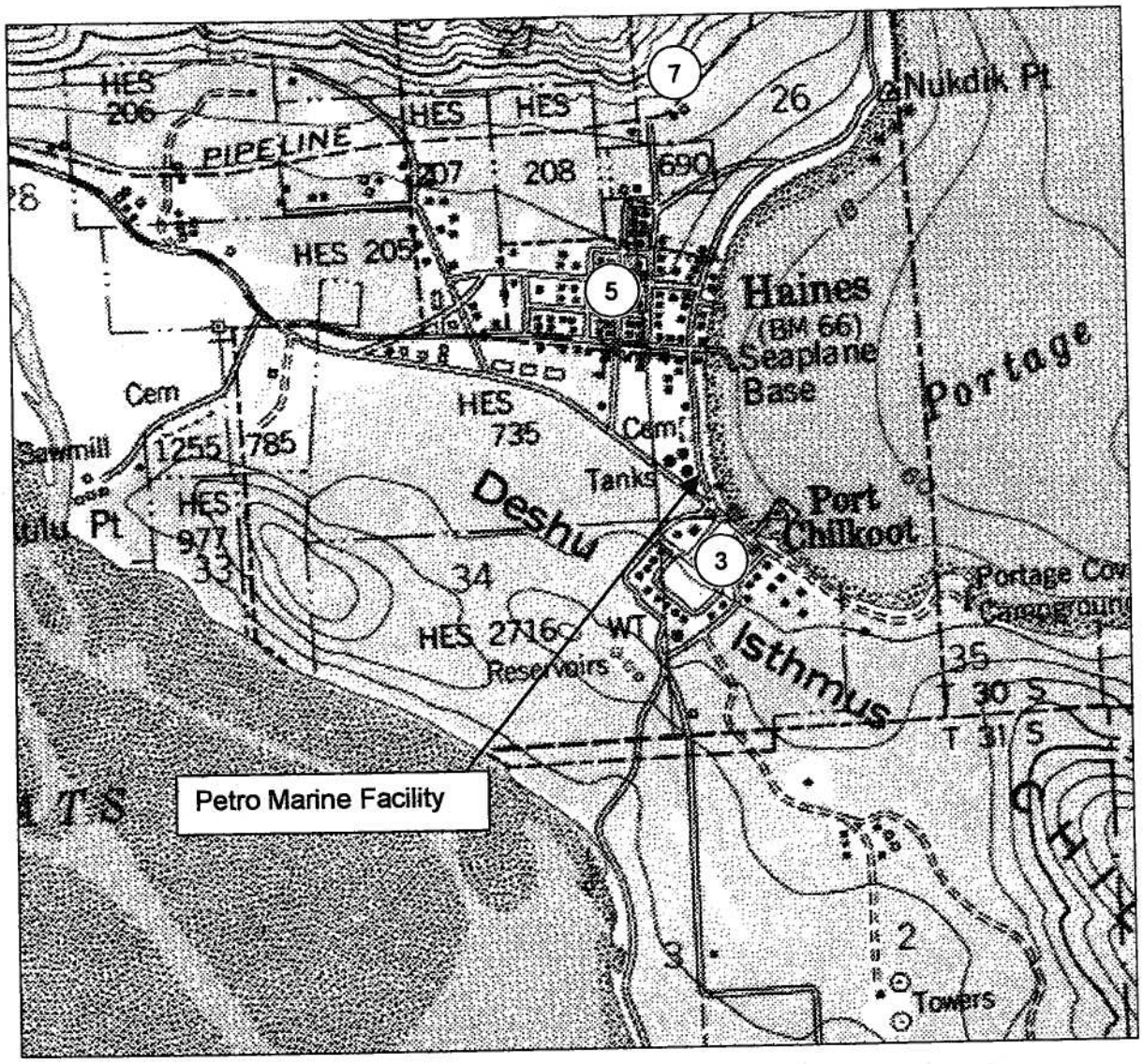


Figure 12. Contaminated Sites in Haines
Taken from USGS A-2 Quadrangle Map

Site #	Name	Type of Contamination/Problem	Status	Priority
1	Haines POL Terminal*	Contaminated soil and groundwater	Active	High
2	Haines Fuel Terminal*	Asphalt and diesel	Active	High
3	Haines Tank Farm	Contaminated soils	Active	High
4	FAA Haines Station*	Lead, arsenic, zinc, copper	Inactive	Medium
5	Haines Light & Power	Hydrocarbons, PCBs	Active	Medium
6	Haines Sawmill*	Petroleum hydrocarbons	Active	High
7	Skyline Estates	Diesel contamination	Inactive	Low
8	Mt. Ripinski Repeater*	Diesel contamination	Active	Low

* sites outside of map area

STATE OF ALASKA
DEPT. OF ENVIRONMENTAL CONSERVATION

TONY KNOWLES, GOVERNOR

Contaminated Sites Remediation Program
Post Office Box 1542
Haines, Alaska 99827

phone: 766-3184
fax: 766-3185

May 19, 1998

Mr. Warren Pellett
Petro Marine Services
Post Office Box 33619
Juneau, Alaska 99803

RE: Site Assessment - Petro Marine Services, Haines; spill number 98110112801

Dear Mr. Pellett:

The purpose of this letter is to formalize the matters regarding the referenced site that we discussed by telephone on Friday May 15, 1998. It is our understanding that oily water is currently being collected from a seep along a roadside ditch on the hillside downgradient of the facility's truck rack. Petro Marine is currently conducting an interim action of collecting approximately 1 gallon of free product daily on absorbent pads, which are being stored for disposal, and pumping approximately 50 gallons of water daily from the ditch through the oil/water separator.

The interim action that is being conducted is beneficial as a short-term fix while a permanent solution to this problem can be found. The first step is to determine the nature and extent of contamination through a Site Assessment. Based upon the current situation, there are several issues which need to be clarified, including: 1) defining the source and extent of the contamination, and 2) determining whether the groundwater is contaminated. The Site Assessment workplan should be developed so that these issues are addressed through sampling of both the soil and groundwater.

It is understood that Petro Marine Services is under a compliance schedule with the Department's Industry Preparedness and Pipeline Program for the renovation of the truck rack, including paving this area. This action is to be completed by October 31, 1998. As the Site Assessment will include the area of the truck rack, these two actions will need to be coordinated. Whereas paving this area will prevent future routine operations and maintenance spills, the current contamination needs to be assessed and addressed. In order to meet the October 31st deadline, Petro Marine will need to submit a Site Assessment Workplan to the department fairly quickly. Once the workplan has been reviewed and approved, the Site Assessment can be conducted with the resulting report sent to the Department for review. At that time we will discuss appropriate

cleanup levels and the Corrective Action workplan will be developed and submitted to the department for review and approval. It is only at this point in the process that the Corrective Action can take place.

It is possible for all of these actions to take place this field season, however it will take a bit of planning and coordination. The CSRP will work with you to expedite review and approval of the workplans and reports and also the determination of cleanup levels.

Please contact me as soon as possible to discuss a schedule for developing the Site Assessment workplan and conducting site activities. I can be contacted by telephone at 766-3184, email at apalmier@envircon.state.ak.us, or by regular mail at P.O. Box 1542 in Haines.

Sincerely,

Richard Cormack

for Anne Marie Palmieri
Environmental Specialist

cc: Dan Hopson, DEC-IPP
Roy Warren, DEC-PERP

January 30, 2001

To: Bob Cox
From: Charlie Roberts
Subject: Update on Golder Report - Dec 1994

Petro Marine Services- Haines Plant
Facility Changes and Improvements Since June 1995

Tanks:

- In 2000, all bulk plant tanks received external inspections (API653).

				API 653 Internal
Bulk Plant:				
• Tank #3	1944	69,295 gallons	Jet A-50	May 96
• Tank #4	1944	117,322 gallons	AVGas 100LL	July 96
• Tank #5	1944	103,131 gallons	Unleaded Gas	Oct 00
• Tank #6	1944	196,569 gallons	#2 Diesel	May 96
• Tank #7 was removed from the facility in 1996.				
• Tank #8	1944	101,284 gallons	Jet A-50	July 96
• Tank #9	1980	30,294 gallons	Supreme Unleaded Gas	July 00
• Tank #10	1980	30,294 gallons	Unleaded Gas	Apr 97
• Tank #11	1980	30,294 gallons	Unleaded Gas	July 00
• Tank #12	1980	19,064 gallons	Unleaded Gas	Apr 97
Petro Express:				
• Tank #13	1990	3,000 gallons	Unleaded Gas	
• Tank #14	1990	3,000 gallons	Unleaded Gas	
• Tank #15	1990	3,000 gallons	Supreme Unleaded Gas	
• Tank #16	1990	3,000 gallons	#2 Diesel	
Marine Leased from the City of Haines:				
• Tank #17		6,000 gallons	Unleaded Gas	
• Tank #18		6,000 gallons	#2 Diesel	
• Tank #19		3,000 gallons	#1 Diesel	
Haines Airport:				
• Tank #20		3,000 gallons	AVGas 100LL	

- Tank #4 was set on a new concrete ring foundation in 1996.
- New valves and water draws were installed on Tanks 3-12 in 1997.
- Tanks 5, 9, 10, 11, and 12 had new gauges put on them in 1997.
- New stairs and walkways were fabricated for tanks 4-12 in 1998.
- Tanks 3-19 were sand blasted as needed and sprayed with a protective coating in 1998.
- 4 sodium security lights were wired on top of tanks 3, 6, 9 and between 3 and 8 in 1998.

Containment:

- Lower Tank Farm - common to tanks #5,6,9,10,11,12: lined earthen berm, sand and gravel floor, except concrete under #9-12. Approx. 700,000 gallons.
  All contaminated soil was removed from the facility in 1997.
  The secondary liner was installed in 1998.
  Inside berms taken out.
- Upper Tank Farm - common to tanks #3,4,8: lined concrete walls with sand and gravel floor. Approx. 150,000 gallons. The secondary liner was installed in 1998.
  The concrete wall was installed in 1996.
- Common to tanks #13-16: lined concrete walls and floor. The liner was put in 1998.
- Common to tanks #17-19: unlined concrete walls and floor. Leased from the city of Haines beginning Sept. 1996.
- A new oil/water separator was plumbed in 1996. New above liner and below liner sumps with product sensor alarms and drain lines were plumbed and wired in 1997/8.
  A drain rock field was put in below the oil/water separator discharge in 1998.

Pipelines:

- All new pipelines and valves were installed above ground in the tank farms in 1997.
- The valve shed was constructed in 1998.
- The underground cargo lines to the PC dock and the under ground lines from the pump house to the truck loading rack have not been replaced since June 1995.
- New shed built over pumps in 1997.
- Aviation filter systems replaced in 1998.

Truck Loading Rack:

- New roof and stairs in 1997.
- Unleaded gas meter replaced in April 2000.

Other:

- Used oil/drum storage shed and unlined concrete containment built in 1998.
- New siding and roof added to upper warehouse in 1997. Overhead door put in Dec. 2000.
- New stairs to lower warehouse built 1999.
- New water/sewer line plumbed and buried in 1998.
- New fence installed around plant in 1998.
- Protective pipe rails bolted around header valves at Port Chilkoot Dock in 1997.
- New wood box for containment boom stored on Port Chilkoot dock built in 1999.
- Airport tank #20 acquired in July 1997.
- New flag sign for marina in 1998.
- New marina hoses Aug 1999.

Petro Express: all improvements made in 1998.

- 4 new double sided Gilbarco dispensers and Gasboy system installed.
- New price/flag sign and overhead station signs.
- New skin on office and gas station building.
- 4 new transfer pumps and pipelines from tank farm replaced.
- New commercial/barrel pump station put in. Includes meters and shed.
- Additional gravel parking and concrete pad added in front of commercial pumps.
- Concrete pad poured in front of station pumps 6 and 8.
- New air commercial air compressor in 1999.
- New RV dump station.

The improvements listed are to the best of my knowledge. Most of the work was done prior to my arrival to work at the facility in July 1999. I derived most information from a maintenance log, from employees who worked here between 6/95 and 6/99, and from other documentation in the office.

Charlie Roberts
Haines Manager
Petro Marine Services

RECORDING REQUESTED BY:

BOOK 11 PAGE 719
Haines Recording District

WHEN RECORDED RETURN TO:
David Karl Black
P.O. Box 179
Haines, Alaska 99827

MAIL TAX STATEMENTS TO:

As Directed Above

WARRANTY DEED

CHEVRON U.S.A. INC., a California corporation, of San Francisco, California, hereinafter called "Grantor," for Ten and No/100 Dollars ($10.00) and other valuable consideration, in hand paid, conveys and warrants to DAVID KARL BLACK, the following described real property located in the Township of Haines, State of Alaska:

A tract of land in U.S. Survey 735, Haines Recording District, First Judicial District, State of Alaska.

Begin at a point on the Westerly line of the Haines Port Chilkoot Road, which point is South 1 degree 49' 10" West 1521.64 feet from Corner 1 (one) of U.S. Survey 735, run thence S. 40 degrees 38' 30" West 131.85 feet to the Northeasterly line of the Haines Cut-Off Highway; thence South 49 degrees 21' 30" East along said Northeasterly line of Haines Cut-Off Highway 240.54 feet to the intersection of the Northeasterly line of said Haines Cut-Off Highway with the Westerly line of the Haines Port Chilkoot Road; thence Northerly along the Westerly line of the Haines Port Chilkoot Road as the same describes an arc of a circle having a radius of 3565.53 feet, a distance of 274.33 feet to the point of beginning and;

A tract of land in said survey described as:

Begin at a point on the West line of the Haines-Port Chilkoot Road which bears S 2 degrees 42' 35" E 1311.94 feet from the Northeast corner of said survey, run thence N 87 degrees 07' W 264.00 feet to fence post; thence S 28 degrees 27' W 124.08 feet to a fence post in the Northeasterly line of Haines Cutoff Highway; thence S 49 degrees 21' 30" E, on said Northeasterly line, 330.00 feet, thence N 40 degrees 38' 30" E 150.00 to said West line; thence N 7 degrees 19' 30" W, on said West line, 198.56 feet to the point of beginning.

Together with all improvements located on said real property on the date of this deed, whether the same constitute real or personal property (said property and improvements being hereinafter collectively called the "property"). Without limitation on the generality of the foregoing, said improvements include any warehouse and barrel platform, office, pump house, garage, tank truck loading ramp, other platforms, fencing and gate, utility lines, storage tanks, pumps, tank truck unloading headers, plumbing, lines and related valves, flanges and unions, garage, meters, motors and electrical wiring so located on said date.

This conveyance is subject to all matters appearing of record or that can be ascertained by an inspection of said real property.

Dated: July 2, 1984.

CHEVRON U.S.A. INC.

By _____
Assistant Secretary

STATE OF CALIFORNIA)
) ss
County of Contra Costa)

BOOK 11 PAGE 720
Haines Recording District

THIS IS TO CERTIFY that on this 2ND day of July, 1984 before me, the undersigned, a Notary Public in and for the County of Contra Costa, State of California, duly commissioned and sworn, personally appeared Clair Ghylin to me known to be an Assistant Secretary of CHEVRON U.S.A. INC., a corporation, the corporation which executed the above and foregoing instrument; and who on oath stated that he was duly authorized to execute said instrument, and who acknowledged to me that he signed the same freely and voluntarily on behalf of said corporation for the uses and purposes therein mentioned.

WITNESS my hand and official seal hereto affixed the day and year in this certificate above written.

OFFICIAL SEAL
ELAINE L. WALKER
NOTARY PUBLIC-CALIFORNIA
CONTRA COSTA COUNTY
My Commission Expires Oct. 22, 1984

Elaine L Walker
Notary Public in and for the
County of Contra Costa
State of California
My commission expires:

84-000490

11.00

RECORDED ~~FILED~~
HAINES RECORDING
DISTRICT

JUL 16 2 57 PM '84

REQUESTED BY TIA

ADDRESS _____

DEED OF TRUST

BOOK 11 PAGE 721
Haines Recording District

THIS DEED OF TRUST, Made this 16th day of July, 1984

BETWEEN DAVID KARL BLACK

hereinafter called TRUSTOR,

whose address is P.O. Box 179, Haines, Alaska, 99827
Number and Street City State of Alaska,

Cook Inlet Title Agency, Inc. herein called TRUSTEE, and

CHEVRON U.S.A. INC., a California corporation , herein called BENEFICIARY

WITNESSETH: That Trustor GRANTS, BARGAINS, SELLS, and CONVEYS to TRUSTEE IN TRUST WITH POWER OF SALE, that property in the HAINES Recording District, FIRST Judicial District, State of Alaska, described as

A tract of land in U.S. Survey 735, Haines Recording District, First Judicial Dist., State of Alaska Begin at a point on the Westerly line of the Haines Port Chilkoot Road, which point is South 1 degree 49' 10" West 1521.64 feet from Corner 1 (one) of U.S. Survey 735, run thence S 40 degrees 38' 30" West 131.85 feet to the Northeasterly line of the Haines Cut-Off Highway; thence South 49 degrees 21' 30" East along said Northeasterly line of Haines Cut-Off Highway 240.54 feet to the intersection of the Northeasterly line of said Haines Cut-Off Highway with the Westerly line of the Haines Port Chilkoot Road; thence Northerly along the Westerly line of the Haines Port Chilkoot Road as the same describes an arc of a circle having a radius of 3565.53 feet, a distance of 274.33 feet to the point of beginning and;

A tract of land in said survey described as:

Begin at a point on the West line of the Haines-Port Chilkoot Road which bears S 2 degrees 42' 35" E 1311.94 feet from the Northeast corner of said survey, run thence N 87 degrees 07' W 264.00 feet to a fence post; thence S 28 degrees 27' W 124.08 feet to a fence post in the Northeasterly line of Haines Cutoff Highway; thence S 49 degrees 21' 30" E, on said Northeasterly line, 330.00 feet; thence N 40 degrees 38' 30" E 150.00 to said West line; thence N 7 degrees 19' 30" W, on said West line, 198.56 feet to the point of beginning.

TOGETHER with the tenements, hereditaments, and appurtenances thereunto belonging, or in anywise appertaining, the rents, issues and profits thereof, SUBJECT, HOWEVER, to the right, power and authority hereinafter given to and conferred upon Beneficiary to collect and apply such rents, issues and profits. To have and to hold the same, with the appurtenances, unto Trustee.

FOR THE PURPOSE OF SECURING: 1. Performance of each agreement of Trustor herein contained. 2. Payment of the indebtedness evidenced by one promissory note of even date, herewith, in the Principal sum of $ 277,640.54 payable to Beneficiary or order

A. To protect the security of this Deed of Trust, Trustor agrees:

1. To keep said property in good condition and repair; not to remove or demolish any building thereon; to complete or restore promptly and in good and workmanlike manner any building which may be constructed, damaged or destroyed thereon and to pay when due all claims for labor performed and materials furnished thereto; to comply with all laws affecting said property or requiring any alterations or improvements to be made thereon; not to commit or permit waste thereof; not to commit suffer or permit any act upon said property in violation of law; to cultivate irrigate, fertilize, fumigate, prune and do all other acts which from the character or use of said property may be reasonably necessary, the specific enumerations herein not excluding the general.

2. To provide, maintain and deliver to Beneficiary fire insurance and extended coverage satisfactory to and with loss payable to Beneficiary in an amount not less than $ 275,000.00 The amount collected under any fire or other insurance policy may be applied by Beneficiary upon any indebtedness secured hereby and in such order as Beneficiary may determine, or at option of Beneficiary the entire amount so collected or any part thereof may be released to Trustor. Such application or release shall not cure or waive any default or notice of default hereunder or invalidate any act done pursuant to such notice

3. To appear in and defend any action or proceeding purporting to affect the security hereof or the rights or powers of Beneficiary or Trustee; and to pay all costs and expenses, including cost of evidence of title and attorney's fees in a reasonable sum, in any action or proceeding in which Beneficiary or Trustee may appear, and in any suit brought by Beneficiary to foreclose this Deed

4. To pay, at least ten days before delinquency, all taxes and assessments affecting said property, when due, all encumbrances, charges and liens, with interest, on said property or any part thereof, which appear to be prior or superior hereto; all costs, fees and expenses of this Trust

5. To pay immediately and without demand all sums expended by Beneficiary or Trustee pursuant to the provisions hereof, with interest from date of expenditure at eight per cent per annum

6. Should Trustor fail to make any payment or to do any act as herein provided, then Beneficiary or Trustee, but without obligation so to do and without notice to or demand upon Trustor and without releasing Trustor from any obligation hereof, may make or do the same in such manner and to such extent as either may deem necessary to protect the security hereof, Beneficiary or Trustee being authorized to enter upon said property for such purposes; appear in and defend any action or proceeding purporting to affect the security hereof or the rights or powers of Beneficiary or Trustee; pay, purchase, contest or compromise any incumbrance, charge or lien which in the judgment of either, appears to be prior or superior hereto, and in exercising any such powers, pay necessary expenses, employ counsel and pay his reasonable fees

B. It is mutually agreed that:

1. Any award of damages in connection with any condemnation for public use of or injury to said property or any part thereof, is hereby assigned and shall be paid to Beneficiary who may apply or release such moneys received by him in the same manner and with the same effect as above provided for disposition of proceeds of fire or other insurance

2. By accepting payment of any sum secured hereby after its due date, Beneficiary does not waive his right either to require prompt payment when due of all other sums so secured or to declare default for failure so to pay.

3. At any time or from time to time, without liability therefor and without notice, upon written request of Beneficiary and presentation of this Deed and said note for endorsement, and without affecting the personal liability of any person for payment of the indebtedness secured hereby, Trustee may reconvey all or any part of said property, consent to the making of any map or plat thereof, join in granting any easement thereon, or join in any extension agreement or any agreement subordinating the lien or charge hereof

4. Upon written request of Beneficiary stating that all sums secured hereby have been paid, and upon surrender of this Deed and said note to Trustee for cancellation and retention and upon payment of its fees, Trustee shall reconvey, without warranty, the property then held hereunder. The recitals in any reconveyance executed under this Deed of Trust of any matters or facts shall be conclusive proof of the truthfulness thereof. The grantee in such reconveyance may be described as "the person or persons legally entitled thereto"

5. As additional security, Trustor hereby gives to and confers upon Beneficiary the right, power and authority during the continuance of these Trusts, to collect the rents, issues and profits of said property, reserving unto Trustor the right, prior to any default by Trustor in payment of any indebtedness secured hereby or in performance of any agreement hereunder, to collect and retain such rents, issues and profits as they become due and payable. Upon any such default, Beneficiary may at any time without notice, either in person, by agent, or by a receiver to be appointed

BOOK 11 PAGE 722

Recording District

David Karl Black

ACKNOWLEDGMENT

State of Alaska)
Judicial District) ss

On this [illegible] day of July, 1984 personally appeared before me DAVID KARL BLACK

to me known, and known to me to be the individual described in and who executed the within instrument, and acknowledged that HE signed and sealed the same as HIS free and voluntary act and deed for the uses and purposes therein mentioned.

WITNESS my hand and official seal at Haines, Alaska the day and year in this certificate first above written.

Zoran Yankovich
Notary Public for Alaska

My commission expires: March 28 1988

Zoran Yankovich

Cook Inlet Title Agency, Inc.

84-000491

11.00

RECEIVED
HAINES RECORDING
DISTRICT

JUL 16 2 57 PM '84

REQUESTED BY CIA

ADDRESS _____

DO NOT RECORD

REQUEST FOR FULL RECONVEYANCE

To be used only when note has been paid

, Alaska, ..., 19.....

The undersigned is the holder of the note or notes secured by the within Deed of Trust. All sums secured thereby have been fully paid. You are hereby directed, on payment to you of any sums owing to you under the terms of said Deed of Trust and to reconvey, without warranty, the estate now held by you under the same.

.....

.....

NOTE: THE NOTE OR NOTES AND ANY EVIDENCE OF FURTHER AND/OR ADDITIONAL ADVANCES MUST BE PRESENTED WITH THIS REQUEST.

BOOK 15 PAGE 117 Return To: Grantee
Haines Recording District Haines Terminal & Highway Company
Box 435 Skagway AK
99840

STATUTORY WARRANTY DEED

The GRANTOR Valley Fuel Service, Inc. whose address is P.O. Box 597, Haines, Alaska 99827, for and in consideration of TEN DOLLARS ($10.00) and other valuable consideration, in hand paid, conveys and warrants to Haines Terminal & Highway Company whose address is P.O. Box 435, Skagway, Alaska 99840 the following described real estate:

A tract of land in U.S. Survey 735, Haines Recording District, First Judicial District, State of Alaska:

BEGIN at a point on the Westerly line of Haines Port Chilkoot Road which point is South 1 degree 49' 10" West 1521.64 feet from Corner 1 (one) of U.S. Survey 735, run thence S. 40 degrees 38' 30" West 131.85 feet to the Northeasterly line of the Haines Cut-Off Highway; thence South 49 degrees 21' 30" East along said Northeasterly line of Haines Cut-Off Highway 240.54 feet to the intersection of the Northeasterly line of said Haines Cut-Off Highway with the Westerly line of the Haines Port Chilkoot Road; thence Northerly along the Westerly line of the Haines Port Chilkoot Road as the same describes an arc of a circle having a radius of 3565.53 feet, a distance of 274.33 feet to the point of beginning and;

A tract of land in said survey described as:

Begin at a point on the West line of the Haines-Port Chilkoot Road which bears S 2 degrees 42' 35" E 1311.94 feet from the Northeast corner of said survey, run thence N 87 degrees 07' W 264.00 feet to fence post; thence S 28 degrees 27' W 124.08 feet to a fence post in the Northeasterly line of Haines Cutoff Highway; thence S 49 degrees 21' 30" E. on said Northeasterly line, 330.00 feet; thence N 40 degrees 38' 30" E 150.00 to said West line; thence N 7 degrees 19' 30" W, on said West line, 198.56 feet to the point of beginning.

Together with all improvements located on either tract of said real property on the date of this deed, whether the same constitute real or personal property

FAULKNER, BANFIELD, DOOGAN & HOLMES
A PROFESSIONAL CORPORATION
302 GOLD STREET PHONE (907) 586-2210
JUNEAU, ALASKA 99801

(said tracts of land and improvements being hereinafter collectively called the "Property"). Without limitation on the generality of the foregoing, said improvements include any warehouse and barrel platform, office, pump house, garage, tank truck loading ramp, other platforms, fencing and gate, utility lines, storage tanks, pumps, tank truck unloading headers, plumbing, lines and related valves, flanges and unions, garage, meters, motors and electrical wiring so located on said date.

SUBJECT HOWEVER, to the reservations, restrictions and easements of record set out below:

1. Reservations and exceptions as contained in United States Patent.

2. The rights of the public and governmental bodies in and to that portion of the above property lying within the limits of Beach Road as disclosed by the plat of Presbyterian Mission Plat 2nd Additions (affects Easterly part).

Dated this 1st day of October, 1986. Signed this 2nd day of October, 1986 nunc pro tunc.

VALLEY FUEL SERVICE, INC.

By _____
David Arthur Black, President

THE STATE OF ALASKA)
) ss:
FIRST JUDICIAL DISTRICT)

THIS CERTIFIES that on this 2nd day of October, 1986, before me, a Notary Public in and for the State of Alaska, personally appeared DAVID ARTHUR BLACK, to me known and known to me to be the person whose name is subscribed to the foregoing instrument, and after being first duly sworn according to law he stated to me under oath that he is the President of Valley Fuel Service, Inc., a corporation organized

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BOOK 26 PAGE 564

*STATUTORY WARRANTY DEED
(Haines)

The GRANTOR, HAINES TERMINAL AND HIGHWAY COMPANY, f/k/a Haines Terminal & Highway Company, an Alaska corporation, of 2nd and Spring Street, Box 435, Skagway, Alaska 99840, for and in consideration of the sum of TEN DOLLARS ($10.00), lawful money of the United States, and other good and valuable consideration in hand paid, the receipt and sufficiency of which is hereby acknowledged, does hereby GRANT, CONVEY and WARRANT to HARBOR ENTERPRISES, INC., d/b/a Petro Marine Services, an Alaska corporation, GRANTEE, of P.O. Box 389, Seward, Alaska 99664, the following described real property, located in the Haines Recording District, First Judicial District, State of Alaska:

305-(X)65

A tract of land in U.S. Survey 735, Haines Recording District, First Judicial District, State of Alaska:

BEGIN at a point on the Westerly line of Haines Port Chilkoot Road which point is South 1 degree 49'10" West 1521.64 feet from Corner 1 (one) of U.S. Survey 735, run thence S 40 degrees 38' 30" West 131.85 feet to the Northeasterly line of the Haines Cut-off Highway; thence South 49 degrees 21'30" East along said Northeasterly line of Haines Cut-off Highway 240.54 feet to the intersection of the Northeasterly line of said Haines Cut-off Highway with the Westerly line of the Haines Port Chilkoot Road; thence Northerly along the Westerly line of the Haines Port Chilkoot Road as the same describes an arc of a circle having a radius of 3565.53 feet, a distance of 274.33 feet to the point of beginning and;

A tract of land in said survey described as:

Begin at a point on the West line of the Haines-Port Chilkoot Road which bears S 2 degrees 42'35" E 1311.94 feet from the Northeast corner of said survey, run thence N 87 degrees 07' W 264.00 feet to fence post; thence S 28 degrees 27' W 124.08 feet to a fence post in the Northeasterly line of Haines Cutoff Highway; thence S 49 degrees 21'30" E on said Northeasterly line, 330.00 feet; thence N 40 degrees 38'30" E 150.00 feet to said West line; thence n 7 degrees 13'30" W on said West line, 198.56 feet to the point of beginning.

TOGETHER WITH all improvements and fixtures located on either tract of said real property on the date of this deed; and

TOGETHER WITH, ALL AND SINGULAR, the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining.

SUBJECT to reservations and exceptions as contained in the U.S. Patent and/or acts authorizing the issuance thereof.

HOGE AND LEKISCH
441 WEST FIFTH AVENUE, SUITE 500 • ANCHORAGE, ALASKA 99501
(907) 276-1726

SUBJECT further to reservation or easement for highway purposes as disclosed by Public Land Order No. 601, dated August 10, 1949 and amended by Public Land Order No. 757, dated October 10, 1959; Public Land Order No. 1613, dated April 7, 1958; and Department of Interior Order No. 2663, dated October 16, 1951, Amendment No. 1, thereto, dated July 17, 1952 and Amendment No. 2, thereto, dated September 15, 1956, filed in the Federal Register.

SUBJECT further to rights of the public and/or any governmental agencies in and to any portion of the above described real property lying within any roads, streets or highways.

DATED this 31 day of May, 1995.

GRANTOR:

HAINES TERMINAL AND
HIGHWAY COMPANY

By: MARVIN TAYLOR
Its: President & C.O.O.

ACKNOWLEDGEMENT OF OFFICER OF CORPORATION

I HEREBY CERTIFY that on the 31st day of May, 1995, at the City of Vancouver in the Province of British Columbia, MARVIN TAYLOR, who is personally known to me appeared before me and acknowledged to me that he is the President & COO of HAINES TERMINAL AND HIGHWAY COMPANY, f/k/a Haines Terminal & Highway Company, and that he is the person who subscribed his name and affixed the seal of the Corporation to the within Instrument, that he was authorized to subscribe his name and affix the seal to it (and that the Corporation existed at the date the within instrument was executed by the Corporation).

IN TESTIMONY WHEREOF I have hereunto set my Hand and Seal of Office at Vancouver, this 31st day of May, 1995.

A NOTARY PUBLIC IN AND FOR THE PROVINCE OF BRITISH COLUMBIA
(AFFIX SEAL)

ANNE M. STEWART
BLAKE CASSELS GRAYDON
Barristers & Solicitors
1700 - 1030 WEST GEORGIA ST.
VANCOUVER, B.C. V6E 2Y3
TEL 631-3313

After Recordation Return To:

Margaret J. Rawitz, Esq.
Hoge and Lekisch
441 W. 5th Ave., Suite 500
Anchorage, Alaska 99501

*Alaska Statutes Section 34.15.030

95-316
18.00 CL
Haines REC. DIST
DATE 6/12 1995
TIME 9:30 A M
Requested By TT
Address

HOGE AND LEKISCH
441 WEST FIFTH AVENUE, SUITE 500 • ANCHORAGE, ALASKA 99501
(907) 276-1726

References Cited

ASTM Standards on Environmental Site Assessments for Commercial Real Estate E 1527-93 and E 1528-93, 1993.

Bayliss, Randolph. *Quality Assurance Program Plan* for underground storage tanks, approved by ADEC 10 October 1990.

FHWA Interim Guidance: Hazardous Waste Sites Affecting Highway Project Development. August, 1988.

State of Alaska. *Standard Quality Assurance Program Plan* for underground storage Tanks (Draft 3/26/92).

Smith Bayliss LeResche Inc Environmental Consultants and Engineers

Richard Smith P.E. (907) 747-5775 119 Seward Street #10
Randolph Bayliss P.E. (907) 586-6813 Juneau Alaska 99801
Robert LeResche PhD (907) 586-8338 fax: (907) 586-6819

Richard Smith, P.E., **Civil Engineer**, Alaska PE # CE4686, also PE in MA, ME, VT, NH, RI
BS Business Admin, Clark Univ '72; MS Biological Studies, Anna Maria Coll, '76

Experience:	Cullinan Engineering, Director of Engineering	1964-78
	Environmental Consultant, asbestos removal	1980-90
	City & Borough of Sitka, Public Works Director	1991-94
Specialties:	Water and Sewage Systems, Solid Waste, Waste-to-Energy, Asbestos	

Randolph Bayliss, P.E., **Chemical Engineer**, Alaska PE # EC3539, also PE in Arkansas and New Mexico
BS Chem Engineering, Univ of Ark '65; MS Civil Engineering, Univ of Ark '71

Experience:	Army Medical Dept, Sanitary Engineer	1966-68
	AK Dept of Environmental Conservation	1972-87
	EXXON VALDEZ State OnScene Coordinator	1990
Specialties:	Water Quality, Oil Spill Cleanup, Underground Storage Tanks, HAZWOPER training	

Robert LeResche, PhD **Ecologist**
BS Biology, Dartmouth '64; MS Wildlife Mgmt, Univ of Alaska '66; PhD Ecology Johns Hopkins '71

Experience	Director, AK Dept of Fish & Game, Habitat Division	1974-75
	Commissioner, AK Dept of Natural Resources	1977-81
	Vice President, Sealaska Corporation	1981-82
	Executive Director, Alaska Power Authority	1987-91

Al Kegler **Environmental Chemist**
BS Biochemistry, Univ of Minnesota '73

Experience:	AK Dept of Environmental Conservation	1974-2000
	SBL Consulting	2000-present
Specialties:	Oil Spill Cleanup, Water Quality, Domestic wastewater permitting, HAZWOPER trainer	

Carolyn Morehouse **Environmental Engineer**
BS Civil and Environmental Engineering, Clarkson University '90

Experience:	Wheelabrator Technologies (Waste Management)	1990-93
	Foster Wheeler Environmental Corporation	1993-95
	AK Dept of Environmental Conservation	1996-98
	SBL Consulting	2000-present
Specialties:	ADEC Qualified Person, Wastewater/soil sampling, permitting, SPCC, FRP	

Jason Ginter **Environmental Chemist**
BS Chemistry, Univ of Buffalo '94

Experience:	OHM, Weber Environmental, NY, AZ	1993-96
	Easton Engineering	1997-98
	SBL Consulting	1997-present
Specialties:	C'Sites, UST Cleanups, *EXXON VALDEZ* Beach Cleanups, DEC Closure License, HAZWOPER, ADEC Qualified Person	

Amy Randolph **Environmental Scientist**
BS Applied Physics, Linfield College '96, Environmental Science studies at Univ of Alaska

Experience:	EMCON Alaska	1998
	SBL Consulting	1999-present
Specialties:	AutoCAD, well sampling, Environmental Audits, HAZWOPER, ADEC Qualified person Wastewater sampling, PCB field-screening	

Xavian Briana Ogden **Environmental Specialist**
AS Engineering, Univ of Florida '95, Engineering Studies at Univ of Alaska

Experience:	SBL Consulting	1995-present
	Nortech Engineering	1997
Specialties:	AutoCAD, well sampling, asbestos & lead waste characterization, Environmental Audits Soil characterization, GPS mapping, Wetlands Delineation (ACE '87)	

Attachment B:

ADEC Letter to Petro Marine May 19, 1998

STATE OF ALASKA

TONY KNOWLES, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

Contaminated Sites Remediation Program
Post Office Box 1542
Haines, Alaska 99827

phone: 766-3184
fax: 766-3185

May 19, 1998

Mr. Warren Pellett
Petro Marine Services
Post Office Box 33619
Juneau, Alaska 99803

RE: Site Assessment - Petro Marine Services, Haines; spill number 98110112801

Dear Mr. Pellett:

The purpose of this letter is to formalize the matters regarding the referenced site that we discussed by telephone on Friday May 15, 1998. It is our understanding that oily water is currently being collected from a seep along a roadside ditch on the hillside downgradient of the facility's truck rack. Petro Marine is currently conducting an interim action of collecting approximately 1 gallon of free product daily on absorbent pads, which are being stored for disposal, and pumping approximately 50 gallons of water daily from the ditch through the oil/water separator.

The interim action that is being conducted is beneficial as a short-term fix while a permanent solution to this problem can be found. The first step is to determine the nature and extent of contamination through a Site Assessment. Based upon the current situation, there are several issues which need to be clarified, including: 1) defining the source and extent of the contamination, and 2) determining whether the groundwater is contaminated. The Site Assessment workplan should be developed so that these issues are addressed through sampling of both the soil and groundwater.

It is understood that Petro Marine Services is under a compliance schedule with the Department's Industry Preparedness and Pipeline Program for the renovation of the truck rack, including paving this area. This action is to be completed by October 31, 1998. As the Site Assessment will include the area of the truck rack, these two actions will need to be coordinated. Whereas paving this area will prevent future routine operations and maintenance spills, the current contamination needs to be assessed and addressed. In order to meet the October 31st deadline, Petro Marine will need to submit a Site Assessment Workplan to the department fairly quickly. Once the workplan has been reviewed and approved, the Site Assessment can be conducted with the resulting report sent to the Department for review. At that time we will discuss appropriate

cleanup levels and the Corrective Action workplan will be developed and submitted to the department for review and approval. It is only at this point in the process that the Corrective Action can take place.

It is possible for all of these actions to take place this field season, however it will take a bit of planning and coordination. The CSRP will work with you to expedite review and approval of the workplans and reports and also the determination of cleanup levels.

Please contact me as soon as possible to discuss a schedule for developing the Site Assessment workplan and conducting site activities. I can be contacted by telephone at 766-3184, email at apalmier@envircon.state.ak.us, or by regular mail at P.O. Box 1542 in Haines.

Sincerely,

Richard Cormack

for Anne Marie Palmieri
Environmental Specialist

cc: Dan Hopson, DEC-IPP
Roy Warren, DEC-PERP

Attachment D:

Free Product Characterization Laboratory Report: FBI 107159

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

August 10, 2011

Elijah Donat, Project Manager
Chilkat Environmental
PO Box 865
Haines, AK 99827

Dear Mr. Donat:

Included are the results from the testing of material submitted on July 14, 2011 from the Haines II Delta Western, F&BI 107159 project. The product sample submitted for forensic evaluation arrived in good condition. Upon arrival, the sample OWS-1 was placed in a refrigerator maintained at 4°C until removed for sample processing.

The sample OWS-1 was diluted and analyzed using a gas chromatograph with a flame ionization detector (GC/FID). The data generated yielded information on the boiling range and general chemical composition of the material present. The GC/FID traces are enclosed. A GC/FID trace of a standard consisting of normal alkanes is also provided for reference purposes.

In addition, the sample OWS-1 was analyzed for paraffin, isoparaffin, aromatic, naphthene, and olefin (PIANO) constituents using a GC fitted with a mass spectrometer (MS); and organometallic compounds using an inductively coupled plasma mass spectrometer (ICP-MS). The results of this testing, including the associated quality assurance, are also enclosed.

Review of the ICP-MS data generated shows that organic lead was identified in the sample OWS-1. Organic lead was phased out of automotive gasoline sold in the United States by January 1996.

Please contact us if additional consultation is needed by our firm in the interpretation of the analytical results provided. We appreciate this opportunity to be of service to you and hope you will call if you should have any questions. We will hold your samples for 30 days before disposal unless directed otherwise.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kurt Johnson
Chemist

Enclosures
mcp/KJ
CHL0810R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 08/10/11
Date Received: 07/14/11
Project: Haines II Delta Western, F&BI 107159
Date Extracted: 07/18/11
Date Analyzed: 07/18/11

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR FORENSIC EVALUATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID)

Sample ID	GC Characterization
OWS-1	The GC trace using the flame ionization detector (FID) showed the presence of low to medium boiling compounds. The patterns displayed by these peaks are indicative of a mixture of gasoline and a middle distillate such as diesel fuel No. 2 or heating oil. The low boiling compounds appear as a ragged pattern of peaks eluting from *n*-C_7 to *n*-C_{13} showing a maximum near *n*-C_9. This correlates with a temperature range of approximately 100°C to 240°C with a maximum near 150°C. Within this range, the GC/FID trace showed the presence of peaks, at varying levels, that are indicative of ethylbenzene, the xylenes, and C3-benzenes. These compounds are characteristic of the constituents commonly found in gasoline. The relative abundance of the volatile and semivolatile constituents present indicates that substantial degradation has occurred to the gasoline. The medium boiling compounds appear as a regular pattern of peaks on top of a broad hump or unresolved complex mixture (UCM). This material elutes from *n*-C_8 to *n*-C_{24} showing a maximum near *n*-C_{13}. This correlates with a temperature range of approximately 130°C to 390°C with a maximum near 240°C. Within this range, the dominant peaks present are indicative of normal alkanes. Secondary peaks are also present which are indicative of the isoprenoids including norpristane, pristane, and phytane. The relative abundance of the normal alkanes and isoprenoids indicates that little to no biological degradation has occurred to the middle distillate. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.

Date of Report: 08/10/11
Date Received: 07/14/11
Project: Haines II Delta Western, F&BI 107159
Date Analyzed: 07/25/11

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR PARAFFINS, ISOPARAFFINS, OLEFINS, NAPHTHENES, AND AROMATICS
Results Reported as % by Weight

OWS-1
Laboratory ID: 107159-01

Compound	Weight Percent
Propane	<0.01
Methanol	<0.01
Isobutane	0.01
2-Methyl-1-propene	<0.01
Ethanol	<0.01
n-Butane	0.06
t-2-Butene	<0.01
c-2-Butene	<0.01
Isopropanol	<0.01
3-Methyl-1-butene	<0.01
Isopentane	0.38
tert-Butanol	<0.01
1-Pentene	0.01
2-Methyl-1-butene	0.04
n-Propanol	<0.01
n-Pentane	0.18
t-2-Pentene	0.05
c-2-Pentene	0.03
2-Methyl-2-butene	0.03
MTBE	<0.01
sec-Butanol	<0.01
4-Methyl-1-pentene	<0.01
Isobutanol	<0.01
2,3-Dimethylbutane	0.12
Cyclopentane	0.06
2-Methylpentane	0.35
DIPE	<0.01
3-Methylpentane	0.23
1-Hexene	<0.01
ETBE	<0.01
n-Hexane	0.24

Date of Report: 08/10/11
Date Received: 07/14/11
Project: Haines II Delta Western, F&BI 107159
Date Analyzed: 07/25/11

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR PARAFFINS, ISOPARAFFINS, OLEFINS, NAPHTHENES, AND AROMATICS
Results Reported as % by Weight

OWS-1
Laboratory ID: 107159-01

Compound	Weight Percent
t-2-Hexene	0.03
2-Methyl-1-pentene	0.02
2-Methyl-2-pentene	0.02
c-2-Hexene	0.02
2,2-Dimethylpentane	0.02
2,4-Dimethylpentane	0.13
Methylcyclopentane	0.22
2,2,3-Trimethylbutane	0.01
Benzene	0.16
1-Methylcyclopentene	0.04
TAME	<0.01
3,3-Dimethylpentane	0.03
Cyclohexane	0.09
2-Methylhexane	0.32
2,3-Dimethylpentane	0.28
1,1-Dimethylcyclopentane	0.01
3-Methylhexane	0.34
c-1,3-Dimethylcyclopentane	0.06
3-Ethylpentane	0.03
Isooctane	0.60
t-1,2-Dimethylcyclopentane	0.05
1-Heptene	<0.01
n-Heptane	0.31
t-3-Heptene	<0.01
c-3-Heptene	<0.01
t-2-Heptene	0.01
c-2-Heptene	0.01
2,2-Dimethylhexane	0.02
2,5-Dimethylhexane	0.14
Methylcyclohexane	0.15
2,4-Dimethylhexane	0.15
Ethylcyclopentane	0.08

Date of Report: 08/10/11
Date Received: 07/14/11
Project: Haines II Delta Western, F&BI 107159
Date Analyzed: 07/25/11

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR PARAFFINS, ISOPARAFFINS, OLEFINS, NAPHTHENES, AND AROMATICS
Results Reported as % by Weight

	OWS-1
Laboratory ID:	107159-01
Compound	Weight Percent
t-1,c-2,4-Trimethylcyclopentane	0.06
t-1,c-2,3-Trimethylcyclopentane	0.04
2,3,4-Trimethylpentane	0.36
Toluene	1.39
2,3-Dimethylhexane	0.45
2-Methylheptane	0.32
3-Methylheptane	0.36
4-Methylheptane	0.13
3-Ethylhexane	0.07
1-Octene	<0.01
1,2,3-Trimethylcyclopentane	0.02
t-1,2-Dimethylcyclohexane	0.16
n-Octane	0.50
1-Ethyl-1-methylcyclopentane	0.03
c-2-Octene	<0.01
c-1,2-Dimethylcyclohexane	0.08
Isopropylcyclopentane	0.02
2,5-Dimethylheptane	0.13
3,5-Dimethylheptane	0.04
n-Propylcyclopentane	0.06
Ethylbenzene	0.58
2,3-Dimethylheptane	0.16
3,4-Dimethylheptane	0.05
2-Methyloctane	0.29
m-Xylene	1.60
p-Xylene	0.72
3-Methyloctane	0.40
1-Nonene	0.01
3,3-Diethylpentane	<0.01
t-3-Nonene	0.02
c3-Nonene	0.03
o-Xylene	0.98

Date of Report: 08/10/11
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Project: Haines II Delta Western, F&BI 107159
Date Analyzed: 07/25/11

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Results Reported as % by Weight

	OWS-1
Laboratory ID:	107159-01
Compound	Weight Percent
n-Nonane	1.34
Isobutylcyclopentane	0.07
t-2-Nonene	<0.01
c-2-Nonene	<0.01
Isopropylbenzene	0.10
3,3-Dimethyloctane	0.01
n-Butylcyclopentane	0.16
n-Propylbenzene	0.27
2,3-Dimethyloctane	0.06
1-Methyl-3-ethylbenzene	0.78
1-Methyl-4-ethylbenzene	0.27
2-Methylnonane	0.40
3-Ethyloctane	0.13
3-Methylnonane	0.36
1,3,5-Trimethylbenzene	0.46
1-Methyl-2-ethylbenzene	0.42
1,2,4-Trimethylbenzene	0.97
tert-Butylbenzene	<0.01
n-Decane	2.37
Isobutylbenzene	0.09
Isopropylcyclohexane	<0.01
sec-Butylbenzene	0.08
1-Methyl-3-isopropylbenzene	0.17
Isobutylcyclohexane	<0.01
1-Methyl-4-isopropylbenzene	0.12
1,2,3-Trimethylbenzene	0.48
Indan	0.10
1-Methyl-3-n-propylbenzene	0.20
1-Methyl-4-n-propylbenzene	0.16
n-Butylbenzene	0.22
1,3-Dimethyl-5-ethylbenzene	0.51
1,2-Diethylbenzene	0.09

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RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR PARAFFINS, ISOPARAFFINS, OLEFINS, NAPHTHENES, AND AROMATICS
Results Reported as % by Weight

	OWS-1
Laboratory ID:	107159-01
Compound	Weight Percent
1-Methyl-2-n-propylbenzene	0.15
1,4-Dimethyl-2-ethylbenzene	0.22
1,2-Dimethyl-4-ethylbenzene	0.22
1,3-Dimethyl-2-ethylbenzene	0.04
1,2-Dimethyl-3-ethylbenzene	0.09
n-Undecane	2.77
1,2,4,5-Tetramethylbenzene	0.18
2-Methylbutylbenzene	0.03
n-Pentylbenzene	0.20
Methylindan	0.20
1-tert-Butyl-3,5-dimethylbenzene	<0.01
1-tert-Butyl-4-ethylbenzene	<0.01
n-Dodecane	2.41
1,3,5-Triethylbenzene	<0.01
1,2,4-Triethylbenzene	<0.01
Naphthalene	0.15
n-Hexylbenzene	0.09
2-Methylnaphthalene	0.18
n-Tridecane	2.24
1-Methylnaphthalene	0.22
n-Tetradecane	1.84
n-Pentadecane	1.81

Date of Report: 08/10/11
Date Received: 07/14/11
Project: Haines II Delta Western, F&BI 107159
Date Analyzed:

RESULTS FROM THE ANALYSIS OF THE PRODUCT SAMPLE FOR PARAFFINS, ISOPARAFFINS, OLEFINS, NAPHTHENES, AND AROMATICS
Results Reported as % by Weight

Client ID: OWS-1
Laboratory ID: 107159-01

PIANO SUMMARY	Weight Percent
Total Identified Compounds	37.67
Oxygenated Compounds	0.00
Hydrocarbon Compounds	37.67
Unidentified Compounds	62.33
Total	100

	Paraffins	Isoparaffins	Aromatics	Naphthenes	Olefins	Total
C3	<0.01					<0.01
C4	0.06	0.01			<0.01	0.06
C5	0.18	0.38		0.06	0.15	0.77
C6	0.24	0.69	0.16	0.32	0.14	1.55
C7	0.31	1.18	1.39	0.35	0.02	3.24
C8	0.50	2.61	3.89	0.49	<0.01	7.49
C9	1.34	1.07	3.85	0.22	0.06	6.55
C10	2.37	0.96	2.90	<0.01		6.22
C11	2.77		0.63			3.40
C12	2.41		0.09			2.50
C13	2.24					2.24
C14	1.84					1.84
C15	1.81					1.81
Total	16.08	6.89	12.91	1.43	0.36	37.67

Analysis For Total Organic Lead and Manganese By EPA Method 200.8

Client ID:	OWS-1	Client:	Chilkat Environmental
Date Received:	07/14/11	Project:	Haines II, F&BI 107159
Date Extracted:	08/05/11	Lab ID:	107159-01
Date Analyzed:	08/05/11	Data File:	107159-01.069
Matrix:	Product	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

Analyte:	Concentration mg/kg (ppm)
Organic Lead	10.1
Organic Manganese	<1

Analysis For Total Organic Lead and Manganese By EPA Method 200.8

Client ID:	Method Blank	Client:	Chilkat Environmental
Date Received:	Not Applicable	Project:	Haines II, F&BI 107159
Date Extracted:	08/05/11	Lab ID:	I1-549 mb
Date Analyzed:	08/05/11	Data File:	I1-549 mb.064
Matrix:	Product	Instrument:	ICPMS1
Units:	mg/kg (ppm)	Operator:	AP

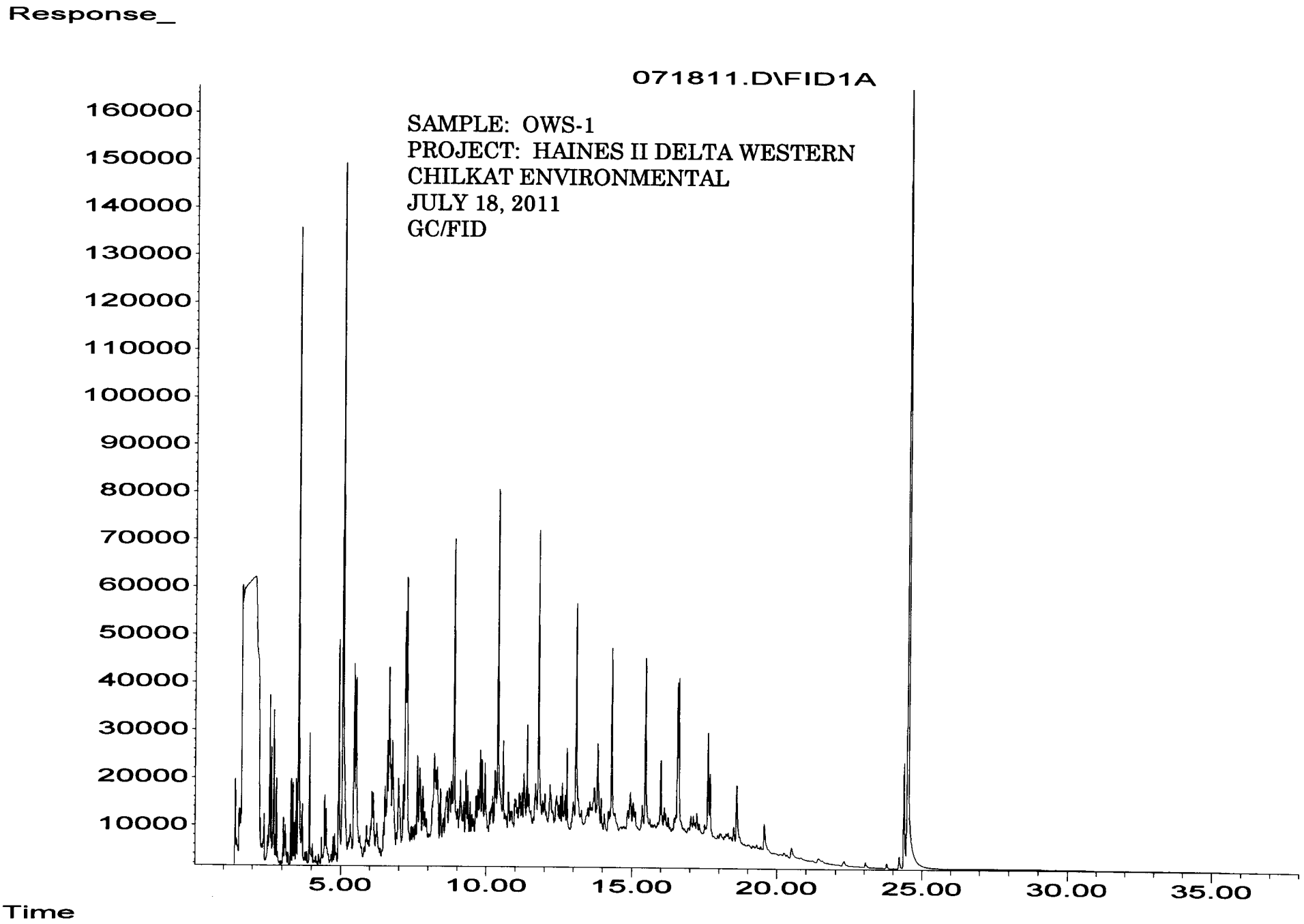
Analyte:	Concentration mg/kg (ppm)
Organic Lead	<1
Organic Manganese	<1

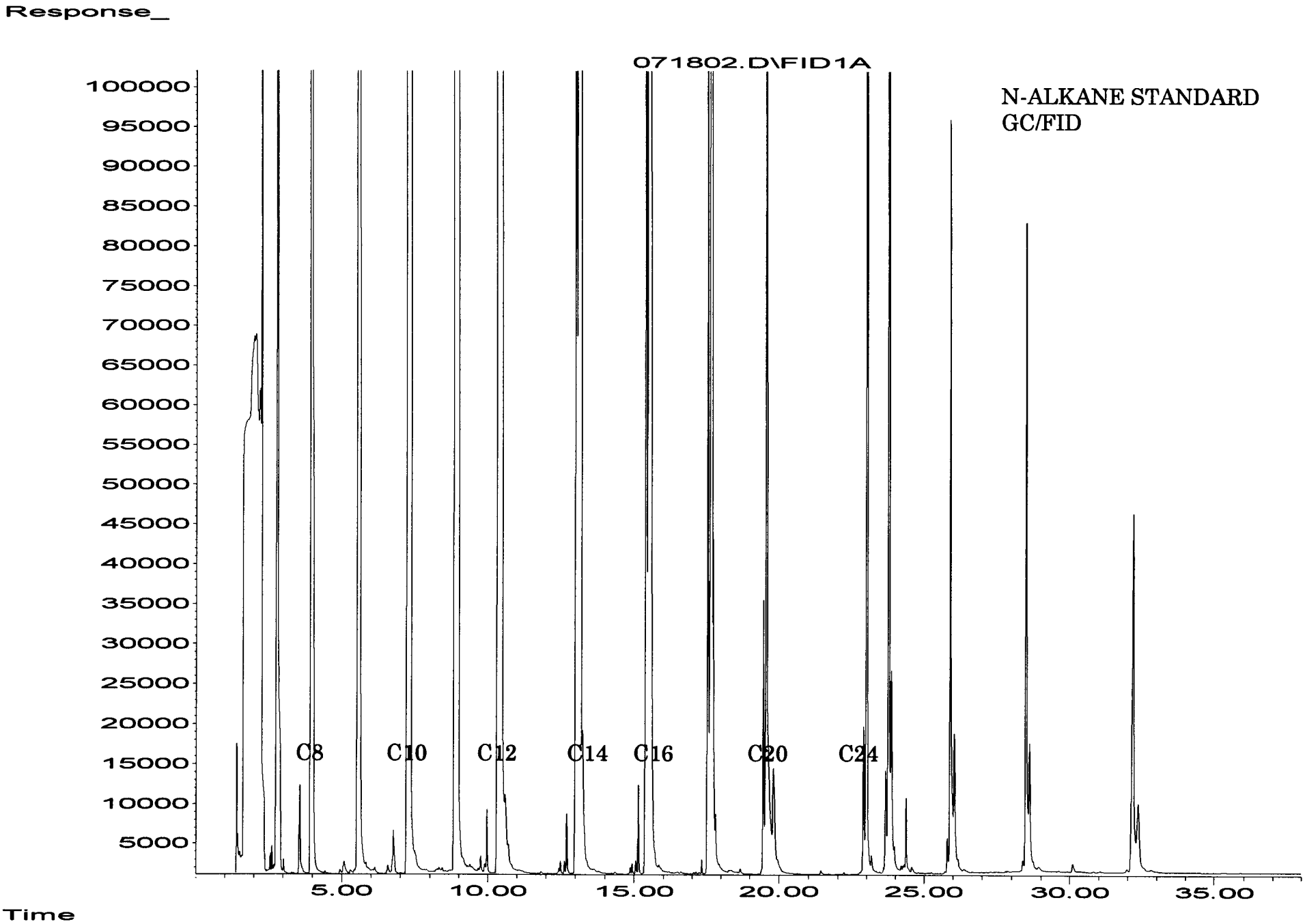
Date of Report: 08/10/11
Date Received: 07/14/11
Project: Haines II Delta Western, F&BI 107159

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF PRODUCT SAMPLES FOR ORGANIC LEAD AND MANGANESE USING EPA METHOD 200.8

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Organic Lead	mg/kg (ppm)	70.75	76	72	70-130	5
Organic Manganese	mg/kg (ppm)	12.5	120	120	70-130	0


Response_
071811.D\FID1A
SAMPLE: OWS-1
PROJECT: HAINES II DELTA WESTERN
CHILKAT ENVIRONMENTAL
JULY 18, 2011
GC/FID
160000
150000
140000
130000
120000
110000
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
5.00
10.00
15.00
20.00
25.00
30.00
35.00
Time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071802.D\FID1A
N-ALKANE STANDARD
GC/FID
100000
95000
90000
85000
80000
75000
70000
65000
60000
55000
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
C8
C10
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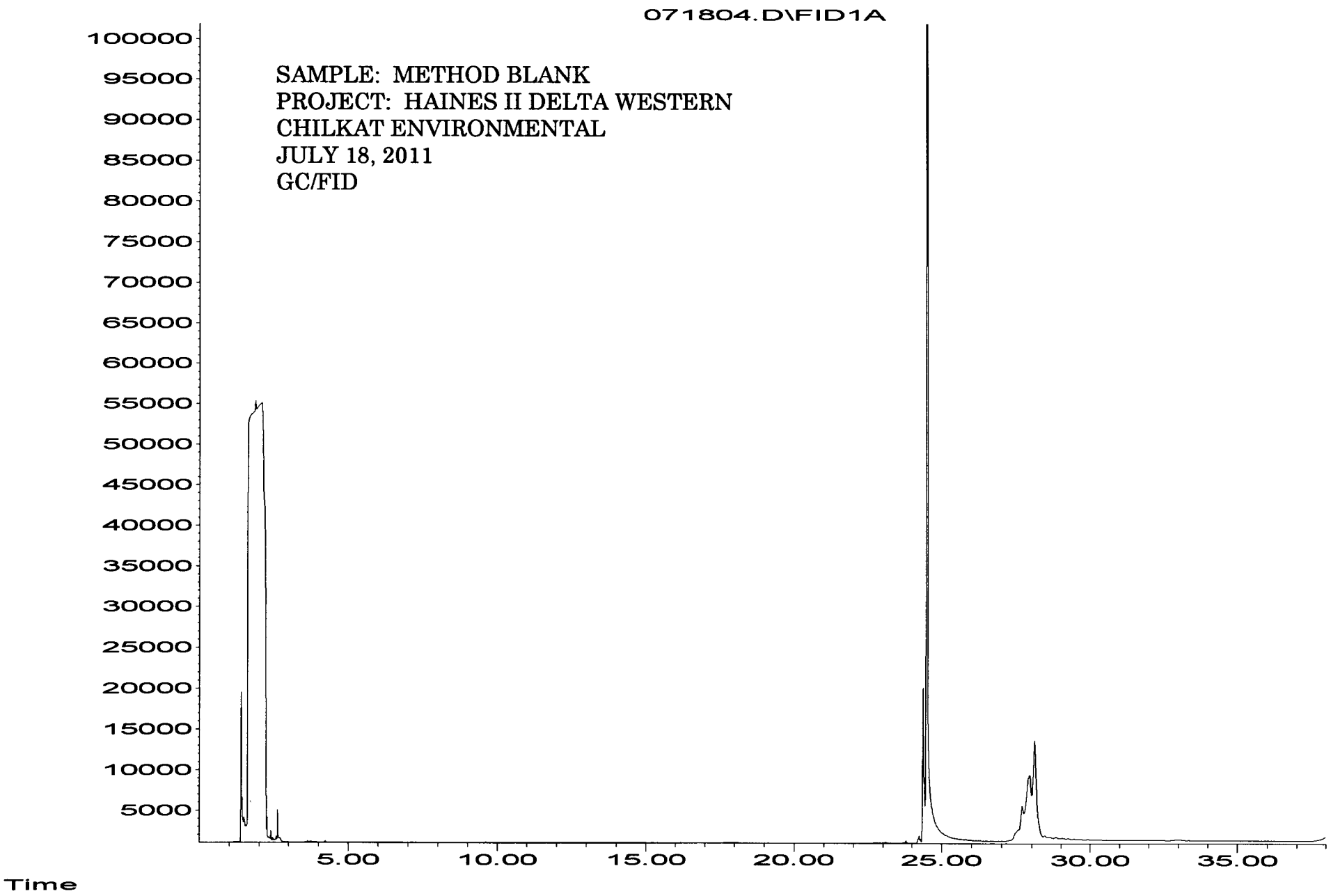
15.00
20.00
25.00
30.00
35.00
Time


Response_
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SAMPLE: METHOD BLANK
PROJECT: HAINES II DELTA WESTERN
CHILKAT ENVIRONMENTAL
JULY 18, 2011
GC/FID
100000
95000
90000
85000
80000
75000
70000
65000
60000
55000
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
5.00
10.00
15.00
20.00
25.00
30.00
35.00
Time

107159

SAMPLE CHAIN OF CUSTODY

ME 07-14-11

A02

Page # 1 of 1

Send Report To

Company Chilkat Environmental

Address PO Box 865

City, State, ZIP Haines, AK. 99827

Phone # 907-303-7894 Fax #

SAMPLERS (signature)

PROJECT NAME/NO. Haines II DeHa Wastern

PO #

REMARKS Oil/water Separator Free product Characterization

TURNAROUND TIME
- [x] Standard (2 Weeks)
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Modified per KB's conversation w/client (7-7-11)

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	characterization	PAHs	ICP-MS or Pb				Notes
OWS-1	01	7.11.11	1257	free product	1						✓	X	✓	✓				characterize as discussed w/ Kurt

ANALYSES REQUESTED

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Elisha Donat	Chilkat Environmental	7.11.11	1320
Received by:		Nham Phan	FeBI	7/14/11	1030
Relinquished by:					
Received by:			Samples received at 4 °C		

chilkat environmental
Box 865 Haines, AK 99827 (907) 766-3899 chilkat@chilkatenvironmental.com

8/9/11

Bruce Wanstall, Project Manager
State of Alaska, Alaska Department of Environmental Conservation
Division of Spill Prevention and Response, Contaminated Sites Program
410 Willoughby Ave, Suite 303
PO Box 111800
Juneau, AK 99801

Re: Workplan for Investigation of Former Petro Marine Tank Farm in Haines
Ledger Code 14147760
ADEC Contaminated Site File 1508.38.020

Mr. Bruce Wanstall,

This workplan was prepared to satisfy ADEC's request in the May 20, 2011 letter. This letter requested that Delta Western provide a workplan to assess those locations of the property where petroleum contamination cleanup was performed in 1998 because confirmation sampling of clean soil at the limits of the removal required by 18 AAC 75. 341 and final reporting requirements under 18 AAC 75 380 were not performed.

Upon initial discussion we determined that additional information was needed to refine the scope of this workplan and the July 22 memo was submitted to satisfy these information requirements. Following ADEC receipt of the memo Chilkat Environmental and ADEC discussed workplan requirements in detail and reviewed site files. The conclusion of this review is the workplan provided here to characterize the site.

Principal Environmental Scientist
Elijah Donat MS PMP
907/303-7899

Introduction

The activities to be performed under this workplan are respondent to 1998 letter from ADEC defining requirements for soil and groundwater site assessment for the truck rack and the area between the truck rack and the Beach Road ditch. The ADEC letter was received by Petro Marine before they made the facility upgrades that included paving of the truck rack and installation of the oil/water separator (OWS) and its shot rock drain field. This letter was included in the Phase 1 Site Assessment performed by Bayliss for the property transfer to Delta Western Inc. In 2011 Delta Western received a letter from ADEC requiring that the terms of the 1998 letter had not been satisfied and that a workplan was required.

Purpose

The purpose of this workplan is to; recommend a source of the historic release, confirm that excavation of contaminated soil was completed to acceptable levels and confirm there is no off-site migration of petroleum contamination.

Objectives

To accomplish the purpose of this workplan we have three objectives: (1) Excavate portions of the roadside ditch along Beach Road where product was collected to assess soil and water; (2) Excavate test pits between the truck rack and the hill slope to access soil and water for sampling, and; (3) purge and sample water in the outfall of the OWS if it is connected to groundwater.

Methodology

Beach Road Ditch:

This workplan proposes to excavate portions of the ditch along Beach Road, where free product was collected in 1998, to assess soil and water. Due to the roadside location of the excavation the project team will coordinate with ADOT and the Haines Borough to coordinate timing. Two excavations will be forwarded to groundwater level or as deep as possible to recover groundwater if present. If water collects in ditch excavation it will be purged until we can be reasonably assured that groundwater is being characterized and not surface water. The field team will orient the excavation toward the hillslope to ensure that captured water originates upgradient. Water will be collected for analyses by AK101 for GRO, AK102 & AK 103 for DRO/RRO, EPA Method 8260 for VOC and EPA Method 8270 for SVOC. Samples collected for GRO and 8260 will be preserved by Hydrochloric Acid and other samples will be collected unpreserved. In addition to water quality sampling the soil will be collected from the perimeter of the former excavation and field screened. Soil field screening will include; ambient odor, hot water sheen and the Chilkat Environmental heated PID headspace technique.

Once field screening is complete representative samples of the most contaminated material encountered will be collected and analyzed for, GRO, DRO/RRO, VOC and SVOC. Samples for GRO and 8260 will be preserved in Methanol and other soils samples will be collected without preservation. The roadside ditch is highly susceptible to influences of petroleum contamination from road runoff. Exceedences of water quality or soil standards could be present that are unrelated or cumulative to impacts from the site.

Truck Rack Test Pits:
To determine if the interim removal in 1998 was effective, two test pits will be advanced at the perimeter of the shot rock drain field adjacent to the truck rack. Excavation will be forwarded to groundwater level and field screening will be performed at distinct soil horizons. Soil field screening will include; ambient odor, hot water sheen and the heated PID headspace technique. Once field screening is complete representative samples of the most contaminated material encountered will be collected and analyzed for GRO, DRO/RRO, VOC and SVOC. Samples for GRO and 8260 will be preserved in Methanol and other soils samples will be collected without preservation.

The purpose of these test excavations is to confirm that the 1998 clean-up effort was successful at capturing contaminated material that could contribute to offsite migration. Sufficient sample volume will be provided to laboratory such that if significant petroleum contamination is identified samples can be rerun after Synthetic Precipitation Leachate Procedure (SPLP) by EPA Method 1312 to determine the fate of contaminants that may be present in soil.

Outfall of the OWS:
The culvert standpipe at the southeast corner of the truck rack pad will be purged to determine if it recharges with fresh groundwater. If the source of water in the standpipe is confirmed to originate from groundwater it will be sampled for GRO, DRO/RRO, VOC and SVOC. Samples analyzed for GRO and 8260 will be preserved with Hydrochloric Acid and other samples will be collected unpreserved. Samples will be collected from the middle of the water column using a peristaltic pump with new silicone and poly tubing.

The standpipe that houses the OWS outfall is susceptible to influences of petroleum contamination from the historic operation of the OWS. Exceedences of water quality standards may not be representative of groundwater. If results present significant exceedences additional investigation of groundwater could be called for. In contrast, if results are below clean-up standards it could be assumed that groundwater does not appear contaminated at 5 feet bgs. Assessment of the OWS outfall requires purging and evidence of groundwater recharge. If no recharge is observed over 24 hours no sample will be collected.

Investigation Derived Waste:

Soil screening samples will be returned to excavations. Purged water will be poured back into the truck rack test pits if no sheen or odor is observed. Otherwise, purge water will be containerized and properly disposed. Excavated soil will be placed back where it came from and compacted.

Schedule:

Upon approval of this workplan fieldwork will be scheduled for completion over the course of two days to allow purge time. The Principal Investigator will document important observations to provide ADEC and Delta Western with information required to consider modification of this workplan that may be required based on site conditions.

Reporting:

A report will be prepared to present the results of this investigation. The report will include; photographs, PID calibration and screening logs, laboratory report including case narrative, data quality review checklist and a revised conceptual site model. The report will compare results to relevant clean-up standards and will provide recommendations.

Attachment E:

Site Characterization Workplan and Approval

chilkat environmental
Box 865 Haines, AK 99827 (907) 766-3899 chilkat@chilkatenvironmental.com

8/9/11

Bruce Wanstall, Project Manager
State of Alaska, Alaska Department of Environmental Conservation
Division of Spill Prevention and Response, Contaminated Sites Program
410 Willoughby Ave, Suite 303
PO Box 111800
Juneau, AK 99801

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STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

SEAN PARNELL, GOVERNOR

410 Willoughby Ave., Suite 302
Box 111800 Juneau AK 99801
PHONE: (907) 465-5210
FAX: (907) 465-5218
http://www.state.ak.us/dec/

File: 1508.38.014

August 23, 2011

Via Electronic and Regular Mail
Ms. Bev Niemann
Environmental Manager
Delta Western Incorporated
PO Box 79018
Seattle, WA 98119

Re: Site Investigation Work Plan Approval
Delta Western Tank Farm Haines
Hazard ID 2970

Dear Ms. Niemann,

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has reviewed *Workplan for Investigation of Former Petro Marine Tank Farm in Haines* by Chilkat Environment dated August 9, 2010. The work plan objective, purpose, methodology, schedule and reporting design are in accordance with Title 18 Alaska Administrative Code 75.325 and 75.355 and the requests made by DEC to investigate contaminated soil and groundwater associated with historical release at the Delta Western Tank Farm contaminated site located at 12 Beach Road in Haines, Alaska. In accordance with Title 18 Alaska Administrative Code 75.320 the work plan is hereby approved.

The report on the results of the site investigation by your consultant will include a conceptual site model evaluation the trend in contaminant concentrations and the various exposure pathways that may pose an unacceptable risk to hazardous substances. The following information will assist your consultant in addressing the narrative information that is required in a CSM pathway evaluation.

Conceptual Site Model
A conceptual site model (CSM) identifies the source, transport mechanism, exposure medium, potential exposure routes, and potential receptors, and whether each pathway is potentially complete.

Pathways of Exposure
An exposure pathway describes the course that a constituent takes from its environmental source to a receptor. Each exposure pathway includes the following elements: (1) a source or constituent release form a source, (2) an exposure medium, (3) a point of potential contact for the receptor with the exposure medium, and (4) an exposure route at the contact point (e.g., ingestion, dermal contact or inhalation). An exposure pathway is considered complete when all of these elements are present.

Once constituents are released into an environmental medium, they may migrate from one medium to another. Complete exposure pathways are those that involve receptor contact with an environmental medium that contains elevated levels of site-associated constituents. The potentially complete exposure pathways for the site are identified in a pathway evaluation.

Subsurface Soils – Direct Contact: For receptors with potential to directly contact subsurface soils, incidental ingestion of constituents in soil and dermal contact with constituents in soil are the standard exposure routes.

Subsurface Soil-to-Outdoor Air Volatile Emissions: Volatile constituents in subsurface soil may potentially be released to ambient (outdoor) air through volatilization. Potential outdoor receptors could be exposed to vapors via inhalation.

Subsurface Soil – Vapor Intrusion to Indoor Air: Volatile constituents in soil may potentially intrude into the indoor air of current or future buildings. Potential indoor receptors could be exposed to vapors via inhalation.

Subsurface Soil – Migration to Groundwater: Constituents in subsurface soil have the potential to migrate to groundwater. If should be emphasized that groundwater in the vicinity of the site is not currently used as a source of drinking water.

Groundwater-to-Outdoor Air Volatile Emissions: Volatile constituents in groundwater may potentially be released to ambient (outdoor) air through volatilization. Potential outdoor receptors could be exposed to vapors via inhalation.

Groundwater – Vapor Intrusion to Indoor Air: Volatile constituents in groundwater may potentially intrude into the indoor air of current or future buildings. Potential indoor receptors could be exposed to vapors via inhalation.

Surface Water – Direct Contact: Surface water is not used as a potable water source at the site. However, direct contact with surface water is possible if a construction worker/utility worker involved in repairs or excavation activities comes in contact with surface water. Additionally, an offsite resident or recreational user could potentially be exposed to constituents in surface water during outdoor activities on the surface water body. In this case, incidental ingestion and dermal contact with surface water would be potentially complete exposure pathways.

Potential Receptors

The potential human receptors at a site must be characterized in order to evaluate potential exposure pathways. If the site and adjacent properties are zoned industrial, and the assumption is that future onsite land use will remain industrial then the receptors include onsite and offsite workers (construction and/or utility), visitors and recreational users. If the on-site property is residential or any or all off-site properties are residential-use then receptors include onsite and offsite residential adults and children. Onsite workers are assumed to be full-time employees present on the site on a daily basis. Onsite workers are not expected to be involved in any intrusive activities (e.g.

excavation). The onsite worker is potentially exposed to constituents volatilized from subsurface soil and groundwater to outdoor air ad indoor air via the inhalation pathway.

A construction worker may be involved in a short-term or long-term construction or excavation project or indoor construction project at the site. This receptor could potentially be exposed to constituents in subsurface soil or groundwater (incidental ingestion, dermal contact and inhalation of volatiles in outdoor air) during outdoor excavation activities. Additionally, the onsite construction/utility worker is potentially exposed to constituents volatilized from subsurface soil and groundwater to indoor air via the inhalation pathway.

A residential adult and residential child (for an off-site residential land-use) can be assumed to be present offsite seven days per week on a year-round basis. The offsite residential adult and residential child are potentially exposed to constituents volatilized from subsurface soil and groundwater to outdoor air and indoor air via the inhalation pathway. This receptor could also potentially be exposed to constituents in surface water (incidental ingestion and dermal contact) during outdoor activities on any surface water body at or adjacent to the site or offsite residential property.

Recreational users could potentially be exposed to constituents in surface water (incidental ingestion and dermal contact) during outdoor activities (e.g. wading, rafting) on an adjacent surface water body.

I look forward to working with your consultant as needed to adapt the approved work plan to investigate the effectiveness of the historical cleanup at the Haines facility. I can be reached at 410 Willoughby Suite 302 in Juneau by telephone at 907-465-5210 or by email at bruce.wanstall@alaska.gov .

Sincerely,

Bruce Wanstall

Bruce Wanstall
Project Manager, Southeast Field Investigations
State & Private Contaminated Sites Program

cc: Elijah Donat, Chilkat Environmental, via email
Fred Grey, Delta Western, via email

Attachment F:

Project Permits

SPECIAL USE PERMIT

BETWEEN
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
AND
CHILKAT ENVIRONMENTAL

PERMIT NO. 11-032

THIS PERMIT is issued and effective this 31st day of August, 2011, by the State of Alaska, Department of Transportation and Public Facilities, Southeast Region Right-of-Way, whose mailing address is P.O. Box 112506, Juneau Alaska 99811-2506, acting through its Commissioner and referred to as the "State", and Chilkat Environmental, referred to as "Permittee," whose mailing address is: Box 865 Haines, Alaska 99827

Permittee may occupy the following described right-of-way, which is shown on the attached drawing, and is referred to hereinafter as the "permitted area" for the purpose of: To excavate portions of the ditch along Beach Road, Haines Alaska, to confirm that the excavation of contaminated soil was completed to acceptable levels and confirm there is no off-site migration of petroleum contamination.

This permit is subject to the provisions of Alaska Administrative Code, Title 17, Chapter 010, and the following general and special conditions:

1. **Allowed Use:** The permitted area is to be used for above stated site excavation, and for no other purpose.

2. **Term:** Permittee may occupy the permitted area for a term (not to exceed five years) commencing on 09/05/2011 and ending on 09/30/2011 unless sooner revoked as provided herein. Before the expiration of said term, and before subsequent term anniversary dates, Permittee may request, in writing, renewal of this Permit for an additional term.

3. **Traffic Control Plan:** Permittee shall be prepare, submit, and implement an approved traffic control plan in accordance with the relevant provisions of the MUTCD.

4. **Use by the State:** The issuance of this Permit notwithstanding, the permitted area's primary use is for transportation purposes. The State may revoke this permit (as stated below), and/or enter the permitted area at any time, without notice, for emergency use, or for the planning, design, construction, inspection, or maintenance of existing or future transportation facilities. Any such use of the permitted area will in no way invoke the protections provided under 23 USC Section 138 (Preservation of Parklands).

5. **Compliance with Laws:** Permittee shall comply with all laws, ordinances, regulations, and administrative agency and/or court orders, including those relating to health, safety, noise, environmental protection, waste disposal, hazardous or toxic materials, and water and air quality. No fuel, hazardous or combustible substances are to be stored in the Permit area. Should Permittee's use of the permitted area cause any discharge, leak, spill, emission, or pollution release of any type to occur at any time during this occupancy, Permittee shall immediately notify the State and the appropriate federal, state, and local authorities. Permittee shall act immediately to contain and/or absorb the release, repair any damage, and clean up the release area, and to restore the permitted area to compliance with all applicable state, federal, or local laws or regulations. Permittee shall be held liable for any and all costs incurred by the State to dispose of cleanup materials or to clean up the permitted area unless otherwise agreed to, in writing, by both parties.

6. **Corps of Engineers Authorization:** Before any filling activities take place within the right-of-way, or on the property adjacent to the right-of-way affected by this permit, please contact the U.S. Army Corps of Engineers (USACE) to see if any further authorization is required. Placement of fill material in waters of the U.S., including wetlands and streams, requires prior authorization in most cases. You can reach the USACE at:

   Anchorage: (907) 753-2712, Fax: (907) 753-5567 Toll Free 1-800-478-2712
   Fairbanks: (907) 474-2166, Fax: (907) 474-2164
   Juneau: (907) 790-4490, Fax: (907) 790-4499
   Kenai: (907) 283-3519, Fax: (907) 283-3981
   The website is http://www.poa.usace.army.mil/reg

7. **Waiver of Claims:** Permittee waives any claim or right of action Permittee may have against the State in the event of damage to property, and injury to or death of any person in the permitted area that arises because of the design, construction, maintenance, management, or operation of a highway in the right of way containing the permitted area.

8. **Reimbursement of Costs:** Permittee shall reimburse the State for all costs and expenses incurred by the State, including attorney's fees, in any action brought by the State to recover any delinquent fees, or for the breach of any terms or conditions contained in this Permit, or to recover possession of the permitted area.

9. **Non-discrimination:** No person, on the basis of race, religion, color, national origin, age, or sex, shall be excluded from participation in, denied the benefits of, or otherwise subjected to discrimination in that person's use of the permitted area.

10. **Assignment:** Permittee may not assign or transfer this permit.

11. **Indemnification:** Permittee shall indemnify, defend, and hold harmless the State, and its officers, employees, and contractors, from any claim resulting from injury, loss, or damage to any person or personal property resulting from the permittee's use of the permitted area.

12. **Revocation:** This Permit is not a property right but a temporary authorization, revocable by the State. The State may revoke this permit in its sole discretion and upon 30 days written notice unless a shorter period is agreed to herein by Permittee. Said notice will be sent to Permittee's last known mailing address. Permittee shall have no right of action against the State. Upon the expiration or revocation of this Permit, Permittee shall remove all encroachments and restore the permitted area to a clean and safe condition. This Permit may be also revoked based upon a written determination by the Federal Highway Administration that federal funding requirements applicable to outdoor advertising have been violated.

13. **Loss of Business:** The State is not responsible for loss of business.

14. **No Relocation Benefits:** Issuance of this Permit does not entitle Permittee to a payment of just compensation or relocation benefits under AS 34.60 if Permit is revoked, Permittee elects not to renew, or the State denies Permittee's request for renewal.

15. **Cancellation by Permittee:** Permittee may cancel this Permit by providing written notice to the State at the above address. Permittee is not entitled to a refund of any fees or expenses related to the revocation or cancellation of this Permit.

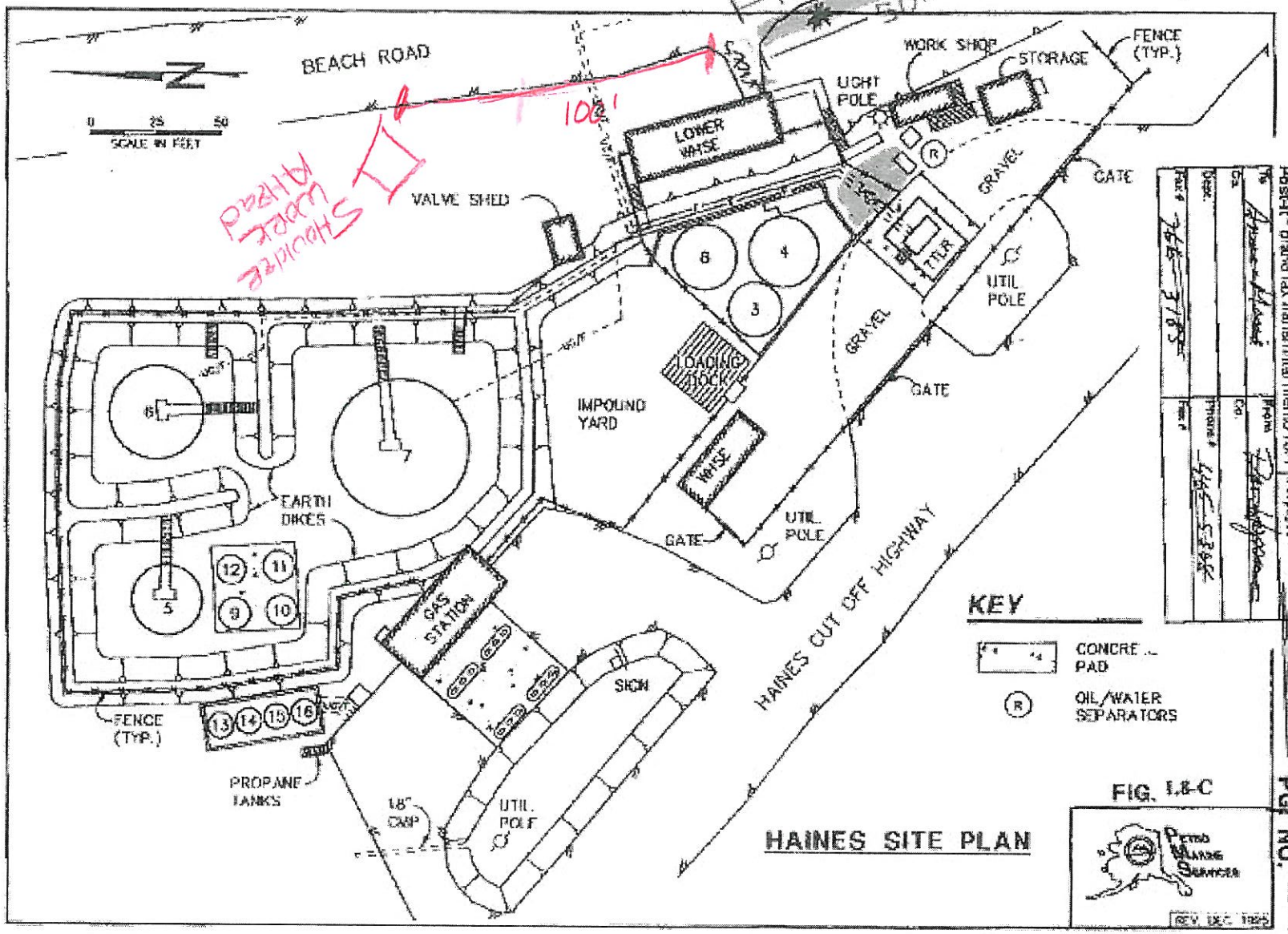
16. **Abandonment by Permittee:** Upon abandonment by Permittee of the permitted area, Permittee's rights under this Permit will immediately terminate, but Permittee's obligations will survive until fulfilled.

17. **Permittee to provide:** Results and information to ADOT including site photos, screening and lab analysis related to the ditch excavation.

I, Jacklynn Ruggirello, acknowledge that I am acting on behalf of the above named organization with the full authority to do so. I further acknowledge and accept that the Chilkat Environ shall comply with all conditions that the Department of Transportation and Public Facilities has included as a condition of issuing this permit.

Permittee Signature — Date: 9-1-11

DOT & PF Signature — Date: 9-1-11



PERMIT NUMBER 11-032
PAGE 3 OF 3

Right-of-Way Permit

Permit Number

Applicant Information

Name: Delta Western

Mailing address: PO Box 1369 Haines AK 99827

Phone: [illegible] 3195 FAX:

Contact person (must be available 24 hours): Fred Gray

Contact phone: Cell: 314-0280 Email: fredg@deltawestern.com

Contractor Information

Name: Chart Environmental Contractor's License #:

Mailing address: PO Box 365 Haines 99827

Liability Certificate: Job Number:

Phone: 907 303 7859 FAX:

Contact person (must be available 24 hours): Ellyn Daniel

Contact phone: Cell: 305 7859 Email: Ellyn@chartenvironmental.com

Project Description

General Description of Project: Two excavation pits will be installed to groundwater level for soil and water sampling. The pits will be on the property line / Road to determine migration of contamination exists

Site address: Mile 0 Haines Highway Nearest Cross Street: Beach Road

Tax Parcel Number:

Desired Starting Date: ASAP Estimated Completion Date: 1 day

Please Answer the Applicable Questions on the Reverse Side of this Form →

IMPORTANT! Attach your plans to this application, or provide a sketch of the proposed work using the last page of this form. Provide sufficient detail. Identify all roadway features (i.e. pavement, storm drainage, utilities, landscaping, north arrow, etc.) and how your work will impact them including any proposed grading changes. Provide relevant measurements and dimension. Include the location of all structures, existing or proposed.

Applicant Signature

The undersigned owner/applicant hereby agrees to hold and save harmless the Haines Borough from any and all claims for damages, costs, expense or causes of action that may arise because of installation and maintenance of the improvements or other right-of-way use hereto applied for and further agrees to remove same upon notice from the borough and to replace public property damaged thereby. All construction or activities occurring within a borough right-of-way shall be in accordance with borough construction and road standards, specific and general permit conditions, and the permitted specifications.

X Signature: Fred A. Gray Date: 9-6-11

FRED A. GRAY
DELTA WESTERN
907.314.0280

HAINES BOROUGH Permit #
PLANNING AND ZONING/LAND USE PERMIT APPLICATION

[ ] SIGN $25 [ ] LAND USE AND DEVELOPMENT $50 [ ] CHANGE OF USE $50
[ ] VARIANCE/CONDITIONAL USE/PUD $150 [ ] LOT LINE VACATION/ADJUSTMENT PLAT $50
[ ] SHORT PLAT $75 [ ] REZONING/LONG PLAT $250

Land Use Zone: (circle) GO LDR MR I/H I/L/C I/W C W SSA SR MR RR RMU RRC

Location of project: lot A1 Block ____ Subdivision/Tract/Survey C-MIS-CA-0100

Street Address Mile 0 Haines Highway Property tax ID number ____

[ ] **Residential Development**
[ ] Single Family
[ ] Duplex
[ ] Multi-Family
(# of Units ____)

[X] **Commercial Development** – Excavation
Type of Business ____
If eating or drinking establishment, give maximum seating capacity ____
[ ] Signs: How many? ____ (Attach Drawing)
[ ] Fire Marshal Plan Approval (Required)

[ ] **If Change of Use:** Existing/Proposed Property Use ____

[ ] **If Subdivision:** New Subdivision Name (must be unique) ____

Estimated Project Value $____
(To nearest $1,000)

[X] **Development:** (Explain) Excavation on property line and ROW for Soil Sampling

PERMIT REQUIREMENTS:

- → Connect to Public Water and Sewer if available (completed application required)
- → Provide State approval of on-site water and/or septic system if public utilities not available – **permit will not be issued without this approval**
- → Provide proof of legal and physical road access to property
- → Provide plan for drainage, driveway(s), culvert size and placement
- → Provide public access to recreational waters where required
- → Provide adequate off-street parking as required
- → Abide by existing height restrictions and setback requirements
- → Abide by existing minimum lot size requirement
- → In Highland Estates, underground utilities required where available
- → If application for commercial use, written approval from State Fire Marshal's office required **before** Borough permit will be issued
- → If permit is for a sign adjacent to a State Highway, set back a minimum of 60' from center line of the highway or applicant must notify local DOT
- → If located in Historic District, permit processed by Planning Commission

[ ] I hereby request a variance from density, setback, parking or height limitations and have submitted a variance request form, attached hereto.

The information I have given in this application is true and accurate. I have been informed of the above-listed permit requirements and agree to abide by them, all Borough Codes, and all State and Federal regulations, including those regarding wetlands and tidelands. I AM AWARE THAT IF I BEGIN CONSTRUCTION PRIOR TO RECEIVING PERMIT APPROVAL I WILL BE ASSESSED A $250.00 "AFTER-THE-FACT" FEE.

X Signature of Property Owner (Required)

Fred A. Gray

Printed Name of Property Owner

PO Box 1369

Mailing Address

9-2-11 907-766-3190

Date Submitted Phone No.

Businesses/Laborers hired (Required)

Owner Name

Mailing Address

Phone No.

Revised 8/18/06

Attachment G:

Soil and Water Sampling Laboratory Report: FBI 109245

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

September 30, 2011

Elijah Donat, Project Manager
Chilkat Environmental
PO Box 865
Haines, AK 99827

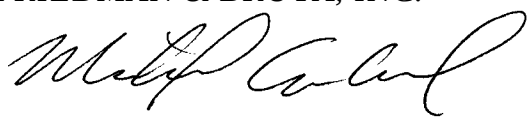
Dear Mr. Donat:

Included are the results from the testing of material submitted on September 19, 2011 from the Former Petro Marine Tank Farm, F&BI 109245 project. There are 87 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
CHL0930R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 19, 2011 by Friedman & Bruya, Inc. (ADEC laboratory approval number UST-007) from the Chilkat Environmental Former Petro Marine Tank Farm project. The samples were received at 4 °C in good condition and were refrigerated upon receipt. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Chilkat Environmental	Date Sampled
109245-01	A	09/15/11
109245-02	B	09/15/11
109245-03	C	09/15/11
109245-04	D	09/15/11
109245-05	E	09/15/11
109245-06	F	09/15/11
109245-07	MeOH Blank	N/A
109245-08	1	09/15/11
109245-09	1-D	09/15/11
109245-10	2	09/15/11
109245-11	3	09/15/11

The samples were analyzed as follows.

GRO (water) - Analysis Method AK 101, Extraction Method 5030B

All quality control requirements were acceptable. The surrogate for this analysis is 4-BFB.

GRO (soil) - Analysis Method AK 101, Extraction Method 5035

Results reported on a dry weight basis. The surrogate for this analysis is 4-BFB. All quality control requirements were acceptable.

DRO (water) - Analysis Method AK 102, Extraction Method 3510C

All quality control requirements were acceptable. The surrogate for this analysis is o-terphenyl.

CASE NARRATIVE (continued)

RRO (water) - Analysis Method AK 103, Extraction Method 3510C
The surrogate for sample E exceeded the acceptance criteria. No material was detected in the sample, therefore the data were acceptable. All other quality control requirements were acceptable. The surrogate for this analysis is triacontane.

DRO (soil) - Analysis Method AK 102, Extraction Method 3550B
Results reported on a dry weight basis. The surrogate for this analysis is o-terphenyl. All quality control requirements were acceptable.

RRO (soil) - Analysis Method AK 103, Extraction Method 3550B
Results reported on a dry weight basis. The surrogate for this analysis is triacontane. All quality control requirements were acceptable.

VOCs (soil) - Analysis Method 8260B, Extraction Method 5035
Acetone and methylene chloride were detected in many samples. The data were flagged as likely due to laboratory contamination. Several analytes exceeded the calibration range of the instrument. The 8260C calibration standard failed for several compounds. The data were flagged accordingly. Results reported on a dry weight basis. All other quality control requirements were acceptable.

VOCs (water) - Analysis Method 8260B, Extraction Method 5030B
The 8260C vinyl chloride concentrations are considered estimates due to hydrochloric acid preservation per EPA SW-846 table 4-1. The 8260C laboratory control sample and laboratory control sample duplicate failed the relative percent difference for several compounds. The analytes were not detected therefore the data were acceptable. All other quality control requirements were acceptable.

SVOCs (water) - Analysis Method 8270C, Extraction Method 3510C
Benzoic acid in the 8270D laboratory control sample and laboratory control sample duplicate exceeded the acceptance criteria. The analyte was not detected in the sample, therefore the data were acceptable. All other quality control requirements were acceptable.

SVOCs (soil) - Analysis Method 8270C, Extraction Method 3550B
The 8270D laboratory control sample and laboratory control sample duplicate failed the relative percent difference for several compounds. The analytes were not detected therefore the data were acceptable. Results reported on a dry weight basis. All other quality control requirements were acceptable.

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245
Date Extracted: NA
Date Analyzed: 09/20/11

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR PERCENT MOISTURE USING ASTM D2216-98

Sample ID Laboratory ID	% Moisture
A 109245-01	13
B 109245-02	5
C 109245-03	10
D 109245-04	11
E 109245-05	12
F 109245-06	8

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245
Date Extracted: 09/15/11 (Field)
Date Analyzed: 09/21/11 and 09/23/11

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD AK 101

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range (C_6-C_{10})	Surrogate (% Recovery) (Limit 50-150)
A 109245-01	250	563 ip
B 109245-02	110	942 ip
C 109245-03 1/10	340	287 ip
D 109245-04	170	942 ip
E 109245-05	110	616 ip
F 109245-06	120	413 ip
Method Blank 01-1735 MB	<1	113

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245
Date Extracted: 09/20/11
Date Analyzed: 09/20/11 and 09/21/11

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD AK101

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range (C_6-C_{10})	Surrogate (% Recovery) (Limit 60-120)
1 109245-08	<50	116
1-D 109245-09	<50	116
2 109245-10	650	135 ip
3 109245-11	680	135 ip
Method Blank 01-1727 MB	<50	113

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245
Date Extracted: 09/21/11
Date Analyzed: 09/22/11 and 09/26/11

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD AK102

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Surrogate (% Recovery) (Limit 50-150)
1 109245-08	7,000	114
1-D 109245-09	7,200	105
2 109245-10 1/20	180,000	212 ip
3 109245-11	3,600	96
Method Blank 01-1736 MB	<50	107

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245
Date Extracted: 09/22/11
Date Analyzed: 09/24/11 and 09/26/11

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD AK 102

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Surrogate (% Recovery) (Limit 50-150)
A 109245-01	3,800	110
B 109245-02 1/10	5,100	161 ip
C 109245-03	1,500	134
D 109245-04	2,200	135
E 109245-05	560	119
F 109245-06	570	114
Method Blank 01-1745 MB	<5	113

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245
Date Extracted: 09/21/11
Date Analyzed: 09/22/11 and 09/26/11

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING METHOD AK 103

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
1 109245-08	890	109
1-D 109245-09	910	109
2 109245-10 1/20	1,200	60
3 109245-11	620	93
Method Blank 01-1736 MB	<250	103

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245
Date Extracted: 09/22/11
Date Analyzed: 09/24/11 and 09/26/11

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING METHOD AK 103

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
A 109245-01	310	117
B 109245-02 1/10	330	161 ip
C 109245-03	<25	121
D 109245-04	<25	134
E 109245-05	<25	153 vo
F 109245-06	150	52
Method Blank 01-1745 MB	<25	99

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-01
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092126.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<0.5	0.5	0.007	mg/kg (ppm)		09/22/11	0:17
Chloromethane	74-87-3	<0.5	0.5	0.009	mg/kg (ppm)		09/22/11	0:17
Vinyl chloride	75-01-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	0:17
Bromomethane	74-83-9	<0.5	0.5	0.04	mg/kg (ppm)		09/22/11	0:17
Chloroethane	75-00-3	<0.5	0.5	0.04	mg/kg (ppm)		09/22/11	0:17
Trichlorofluoromethane	75-69-4	<0.5	0.5	0.06	mg/kg (ppm)		09/22/11	0:17
Acetone	67-64-1	0.28	0.5	0.03	mg/kg (ppm)	j lc	09/22/11	0:17
1,1-Dichloroethene	75-35-4	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	0:17
Methylene chloride	75-09-2	0.54	0.5	0.06	mg/kg (ppm)	lc	09/22/11	0:17
Methyl t-butyl ether (MTBE)	1634-04-4	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	0:17
trans-1,2-Dichloroethene	156-60-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	0:17
1,1-Dichloroethane	75-34-3	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	0:17
2,2-Dichloropropane	594-20-7	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	0:17
cis-1,2-Dichloroethene	156-59-2	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	0:17
Chloroform	67-66-3	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	0:17
2-Butanone (MEK)	78-93-3	0.26	0.5	0.03	mg/kg (ppm)	j	09/22/11	0:17
1,2-Dichloroethane (EDC)	107-06-2	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	0:17
1,1,1-Trichloroethane	71-55-6	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	0:17
1,1-Dichloropropene	563-58-6	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	0:17
Carbon tetrachloride	56-23-5	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	0:17
Benzene	71-43-2	0.17	0.03	0.006	mg/kg (ppm)		09/22/11	0:17
Trichloroethene	79-01-6	<0.03	0.03	0.005	mg/kg (ppm)		09/22/11	0:17
1,2-Dichloropropane	78-87-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	0:17
Bromodichloromethane	75-27-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	0:17
Dibromomethane	74-95-3	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	0:17
4-Methyl-2-pentanone	108-10-1	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	0:17
cis-1,3-Dichloropropene	10061-01-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	0:17
Toluene	108-88-3	0.89	0.05	0.005	mg/kg (ppm)		09/22/11	0:17
trans-1,3-Dichloropropene	10061-02-6	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	0:17
1,1,2-Trichloroethane	79-00-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	0:17
2-Hexanone	591-78-6	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	0:17
1,3-Dichloropropane	142-28-9	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	0:17
Tetrachloroethene	127-18-4	<0.025	0.025	0.006	mg/kg (ppm)		09/22/11	0:17
Dibromochloromethane	124-48-1	<0.05	0.05	0.00	mg/kg (ppm)		09/22/11	0:17
1,2-Dibromoethane (EDB)	106-93-4	<0.05	0.05	0.01	mg/kg (ppm)		09/22/11	0:17
Chlorobenzene	108-90-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	0:17
Ethylbenzene	100-41-4	0.17	0.05	0.004	mg/kg (ppm)		09/22/11	0:17
1,1,1,2-Tetrachloroethane	630-20-6	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	0:17
m,p-Xylene	179601-23-1	12	0.1	0.01	mg/kg (ppm)		09/22/11	0:17
o-Xylene	95-47-6	25	0.05	0.003	mg/kg (ppm)	ve	09/22/11	0:17

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-01
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092126.D

Styrene	100-42-5	0.061	0.05	0.003	mg/kg (ppm)		09/22/11	0:17
Isopropylbenzene	98-82-8	0.16	0.05	0.004	mg/kg (ppm)		09/22/11	0:17
Bromoform	75-25-2	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	0:17
n-Propylbenzene	103-65-1	0.25	0.05	0.004	mg/kg (ppm)		09/22/11	0:17
Bromobenzene	108-86-1	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	0:17
1,3,5-Trimethylbenzene	108-67-8	29	0.05	0.006	mg/kg (ppm)	ve	09/22/11	0:17
1,1,2,2-Tetrachloroethane	79-34-5	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	0:17
1,2,3-Trichloropropane	96-18-4	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	0:17
2-Chlorotoluene	95-49-8	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	0:17
4-Chlorotoluene	106-43-4	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	0:17
tert-Butylbenzene	98-06-6	0.28	0.05	0.005	mg/kg (ppm)		09/22/11	0:17
1,2,4-Trimethylbenzene	95-63-6	37	0.05	0.005	mg/kg (ppm)	ve	09/22/11	0:17
sec-Butylbenzene	135-98-8	0.61	0.05	0.005	mg/kg (ppm)		09/22/11	0:17
p-Isopropyltoluene	99-87-6	4.3	0.05	0.004	mg/kg (ppm)		09/22/11	0:17
1,3-Dichlorobenzene	541-73-1	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	0:17
1,4-Dichlorobenzene	106-46-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	0:17
1,2-Dichlorobenzene	95-50-1	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	0:17
1,2-Dibromo-3-chloropropane	96-12-8	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	0:17
1,2,4-Trichlorobenzene	120-82-1	<0.25	0.25	0.009	mg/kg (ppm)		09/22/11	0:17
Hexachlorobutadiene	87-68-3	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	0:17
Naphthalene	91-20-3	2.4	0.05	0.01	mg/kg (ppm)		09/22/11	0:17
1,2,3-Trichlorobenzene	87-61-6	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	0:17

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-01 1/20
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092312.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	87	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<10	10	0.007	mg/kg (ppm)		09/23/11	14:37
Chloromethane	74-87-3	<10	10	0.009	mg/kg (ppm)		09/23/11	14:37
Vinyl chloride	75-01-4	<1	1	0.007	mg/kg (ppm)		09/23/11	14:37
Bromomethane	74-83-9	<10	10	0.04	mg/kg (ppm)		09/23/11	14:37
Chloroethane	75-00-3	<10	10	0.04	mg/kg (ppm)	ca	09/23/11	14:37
Trichlorofluoromethane	75-69-4	<10	10	0.06	mg/kg (ppm)		09/23/11	14:37
Acetone	67-64-1	1.8	10	0.03	mg/kg (ppm)	j lc	09/23/11	14:37
1,1-Dichloroethene	75-35-4	<1	1	0.02	mg/kg (ppm)		09/23/11	14:37
Methylene chloride	75-09-2	2.0	10	0.06	mg/kg (ppm)	j lc	09/23/11	14:37
Methyl t-butyl ether (MTBE)	1634-04-4	<1	1	0.005	mg/kg (ppm)		09/23/11	14:37
trans-1,2-Dichloroethene	156-60-5	<1	1	0.005	mg/kg (ppm)		09/23/11	14:37
1,1-Dichloroethane	75-34-3	<1	1	0.006	mg/kg (ppm)		09/23/11	14:37
2,2-Dichloropropane	594-20-7	<1	1	0.004	mg/kg (ppm)		09/23/11	14:37
cis-1,2-Dichloroethene	156-59-2	<1	1	0.006	mg/kg (ppm)		09/23/11	14:37
Chloroform	67-66-3	<1	1	0.004	mg/kg (ppm)		09/23/11	14:37
2-Butanone (MEK)	78-93-3	<10	10	0.03	mg/kg (ppm)		09/23/11	14:37
1,2-Dichloroethane (EDC)	107-06-2	<1	1	0.009	mg/kg (ppm)		09/23/11	14:37
1,1,1-Trichloroethane	71-55-6	<1	1	0.006	mg/kg (ppm)		09/23/11	14:37
1,1-Dichloropropene	563-58-6	<1	1	0.004	mg/kg (ppm)		09/23/11	14:37
Carbon tetrachloride	56-23-5	<1	1	0.009	mg/kg (ppm)		09/23/11	14:37
Benzene	71-43-2	<0.6	0.6	0.006	mg/kg (ppm)		09/23/11	14:37
Trichloroethene	79-01-6	<0.6	0.6	0.005	mg/kg (ppm)		09/23/11	14:37
1,2-Dichloropropane	78-87-5	<1	1	0.004	mg/kg (ppm)		09/23/11	14:37
Bromodichloromethane	75-27-4	<1	1	0.007	mg/kg (ppm)		09/23/11	14:37
Dibromomethane	74-95-3	<1	1	0.008	mg/kg (ppm)		09/23/11	14:37
4-Methyl-2-pentanone	108-10-1	<10	10	0.02	mg/kg (ppm)		09/23/11	14:37
cis-1,3-Dichloropropene	10061-01-5	<1	1	0.004	mg/kg (ppm)		09/23/11	14:37
Toluene	108-88-3	0.67	1	0.005	mg/kg (ppm)	j	09/23/11	14:37
trans-1,3-Dichloropropene	10061-02-6	<1	1	0.005	mg/kg (ppm)		09/23/11	14:37
1,1,2-Trichloroethane	79-00-5	<1	1	0.005	mg/kg (ppm)		09/23/11	14:37
2-Hexanone	591-78-6	<10	10	0.02	mg/kg (ppm)		09/23/11	14:37
1,3-Dichloropropane	142-28-9	<1	1	0.005	mg/kg (ppm)		09/23/11	14:37
Tetrachloroethene	127-18-4	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	14:37
Dibromochloromethane	124-48-1	<1	1	0.00	mg/kg (ppm)		09/23/11	14:37
1,2-Dibromoethane (EDB)	106-93-4	<1	1	0.01	mg/kg (ppm)		09/23/11	14:37
Chlorobenzene	108-90-7	<1	1	0.006	mg/kg (ppm)		09/23/11	14:37
Ethylbenzene	100-41-4	<1	1	0.004	mg/kg (ppm)		09/23/11	14:37
1,1,1,2-Tetrachloroethane	630-20-6	<1	1	0.008	mg/kg (ppm)		09/23/11	14:37
m,p-Xylene	179601-23-1	8.6	2	0.01	mg/kg (ppm)		09/23/11	14:37
o-Xylene	95-47-6	17	1	0.003	mg/kg (ppm)		09/23/11	14:37

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-01 1/20
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092312.D

Styrene	100-42-5	<1	1	0.003	mg/kg (ppm)		09/23/11	14:37
Isopropylbenzene	98-82-8	<1	1	0.004	mg/kg (ppm)		09/23/11	14:37
Bromoform	75-25-2	<1	1	0.005	mg/kg (ppm)		09/23/11	14:37
n-Propylbenzene	103-65-1	0.34	1	0.004	mg/kg (ppm)	j	09/23/11	14:37
Bromobenzene	108-86-1	<1	1	0.007	mg/kg (ppm)		09/23/11	14:37
1,3,5-Trimethylbenzene	108-67-8	21	1	0.006	mg/kg (ppm)		09/23/11	14:37
1,1,2,2-Tetrachloroethane	79-34-5	<1	1	0.02	mg/kg (ppm)		09/23/11	14:37
1,2,3-Trichloropropane	96-18-4	<1	1	0.02	mg/kg (ppm)		09/23/11	14:37
2-Chlorotoluene	95-49-8	<1	1	0.006	mg/kg (ppm)		09/23/11	14:37
4-Chlorotoluene	106-43-4	<1	1	0.004	mg/kg (ppm)		09/23/11	14:37
tert-Butylbenzene	98-06-6	<1	1	0.005	mg/kg (ppm)		09/23/11	14:37
1,2,4-Trimethylbenzene	95-63-6	26	1	0.005	mg/kg (ppm)		09/23/11	14:37
sec-Butylbenzene	135-98-8	0.58	1	0.005	mg/kg (ppm)	j	09/23/11	14:37
p-Isopropyltoluene	99-87-6	3.6	1	0.004	mg/kg (ppm)		09/23/11	14:37
1,3-Dichlorobenzene	541-73-1	<1	1	0.005	mg/kg (ppm)		09/23/11	14:37
1,4-Dichlorobenzene	106-46-7	<1	1	0.006	mg/kg (ppm)		09/23/11	14:37
1,2-Dichlorobenzene	95-50-1	<1	1	0.02	mg/kg (ppm)		09/23/11	14:37
1,2-Dibromo-3-chloropropane	96-12-8	<10	10	0.02	mg/kg (ppm)		09/23/11	14:37
1,2,4-Trichlorobenzene	120-82-1	<5	5	0.009	mg/kg (ppm)		09/23/11	14:37
Hexachlorobutadiene	87-68-3	<5	5	0.02	mg/kg (ppm)		09/23/11	14:37
Naphthalene	91-20-3	2.1	1	0.01	mg/kg (ppm)		09/23/11	14:37
1,2,3-Trichlorobenzene	87-61-6	<5	5	0.02	mg/kg (ppm)		09/23/11	14:37

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-02
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092135.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	143	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<0.5	0.5	0.007	mg/kg (ppm)		09/22/11	5:17
Chloromethane	74-87-3	<0.5	0.5	0.009	mg/kg (ppm)		09/22/11	5:17
Vinyl chloride	75-01-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	5:17
Bromomethane	74-83-9	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/22/11	5:17
Chloroethane	75-00-3	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/22/11	5:17
Trichlorofluoromethane	75-69-4	<0.5	0.5	0.06	mg/kg (ppm)	ca	09/22/11	5:17
Acetone	67-64-1	0.14	0.5	0.03	mg/kg (ppm)	j lc	09/22/11	5:17
1,1-Dichloroethene	75-35-4	<0.05	0.05	0.02	mg/kg (ppm)	ca	09/22/11	5:17
Methylene chloride	75-09-2	0.30	0.5	0.06	mg/kg (ppm)	j lc	09/22/11	5:17
Methyl t-butyl ether (MTBE)	1634-04-4	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
trans-1,2-Dichloroethene	156-60-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
1,1-Dichloroethane	75-34-3	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	5:17
2,2-Dichloropropane	594-20-7	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	5:17
cis-1,2-Dichloroethene	156-59-2	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	5:17
Chloroform	67-66-3	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	5:17
2-Butanone (MEK)	78-93-3	<0.5	0.5	0.03	mg/kg (ppm)		09/22/11	5:17
1,2-Dichloroethane (EDC)	107-06-2	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	5:17
1,1,1-Trichloroethane	71-55-6	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	5:17
1,1-Dichloropropene	563-58-6	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	5:17
Carbon tetrachloride	56-23-5	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	5:17
Benzene	71-43-2	0.031	0.03	0.006	mg/kg (ppm)		09/22/11	5:17
Trichloroethene	79-01-6	<0.03	0.03	0.005	mg/kg (ppm)		09/22/11	5:17
1,2-Dichloropropane	78-87-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	5:17
Bromodichloromethane	75-27-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	5:17
Dibromomethane	74-95-3	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	5:17
4-Methyl-2-pentanone	108-10-1	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	5:17
cis-1,3-Dichloropropene	10061-01-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	5:17
Toluene	108-88-3	0.15	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
trans-1,3-Dichloropropene	10061-02-6	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
1,1,2-Trichloroethane	79-00-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
2-Hexanone	591-78-6	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	5:17
1,3-Dichloropropane	142-28-9	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
Tetrachloroethene	127-18-4	<0.025	0.025	0.006	mg/kg (ppm)		09/22/11	5:17
Dibromochloromethane	124-48-1	<0.05	0.05	0.00	mg/kg (ppm)		09/22/11	5:17
1,2-Dibromoethane (EDB)	106-93-4	<0.05	0.05	0.01	mg/kg (ppm)		09/22/11	5:17
Chlorobenzene	108-90-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	5:17
Ethylbenzene	100-41-4	0.046	0.05	0.004	mg/kg (ppm)	j	09/22/11	5:17
1,1,1,2-Tetrachloroethane	630-20-6	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	5:17
m,p-Xylene	179601-23-1	0.28	0.1	0.01	mg/kg (ppm)		09/22/11	5:17
o-Xylene	95-47-6	0.057	0.05	0.003	mg/kg (ppm)		09/22/11	5:17

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-02
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092135.D

Styrene	100-42-5	<0.05	0.05	0.003	mg/kg (ppm)		09/22/11	5:17
Isopropylbenzene	98-82-8	0.018	0.05	0.004	mg/kg (ppm)	j	09/22/11	5:17
Bromoform	75-25-2	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
n-Propylbenzene	103-65-1	0.033	0.05	0.004	mg/kg (ppm)	j	09/22/11	5:17
Bromobenzene	108-86-1	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	5:17
1,3,5-Trimethylbenzene	108-67-8	0.74	0.05	0.006	mg/kg (ppm)		09/22/11	5:17
1,1,2,2-Tetrachloroethane	79-34-5	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	5:17
1,2,3-Trichloropropane	96-18-4	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	5:17
2-Chlorotoluene	95-49-8	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	5:17
4-Chlorotoluene	106-43-4	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	5:17
tert-Butylbenzene	98-06-6	0.099	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
1,2,4-Trimethylbenzene	95-63-6	0.98	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
sec-Butylbenzene	135-98-8	0.054	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
p-Isopropyltoluene	99-87-6	0.41	0.05	0.004	mg/kg (ppm)		09/22/11	5:17
1,3-Dichlorobenzene	541-73-1	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	5:17
1,4-Dichlorobenzene	106-46-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	5:17
1,2-Dichlorobenzene	95-50-1	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	5:17
1,2-Dibromo-3-chloropropane	96-12-8	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	5:17
1,2,4-Trichlorobenzene	120-82-1	<0.25	0.25	0.009	mg/kg (ppm)		09/22/11	5:17
Hexachlorobutadiene	87-68-3	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	5:17
Naphthalene	91-20-3	1.2	0.05	0.01	mg/kg (ppm)	ca	09/22/11	5:17
1,2,3-Trichlorobenzene	87-61-6	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	5:17

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-02 1/10
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092314.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	143	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<5	5	0.007	mg/kg (ppm)		09/23/11	15:41
Chloromethane	74-87-3	<5	5	0.009	mg/kg (ppm)		09/23/11	15:41
Vinyl chloride	75-01-4	<0.5	0.5	0.007	mg/kg (ppm)		09/23/11	15:41
Bromomethane	74-83-9	<5	5	0.04	mg/kg (ppm)		09/23/11	15:41
Chloroethane	75-00-3	<5	5	0.04	mg/kg (ppm)	ca	09/23/11	15:41
Trichlorofluoromethane	75-69-4	<5	5	0.06	mg/kg (ppm)		09/23/11	15:41
Acetone	67-64-1	0.73	5	0.03	mg/kg (ppm)	j lc	09/23/11	15:41
1,1-Dichloroethene	75-35-4	<0.5	0.5	0.02	mg/kg (ppm)		09/23/11	15:41
Methylene chloride	75-09-2	0.93	5	0.06	mg/kg (ppm)	j lc	09/23/11	15:41
Methyl t-butyl ether (MTBE)	1634-04-4	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	15:41
trans-1,2-Dichloroethene	156-60-5	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	15:41
1,1-Dichloroethane	75-34-3	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	15:41
2,2-Dichloropropane	594-20-7	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	15:41
cis-1,2-Dichloroethene	156-59-2	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	15:41
Chloroform	67-66-3	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	15:41
2-Butanone (MEK)	78-93-3	<5	5	0.03	mg/kg (ppm)		09/23/11	15:41
1,2-Dichloroethane (EDC)	107-06-2	<0.5	0.5	0.009	mg/kg (ppm)		09/23/11	15:41
1,1,1-Trichloroethane	71-55-6	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	15:41
1,1-Dichloropropene	563-58-6	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	15:41
Carbon tetrachloride	56-23-5	<0.5	0.5	0.009	mg/kg (ppm)		09/23/11	15:41
Benzene	71-43-2	<0.3	0.3	0.006	mg/kg (ppm)		09/23/11	15:41
Trichloroethene	79-01-6	<0.3	0.3	0.005	mg/kg (ppm)		09/23/11	15:41
1,2-Dichloropropane	78-87-5	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	15:41
Bromodichloromethane	75-27-4	<0.5	0.5	0.007	mg/kg (ppm)		09/23/11	15:41
Dibromomethane	74-95-3	<0.5	0.5	0.008	mg/kg (ppm)		09/23/11	15:41
4-Methyl-2-pentanone	108-10-1	<5	5	0.02	mg/kg (ppm)		09/23/11	15:41
cis-1,3-Dichloropropene	10061-01-5	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	15:41
Toluene	108-88-3	0.16	0.5	0.005	mg/kg (ppm)	j	09/23/11	15:41
trans-1,3-Dichloropropene	10061-02-6	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	15:41
1,1,2-Trichloroethane	79-00-5	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	15:41
2-Hexanone	591-78-6	<5	5	0.02	mg/kg (ppm)		09/23/11	15:41
1,3-Dichloropropane	142-28-9	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	15:41
Tetrachloroethene	127-18-4	<0.25	0.25	0.006	mg/kg (ppm)		09/23/11	15:41
Dibromochloromethane	124-48-1	<0.5	0.5	0.00	mg/kg (ppm)		09/23/11	15:41
1,2-Dibromoethane (EDB)	106-93-4	<0.5	0.5	0.01	mg/kg (ppm)		09/23/11	15:41
Chlorobenzene	108-90-7	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	15:41
Ethylbenzene	100-41-4	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	15:41
1,1,1,2-Tetrachloroethane	630-20-6	<0.5	0.5	0.008	mg/kg (ppm)		09/23/11	15:41
m,p-Xylene	179601-23-1	0.27	1	0.01	mg/kg (ppm)	j	09/23/11	15:41
o-Xylene	95-47-6	<0.5	0.5	0.003	mg/kg (ppm)		09/23/11	15:41

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-02 1/10
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092314.D

Styrene	100-42-5	<0.5	0.5	0.003	mg/kg (ppm)		09/23/11	15:41
Isopropylbenzene	98-82-8	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	15:41
Bromoform	75-25-2	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	15:41
n-Propylbenzene	103-65-1	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	15:41
Bromobenzene	108-86-1	<0.5	0.5	0.007	mg/kg (ppm)		09/23/11	15:41
1,3,5-Trimethylbenzene	108-67-8	0.80	0.5	0.006	mg/kg (ppm)		09/23/11	15:41
1,1,2,2-Tetrachloroethane	79-34-5	<0.5	0.5	0.02	mg/kg (ppm)		09/23/11	15:41
1,2,3-Trichloropropane	96-18-4	<0.5	0.5	0.02	mg/kg (ppm)		09/23/11	15:41
2-Chlorotoluene	95-49-8	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	15:41
4-Chlorotoluene	106-43-4	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	15:41
tert-Butylbenzene	98-06-6	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	15:41
1,2,4-Trimethylbenzene	95-63-6	1.1	0.5	0.005	mg/kg (ppm)		09/23/11	15:41
sec-Butylbenzene	135-98-8	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	15:41
p-Isopropyltoluene	99-87-6	0.40	0.5	0.004	mg/kg (ppm)	j	09/23/11	15:41
1,3-Dichlorobenzene	541-73-1	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	15:41
1,4-Dichlorobenzene	106-46-7	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	15:41
1,2-Dichlorobenzene	95-50-1	<0.5	0.5	0.02	mg/kg (ppm)		09/23/11	15:41
1,2-Dibromo-3-chloropropane	96-12-8	<5	5	0.02	mg/kg (ppm)		09/23/11	15:41
1,2,4-Trichlorobenzene	120-82-1	<2.5	2.5	0.009	mg/kg (ppm)		09/23/11	15:41
Hexachlorobutadiene	87-68-3	<2.5	2.5	0.02	mg/kg (ppm)		09/23/11	15:41
Naphthalene	91-20-3	1.1	0.5	0.01	mg/kg (ppm)		09/23/11	15:41
1,2,3-Trichlorobenzene	87-61-6	<2.5	2.5	0.02	mg/kg (ppm)		09/23/11	15:41

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	C	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	1019245-03
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092134.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	192 vo	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<0.5	0.5	0.007	mg/kg (ppm)		09/22/11	4:35
Chloromethane	74-87-3	<0.5	0.5	0.009	mg/kg (ppm)		09/22/11	4:35
Vinyl chloride	75-01-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	4:35
Bromomethane	74-83-9	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/22/11	4:35
Chloroethane	75-00-3	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/22/11	4:35
Trichlorofluoromethane	75-69-4	<0.5	0.5	0.06	mg/kg (ppm)	ca	09/22/11	4:35
Acetone	67-64-1	0.13	0.5	0.03	mg/kg (ppm)	j lc	09/22/11	4:35
1,1-Dichloroethene	75-35-4	<0.05	0.05	0.02	mg/kg (ppm)	ca	09/22/11	4:35
Methylene chloride	75-09-2	<0.5	0.5	0.06	mg/kg (ppm)		09/22/11	4:35
Methyl t-butyl ether (MTBE)	1634-04-4	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:35
trans-1,2-Dichloroethene	156-60-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:35
1,1-Dichloroethane	75-34-3	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:35
2,2-Dichloropropane	594-20-7	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:35
cis-1,2-Dichloroethene	156-59-2	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:35
Chloroform	67-66-3	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:35
2-Butanone (MEK)	78-93-3	<0.5	0.5	0.03	mg/kg (ppm)		09/22/11	4:35
1,2-Dichloroethane (EDC)	107-06-2	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	4:35
1,1,1-Trichloroethane	71-55-6	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:35
1,1-Dichloropropene	563-58-6	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:35
Carbon tetrachloride	56-23-5	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	4:35
Benzene	71-43-2	0.073	0.03	0.006	mg/kg (ppm)		09/22/11	4:35
Trichloroethene	79-01-6	<0.03	0.03	0.005	mg/kg (ppm)		09/22/11	4:35
1,2-Dichloropropane	78-87-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:35
Bromodichloromethane	75-27-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	4:35
Dibromomethane	74-95-3	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	4:35
4-Methyl-2-pentanone	108-10-1	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	4:35
cis-1,3-Dichloropropene	10061-01-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:35
Toluene	108-88-3	0.24	0.05	0.005	mg/kg (ppm)		09/22/11	4:35
trans-1,3-Dichloropropene	10061-02-6	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:35
1,1,2-Trichloroethane	79-00-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:35
2-Hexanone	591-78-6	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	4:35
1,3-Dichloropropane	142-28-9	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:35
Tetrachloroethene	127-18-4	<0.025	0.025	0.006	mg/kg (ppm)		09/22/11	4:35
Dibromochloromethane	124-48-1	<0.05	0.05	0.00	mg/kg (ppm)		09/22/11	4:35
1,2-Dibromoethane (EDB)	106-93-4	<0.05	0.05	0.01	mg/kg (ppm)		09/22/11	4:35
Chlorobenzene	108-90-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:35
Ethylbenzene	100-41-4	1.4	0.05	0.004	mg/kg (ppm)		09/22/11	4:35
1,1,1,2-Tetrachloroethane	630-20-6	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	4:35
m,p-Xylene	179601-23-1	3.5	0.1	0.01	mg/kg (ppm)		09/22/11	4:35
o-Xylene	95-47-6	0.11	0.05	0.003	mg/kg (ppm)		09/22/11	4:35

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	C	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	1019245-03
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092134.D

Styrene	100-42-5	<0.05	0.05	0.003	mg/kg (ppm)		09/22/11	4:35
Isopropylbenzene	98-82-8	3.4	0.05	0.004	mg/kg (ppm)		09/22/11	4:35
Bromoform	75-25-2	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:35
n-Propylbenzene	103-65-1	4.7	0.05	0.004	mg/kg (ppm)		09/22/11	4:35
Bromobenzene	108-86-1	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	4:35
1,3,5-Trimethylbenzene	108-67-8	16	0.05	0.006	mg/kg (ppm)	ve	09/22/11	4:35
1,1,2,2-Tetrachloroethane	79-34-5	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	4:35
1,2,3-Trichloropropane	96-18-4	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	4:35
2-Chlorotoluene	95-49-8	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:35
4-Chlorotoluene	106-43-4	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:35
tert-Butylbenzene	98-06-6	0.22	0.05	0.005	mg/kg (ppm)		09/22/11	4:35
1,2,4-Trimethylbenzene	95-63-6	32	0.05	0.005	mg/kg (ppm)	ve	09/22/11	4:35
sec-Butylbenzene	135-98-8	3.9	0.05	0.005	mg/kg (ppm)		09/22/11	4:35
p-Isopropyltoluene	99-87-6	5.6	0.05	0.004	mg/kg (ppm)		09/22/11	4:35
1,3-Dichlorobenzene	541-73-1	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:35
1,4-Dichlorobenzene	106-46-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:35
1,2-Dichlorobenzene	95-50-1	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	4:35
1,2-Dibromo-3-chloropropane	96-12-8	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	4:35
1,2,4-Trichlorobenzene	120-82-1	<0.25	0.25	0.009	mg/kg (ppm)		09/22/11	4:35
Hexachlorobutadiene	87-68-3	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	4:35
Naphthalene	91-20-3	18	0.05	0.01	mg/kg (ppm)	ve ca	09/22/11	4:35
1,2,3-Trichlorobenzene	87-61-6	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	4:35

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	C	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-03 1/20
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092313.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	147	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<10	10	0.007	mg/kg (ppm)		09/23/11	15:20
Chloromethane	74-87-3	<10	10	0.009	mg/kg (ppm)		09/23/11	15:20
Vinyl chloride	75-01-4	<1	1	0.007	mg/kg (ppm)		09/23/11	15:20
Bromomethane	74-83-9	<10	10	0.04	mg/kg (ppm)		09/23/11	15:20
Chloroethane	75-00-3	<10	10	0.04	mg/kg (ppm)	ca	09/23/11	15:20
Trichlorofluoromethane	75-69-4	<10	10	0.06	mg/kg (ppm)		09/23/11	15:20
Acetone	67-64-1	1.5	10	0.03	mg/kg (ppm)	j lc	09/23/11	15:20
1,1-Dichloroethene	75-35-4	<1	1	0.02	mg/kg (ppm)		09/23/11	15:20
Methylene chloride	75-09-2	0.78	10	0.06	mg/kg (ppm)	j lc	09/23/11	15:20
Methyl t-butyl ether (MTBE)	1634-04-4	<1	1	0.005	mg/kg (ppm)		09/23/11	15:20
trans-1,2-Dichloroethene	156-60-5	<1	1	0.005	mg/kg (ppm)		09/23/11	15:20
1,1-Dichloroethane	75-34-3	<1	1	0.006	mg/kg (ppm)		09/23/11	15:20
2,2-Dichloropropane	594-20-7	<1	1	0.004	mg/kg (ppm)		09/23/11	15:20
cis-1,2-Dichloroethene	156-59-2	<1	1	0.006	mg/kg (ppm)		09/23/11	15:20
Chloroform	67-66-3	<1	1	0.004	mg/kg (ppm)		09/23/11	15:20
2-Butanone (MEK)	78-93-3	1.1	10	0.03	mg/kg (ppm)	j	09/23/11	15:20
1,2-Dichloroethane (EDC)	107-06-2	<1	1	0.009	mg/kg (ppm)		09/23/11	15:20
1,1,1-Trichloroethane	71-55-6	<1	1	0.006	mg/kg (ppm)		09/23/11	15:20
1,1-Dichloropropene	563-58-6	<1	1	0.004	mg/kg (ppm)		09/23/11	15:20
Carbon tetrachloride	56-23-5	<1	1	0.009	mg/kg (ppm)		09/23/11	15:20
Benzene	71-43-2	<0.6	0.6	0.006	mg/kg (ppm)		09/23/11	15:20
Trichloroethene	79-01-6	<0.6	0.6	0.005	mg/kg (ppm)		09/23/11	15:20
1,2-Dichloropropane	78-87-5	<1	1	0.004	mg/kg (ppm)		09/23/11	15:20
Bromodichloromethane	75-27-4	<1	1	0.007	mg/kg (ppm)		09/23/11	15:20
Dibromomethane	74-95-3	<1	1	0.008	mg/kg (ppm)		09/23/11	15:20
4-Methyl-2-pentanone	108-10-1	<10	10	0.02	mg/kg (ppm)		09/23/11	15:20
cis-1,3-Dichloropropene	10061-01-5	<1	1	0.004	mg/kg (ppm)		09/23/11	15:20
Toluene	108-88-3	<1	1	0.005	mg/kg (ppm)		09/23/11	15:20
trans-1,3-Dichloropropene	10061-02-6	<1	1	0.005	mg/kg (ppm)		09/23/11	15:20
1,1,2-Trichloroethane	79-00-5	<1	1	0.005	mg/kg (ppm)		09/23/11	15:20
2-Hexanone	591-78-6	<10	10	0.02	mg/kg (ppm)		09/23/11	15:20
1,3-Dichloropropane	142-28-9	<1	1	0.005	mg/kg (ppm)		09/23/11	15:20
Tetrachloroethene	127-18-4	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	15:20
Dibromochloromethane	124-48-1	<1	1	0.00	mg/kg (ppm)		09/23/11	15:20
1,2-Dibromoethane (EDB)	106-93-4	<1	1	0.01	mg/kg (ppm)		09/23/11	15:20
Chlorobenzene	108-90-7	<1	1	0.006	mg/kg (ppm)		09/23/11	15:20
Ethylbenzene	100-41-4	1.3	1	0.004	mg/kg (ppm)		09/23/11	15:20
1,1,1,2-Tetrachloroethane	630-20-6	<1	1	0.008	mg/kg (ppm)		09/23/11	15:20
m,p-Xylene	179601-23-1	3.0	2	0.01	mg/kg (ppm)		09/23/11	15:20
o-Xylene	95-47-6	<1	1	0.003	mg/kg (ppm)		09/23/11	15:20

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	C	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-03 1/20
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092313.D

Styrene	100-42-5	<1	1	0.003	mg/kg (ppm)	09/23/11	15:20
Isopropylbenzene	98-82-8	3.0	1	0.004	mg/kg (ppm)	09/23/11	15:20
Bromoform	75-25-2	<1	1	0.005	mg/kg (ppm)	09/23/11	15:20
n-Propylbenzene	103-65-1	4.4	1	0.004	mg/kg (ppm)	09/23/11	15:20
Bromobenzene	108-86-1	<1	1	0.007	mg/kg (ppm)	09/23/11	15:20
1,3,5-Trimethylbenzene	108-67-8	13	1	0.006	mg/kg (ppm)	09/23/11	15:20
1,1,2,2-Tetrachloroethane	79-34-5	<1	1	0.02	mg/kg (ppm)	09/23/11	15:20
1,2,3-Trichloropropane	96-18-4	<1	1	0.02	mg/kg (ppm)	09/23/11	15:20
2-Chlorotoluene	95-49-8	<1	1	0.006	mg/kg (ppm)	09/23/11	15:20
4-Chlorotoluene	106-43-4	<1	1	0.004	mg/kg (ppm)	09/23/11	15:20
tert-Butylbenzene	98-06-6	<1	1	0.005	mg/kg (ppm)	09/23/11	15:20
1,2,4-Trimethylbenzene	95-63-6	35	1	0.005	mg/kg (ppm)	09/23/11	15:20
sec-Butylbenzene	135-98-8	3.7	1	0.005	mg/kg (ppm)	09/23/11	15:20
p-Isopropyltoluene	99-87-6	4.9	1	0.004	mg/kg (ppm)	09/23/11	15:20
1,3-Dichlorobenzene	541-73-1	<1	1	0.005	mg/kg (ppm)	09/23/11	15:20
1,4-Dichlorobenzene	106-46-7	<1	1	0.006	mg/kg (ppm)	09/23/11	15:20
1,2-Dichlorobenzene	95-50-1	<1	1	0.02	mg/kg (ppm)	09/23/11	15:20
1,2-Dibromo-3-chloropropane	96-12-8	<10	10	0.02	mg/kg (ppm)	09/23/11	15:20
1,2,4-Trichlorobenzene	120-82-1	<5	5	0.009	mg/kg (ppm)	09/23/11	15:20
Hexachlorobutadiene	87-68-3	<5	5	0.02	mg/kg (ppm)	09/23/11	15:20
Naphthalene	91-20-3	25	1	0.01	mg/kg (ppm)	09/23/11	15:20
1,2,3-Trichlorobenzene	87-61-6	<5	5	0.02	mg/kg (ppm)	09/23/11	15:20

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	D	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-04
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092131.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	137	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<0.5	0.5	0.007	mg/kg (ppm)		09/22/11	3:09
Chloromethane	74-87-3	<0.5	0.5	0.009	mg/kg (ppm)		09/22/11	3:09
Vinyl chloride	75-01-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	3:09
Bromomethane	74-83-9	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/22/11	3:09
Chloroethane	75-00-3	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/22/11	3:09
Trichlorofluoromethane	75-69-4	<0.5	0.5	0.06	mg/kg (ppm)	ca	09/22/11	3:09
Acetone	67-64-1	0.11	0.5	0.03	mg/kg (ppm)	j lc	09/22/11	3:09
1,1-Dichloroethene	75-35-4	<0.05	0.05	0.02	mg/kg (ppm)	ca	09/22/11	3:09
Methylene chloride	75-09-2	<0.5	0.5	0.06	mg/kg (ppm)		09/22/11	3:09
Methyl t-butyl ether (MTBE)	1634-04-4	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:09
trans-1,2-Dichloroethene	156-60-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:09
1,1-Dichloroethane	75-34-3	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:09
2,2-Dichloropropane	594-20-7	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:09
cis-1,2-Dichloroethene	156-59-2	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:09
Chloroform	67-66-3	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:09
2-Butanone (MEK)	78-93-3	0.17	0.5	0.03	mg/kg (ppm)	j	09/22/11	3:09
1,2-Dichloroethane (EDC)	107-06-2	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	3:09
1,1,1-Trichloroethane	71-55-6	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:09
1,1-Dichloropropene	563-58-6	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:09
Carbon tetrachloride	56-23-5	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	3:09
Benzene	71-43-2	0.096	0.03	0.006	mg/kg (ppm)		09/22/11	3:09
Trichloroethene	79-01-6	<0.03	0.03	0.005	mg/kg (ppm)		09/22/11	3:09
1,2-Dichloropropane	78-87-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:09
Bromodichloromethane	75-27-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	3:09
Dibromomethane	74-95-3	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	3:09
4-Methyl-2-pentanone	108-10-1	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	3:09
cis-1,3-Dichloropropene	10061-01-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:09
Toluene	108-88-3	0.28	0.05	0.005	mg/kg (ppm)		09/22/11	3:09
trans-1,3-Dichloropropene	10061-02-6	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:09
1,1,2-Trichloroethane	79-00-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:09
2-Hexanone	591-78-6	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	3:09
1,3-Dichloropropane	142-28-9	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:09
Tetrachloroethene	127-18-4	<0.025	0.025	0.006	mg/kg (ppm)		09/22/11	3:09
Dibromochloromethane	124-48-1	<0.05	0.05	0.00	mg/kg (ppm)		09/22/11	3:09
1,2-Dibromoethane (EDB)	106-93-4	<0.05	0.05	0.01	mg/kg (ppm)		09/22/11	3:09
Chlorobenzene	108-90-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:09
Ethylbenzene	100-41-4	0.28	0.05	0.004	mg/kg (ppm)		09/22/11	3:09
1,1,1,2-Tetrachloroethane	630-20-6	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	3:09
m,p-Xylene	179601-23-1	0.35	0.1	0.01	mg/kg (ppm)		09/22/11	3:09
o-Xylene	95-47-6	0.045	0.05	0.003	mg/kg (ppm)	j	09/22/11	3:09

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	D	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-04
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092131.D

Styrene	100-42-5	<0.05	0.05	0.003	mg/kg (ppm)		09/22/11	3:09
Isopropylbenzene	98-82-8	1.2	0.05	0.004	mg/kg (ppm)		09/22/11	3:09
Bromoform	75-25-2	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:09
n-Propylbenzene	103-65-1	2.0	0.05	0.004	mg/kg (ppm)		09/22/11	3:09
Bromobenzene	108-86-1	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	3:09
1,3,5-Trimethylbenzene	108-67-8	4.0	0.05	0.006	mg/kg (ppm)		09/22/11	3:09
1,1,2,2-Tetrachloroethane	79-34-5	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	3:09
1,2,3-Trichloropropane	96-18-4	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	3:09
2-Chlorotoluene	95-49-8	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:09
4-Chlorotoluene	106-43-4	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:09
tert-Butylbenzene	98-06-6	0.077	0.05	0.005	mg/kg (ppm)		09/22/11	3:09
1,2,4-Trimethylbenzene	95-63-6	14	0.05	0.005	mg/kg (ppm)	ve	09/22/11	3:09
sec-Butylbenzene	135-98-8	1.6	0.05	0.005	mg/kg (ppm)		09/22/11	3:09
p-Isopropyltoluene	99-87-6	2.1	0.05	0.004	mg/kg (ppm)		09/22/11	3:09
1,3-Dichlorobenzene	541-73-1	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:09
1,4-Dichlorobenzene	106-46-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:09
1,2-Dichlorobenzene	95-50-1	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	3:09
1,2-Dibromo-3-chloropropane	96-12-8	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	3:09
1,2,4-Trichlorobenzene	120-82-1	<0.25	0.25	0.009	mg/kg (ppm)		09/22/11	3:09
Hexachlorobutadiene	87-68-3	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	3:09
Naphthalene	91-20-3	5.2	0.05	0.01	mg/kg (ppm)	ca	09/22/11	3:09
1,2,3-Trichlorobenzene	87-61-6	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	3:09

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	D	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-04 1/20
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092311.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<10	10	0.007	mg/kg (ppm)		09/23/11	13:54
Chloromethane	74-87-3	<10	10	0.009	mg/kg (ppm)		09/23/11	13:54
Vinyl chloride	75-01-4	<1	1	0.007	mg/kg (ppm)		09/23/11	13:54
Bromomethane	74-83-9	<10	10	0.04	mg/kg (ppm)		09/23/11	13:54
Chloroethane	75-00-3	<10	10	0.04	mg/kg (ppm)	ca	09/23/11	13:54
Trichlorofluoromethane	75-69-4	<10	10	0.06	mg/kg (ppm)		09/23/11	13:54
Acetone	67-64-1	1.1	10	0.03	mg/kg (ppm)	j lc	09/23/11	13:54
1,1-Dichloroethene	75-35-4	<1	1	0.02	mg/kg (ppm)		09/23/11	13:54
Methylene chloride	75-09-2	1.2	10	0.06	mg/kg (ppm)	j lc	09/23/11	13:54
Methyl t-butyl ether (MTBE)	1634-04-4	<1	1	0.005	mg/kg (ppm)		09/23/11	13:54
trans-1,2-Dichloroethene	156-60-5	<1	1	0.005	mg/kg (ppm)		09/23/11	13:54
1,1-Dichloroethane	75-34-3	<1	1	0.006	mg/kg (ppm)		09/23/11	13:54
2,2-Dichloropropane	594-20-7	<1	1	0.004	mg/kg (ppm)		09/23/11	13:54
cis-1,2-Dichloroethene	156-59-2	<1	1	0.006	mg/kg (ppm)		09/23/11	13:54
Chloroform	67-66-3	<1	1	0.004	mg/kg (ppm)		09/23/11	13:54
2-Butanone (MEK)	78-93-3	0.95	10	0.03	mg/kg (ppm)	j	09/23/11	13:54
1,2-Dichloroethane (EDC)	107-06-2	<1	1	0.009	mg/kg (ppm)		09/23/11	13:54
1,1,1-Trichloroethane	71-55-6	<1	1	0.006	mg/kg (ppm)		09/23/11	13:54
1,1-Dichloropropene	563-58-6	<1	1	0.004	mg/kg (ppm)		09/23/11	13:54
Carbon tetrachloride	56-23-5	<1	1	0.009	mg/kg (ppm)		09/23/11	13:54
Benzene	71-43-2	<0.6	0.6	0.006	mg/kg (ppm)		09/23/11	13:54
Trichloroethene	79-01-6	<0.6	0.6	0.005	mg/kg (ppm)		09/23/11	13:54
1,2-Dichloropropane	78-87-5	<1	1	0.004	mg/kg (ppm)		09/23/11	13:54
Bromodichloromethane	75-27-4	<1	1	0.007	mg/kg (ppm)		09/23/11	13:54
Dibromomethane	74-95-3	<1	1	0.008	mg/kg (ppm)		09/23/11	13:54
4-Methyl-2-pentanone	108-10-1	<10	10	0.02	mg/kg (ppm)		09/23/11	13:54
cis-1,3-Dichloropropene	10061-01-5	<1	1	0.004	mg/kg (ppm)		09/23/11	13:54
Toluene	108-88-3	0.22	1	0.005	mg/kg (ppm)	j	09/23/11	13:54
trans-1,3-Dichloropropene	10061-02-6	<1	1	0.005	mg/kg (ppm)		09/23/11	13:54
1,1,2-Trichloroethane	79-00-5	<1	1	0.005	mg/kg (ppm)		09/23/11	13:54
2-Hexanone	591-78-6	<10	10	0.02	mg/kg (ppm)		09/23/11	13:54
1,3-Dichloropropane	142-28-9	<1	1	0.005	mg/kg (ppm)		09/23/11	13:54
Tetrachloroethene	127-18-4	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	13:54
Dibromochloromethane	124-48-1	<1	1	0.00	mg/kg (ppm)		09/23/11	13:54
1,2-Dibromoethane (EDB)	106-93-4	<1	1	0.01	mg/kg (ppm)		09/23/11	13:54
Chlorobenzene	108-90-7	<1	1	0.006	mg/kg (ppm)		09/23/11	13:54
Ethylbenzene	100-41-4	0.23	1	0.004	mg/kg (ppm)	j	09/23/11	13:54
1,1,1,2-Tetrachloroethane	630-20-6	<1	1	0.008	mg/kg (ppm)		09/23/11	13:54
m,p-Xylene	179601-23-1	0.28	2	0.01	mg/kg (ppm)	j	09/23/11	13:54
o-Xylene	95-47-6	<1	1	0.003	mg/kg (ppm)		09/23/11	13:54

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	D	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-04 1/20
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092311.D

Styrene	100-42-5	<1	1	0.003	mg/kg (ppm)		09/23/11	13:54
Isopropylbenzene	98-82-8	0.90	1	0.004	mg/kg (ppm)	j	09/23/11	13:54
Bromoform	75-25-2	<1	1	0.005	mg/kg (ppm)		09/23/11	13:54
n-Propylbenzene	103-65-1	1.7	1	0.004	mg/kg (ppm)		09/23/11	13:54
Bromobenzene	108-86-1	<1	1	0.007	mg/kg (ppm)		09/23/11	13:54
1,3,5-Trimethylbenzene	108-67-8	2.9	1	0.006	mg/kg (ppm)		09/23/11	13:54
1,1,2,2-Tetrachloroethane	79-34-5	<1	1	0.02	mg/kg (ppm)		09/23/11	13:54
1,2,3-Trichloropropane	96-18-4	<1	1	0.02	mg/kg (ppm)		09/23/11	13:54
2-Chlorotoluene	95-49-8	<1	1	0.006	mg/kg (ppm)		09/23/11	13:54
4-Chlorotoluene	106-43-4	<1	1	0.004	mg/kg (ppm)		09/23/11	13:54
tert-Butylbenzene	98-06-6	<1	1	0.005	mg/kg (ppm)		09/23/11	13:54
1,2,4-Trimethylbenzene	95-63-6	9.6	1	0.005	mg/kg (ppm)		09/23/11	13:54
sec-Butylbenzene	135-98-8	1.2	1	0.005	mg/kg (ppm)		09/23/11	13:54
p-Isopropyltoluene	99-87-6	1.6	1	0.004	mg/kg (ppm)		09/23/11	13:54
1,3-Dichlorobenzene	541-73-1	<1	1	0.005	mg/kg (ppm)		09/23/11	13:54
1,4-Dichlorobenzene	106-46-7	<1	1	0.006	mg/kg (ppm)		09/23/11	13:54
1,2-Dichlorobenzene	95-50-1	<1	1	0.02	mg/kg (ppm)		09/23/11	13:54
1,2-Dibromo-3-chloropropane	96-12-8	<10	10	0.02	mg/kg (ppm)		09/23/11	13:54
1,2,4-Trichlorobenzene	120-82-1	<5	5	0.009	mg/kg (ppm)		09/23/11	13:54
Hexachlorobutadiene	87-68-3	<5	5	0.02	mg/kg (ppm)		09/23/11	13:54
Naphthalene	91-20-3	3.6	1	0.01	mg/kg (ppm)		09/23/11	13:54
1,2,3-Trichlorobenzene	87-61-6	<5	5	0.02	mg/kg (ppm)		09/23/11	13:54

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	E	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	1019245-05
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092132.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<0.5	0.5	0.007	mg/kg (ppm)		09/22/11	3:30
Chloromethane	74-87-3	<0.5	0.5	0.009	mg/kg (ppm)		09/22/11	3:30
Vinyl chloride	75-01-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	3:30
Bromomethane	74-83-9	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/22/11	3:30
Chloroethane	75-00-3	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/22/11	3:30
Trichlorofluoromethane	75-69-4	<0.5	0.5	0.06	mg/kg (ppm)	ca	09/22/11	3:30
Acetone	67-64-1	0.13	0.5	0.03	mg/kg (ppm)	j lc	09/22/11	3:30
1,1-Dichloroethene	75-35-4	<0.05	0.05	0.02	mg/kg (ppm)	ca	09/22/11	3:30
Methylene chloride	75-09-2	0.15	0.5	0.06	mg/kg (ppm)	j lc	09/22/11	3:30
Methyl t-butyl ether (MTBE)	1634-04-4	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:30
trans-1,2-Dichloroethene	156-60-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:30
1,1-Dichloroethane	75-34-3	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:30
2,2-Dichloropropane	594-20-7	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:30
cis-1,2-Dichloroethene	156-59-2	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:30
Chloroform	67-66-3	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:30
2-Butanone (MEK)	78-93-3	0.066	0.5	0.03	mg/kg (ppm)	j	09/22/11	3:30
1,2-Dichloroethane (EDC)	107-06-2	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	3:30
1,1,1-Trichloroethane	71-55-6	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:30
1,1-Dichloropropene	563-58-6	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:30
Carbon tetrachloride	56-23-5	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	3:30
Benzene	71-43-2	<0.03	0.03	0.006	mg/kg (ppm)		09/22/11	3:30
Trichloroethene	79-01-6	<0.03	0.03	0.005	mg/kg (ppm)		09/22/11	3:30
1,2-Dichloropropane	78-87-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:30
Bromodichloromethane	75-27-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	3:30
Dibromomethane	74-95-3	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	3:30
4-Methyl-2-pentanone	108-10-1	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	3:30
cis-1,3-Dichloropropene	10061-01-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:30
Toluene	108-88-3	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:30
trans-1,3-Dichloropropene	10061-02-6	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:30
1,1,2-Trichloroethane	79-00-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:30
2-Hexanone	591-78-6	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	3:30
1,3-Dichloropropane	142-28-9	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:30
Tetrachloroethene	127-18-4	<0.025	0.025	0.006	mg/kg (ppm)		09/22/11	3:30
Dibromochloromethane	124-48-1	<0.05	0.05	0.00	mg/kg (ppm)		09/22/11	3:30
1,2-Dibromoethane (EDB)	106-93-4	<0.05	0.05	0.01	mg/kg (ppm)		09/22/11	3:30
Chlorobenzene	108-90-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:30
Ethylbenzene	100-41-4	0.14	0.05	0.004	mg/kg (ppm)		09/22/11	3:30
1,1,1,2-Tetrachloroethane	630-20-6	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	3:30
m,p-Xylene	179601-23-1	0.49	0.1	0.01	mg/kg (ppm)		09/22/11	3:30
o-Xylene	95-47-6	<0.05	0.05	0.003	mg/kg (ppm)		09/22/11	3:30

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	E	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	1019245-05
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092132.D

Styrene	100-42-5	<0.05	0.05	0.003	mg/kg (ppm)		09/22/11	3:30
Isopropylbenzene	98-82-8	0.13	0.05	0.004	mg/kg (ppm)		09/22/11	3:30
Bromoform	75-25-2	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:30
n-Propylbenzene	103-65-1	0.40	0.05	0.004	mg/kg (ppm)		09/22/11	3:30
Bromobenzene	108-86-1	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	3:30
1,3,5-Trimethylbenzene	108-67-8	1.3	0.05	0.006	mg/kg (ppm)		09/22/11	3:30
1,1,2,2-Tetrachloroethane	79-34-5	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	3:30
1,2,3-Trichloropropane	96-18-4	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	3:30
2-Chlorotoluene	95-49-8	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:30
4-Chlorotoluene	106-43-4	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	3:30
tert-Butylbenzene	98-06-6	0.042	0.05	0.005	mg/kg (ppm)	j	09/22/11	3:30
1,2,4-Trimethylbenzene	95-63-6	3.5	0.05	0.005	mg/kg (ppm)		09/22/11	3:30
sec-Butylbenzene	135-98-8	0.48	0.05	0.005	mg/kg (ppm)		09/22/11	3:30
p-Isopropyltoluene	99-87-6	0.63	0.05	0.004	mg/kg (ppm)		09/22/11	3:30
1,3-Dichlorobenzene	541-73-1	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	3:30
1,4-Dichlorobenzene	106-46-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	3:30
1,2-Dichlorobenzene	95-50-1	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	3:30
1,2-Dibromo-3-chloropropane	96-12-8	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	3:30
1,2,4-Trichlorobenzene	120-82-1	<0.25	0.25	0.009	mg/kg (ppm)		09/22/11	3:30
Hexachlorobutadiene	87-68-3	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	3:30
Naphthalene	91-20-3	1.2	0.05	0.01	mg/kg (ppm)	ca	09/22/11	3:30
1,2,3-Trichlorobenzene	87-61-6	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	3:30

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	E	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-05 1/10
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092310.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	81	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<5	5	0.007	mg/kg (ppm)		09/23/11	13:33
Chloromethane	74-87-3	<5	5	0.009	mg/kg (ppm)		09/23/11	13:33
Vinyl chloride	75-01-4	<0.5	0.5	0.007	mg/kg (ppm)		09/23/11	13:33
Bromomethane	74-83-9	<5	5	0.04	mg/kg (ppm)		09/23/11	13:33
Chloroethane	75-00-3	<5	5	0.04	mg/kg (ppm)	ca	09/23/11	13:33
Trichlorofluoromethane	75-69-4	<5	5	0.06	mg/kg (ppm)		09/23/11	13:33
Acetone	67-64-1	0.65	5	0.03	mg/kg (ppm)	j lc	09/23/11	13:33
1,1-Dichloroethene	75-35-4	<0.5	0.5	0.02	mg/kg (ppm)		09/23/11	13:33
Methylene chloride	75-09-2	0.97	5	0.06	mg/kg (ppm)	j lc	09/23/11	13:33
Methyl t-butyl ether (MTBE)	1634-04-4	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
trans-1,2-Dichloroethene	156-60-5	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
1,1-Dichloroethane	75-34-3	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	13:33
2,2-Dichloropropane	594-20-7	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	13:33
cis-1,2-Dichloroethene	156-59-2	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	13:33
Chloroform	67-66-3	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	13:33
2-Butanone (MEK)	78-93-3	0.60	5	0.03	mg/kg (ppm)	j	09/23/11	13:33
1,2-Dichloroethane (EDC)	107-06-2	<0.5	0.5	0.009	mg/kg (ppm)		09/23/11	13:33
1,1,1-Trichloroethane	71-55-6	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	13:33
1,1-Dichloropropene	563-58-6	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	13:33
Carbon tetrachloride	56-23-5	<0.5	0.5	0.009	mg/kg (ppm)		09/23/11	13:33
Benzene	71-43-2	<0.3	0.3	0.006	mg/kg (ppm)		09/23/11	13:33
Trichloroethene	79-01-6	<0.3	0.3	0.005	mg/kg (ppm)		09/23/11	13:33
1,2-Dichloropropane	78-87-5	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	13:33
Bromodichloromethane	75-27-4	<0.5	0.5	0.007	mg/kg (ppm)		09/23/11	13:33
Dibromomethane	74-95-3	<0.5	0.5	0.008	mg/kg (ppm)		09/23/11	13:33
4-Methyl-2-pentanone	108-10-1	<5	5	0.02	mg/kg (ppm)		09/23/11	13:33
cis-1,3-Dichloropropene	10061-01-5	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	13:33
Toluene	108-88-3	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
trans-1,3-Dichloropropene	10061-02-6	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
1,1,2-Trichloroethane	79-00-5	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
2-Hexanone	591-78-6	<5	5	0.02	mg/kg (ppm)		09/23/11	13:33
1,3-Dichloropropane	142-28-9	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
Tetrachloroethene	127-18-4	<0.25	0.25	0.006	mg/kg (ppm)		09/23/11	13:33
Dibromochloromethane	124-48-1	<0.5	0.5	0.00	mg/kg (ppm)		09/23/11	13:33
1,2-Dibromoethane (EDB)	106-93-4	<0.5	0.5	0.01	mg/kg (ppm)		09/23/11	13:33
Chlorobenzene	108-90-7	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	13:33
Ethylbenzene	100-41-4	0.14	0.5	0.004	mg/kg (ppm)	j	09/23/11	13:33
1,1,1,2-Tetrachloroethane	630-20-6	<0.5	0.5	0.008	mg/kg (ppm)		09/23/11	13:33
m,p-Xylene	179601-23-1	0.41	1	0.01	mg/kg (ppm)	j	09/23/11	13:33
o-Xylene	95-47-6	<0.5	0.5	0.003	mg/kg (ppm)		09/23/11	13:33

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	E	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-05 1/10
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092310.D

Styrene	100-42-5	<0.5	0.5	0.003	mg/kg (ppm)		09/23/11	13:33
Isopropylbenzene	98-82-8	0.13	0.5	0.004	mg/kg (ppm)	j	09/23/11	13:33
Bromoform	75-25-2	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
n-Propylbenzene	103-65-1	0.40	0.5	0.004	mg/kg (ppm)	j	09/23/11	13:33
Bromobenzene	108-86-1	<0.5	0.5	0.007	mg/kg (ppm)		09/23/11	13:33
1,3,5-Trimethylbenzene	108-67-8	1.2	0.5	0.006	mg/kg (ppm)		09/23/11	13:33
1,1,2,2-Tetrachloroethane	79-34-5	<0.5	0.5	0.02	mg/kg (ppm)		09/23/11	13:33
1,2,3-Trichloropropane	96-18-4	<0.5	0.5	0.02	mg/kg (ppm)		09/23/11	13:33
2-Chlorotoluene	95-49-8	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	13:33
4-Chlorotoluene	106-43-4	<0.5	0.5	0.004	mg/kg (ppm)		09/23/11	13:33
tert-Butylbenzene	98-06-6	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
1,2,4-Trimethylbenzene	95-63-6	3.0	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
sec-Butylbenzene	135-98-8	0.50	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
p-Isopropyltoluene	99-87-6	0.64	0.5	0.004	mg/kg (ppm)		09/23/11	13:33
1,3-Dichlorobenzene	541-73-1	<0.5	0.5	0.005	mg/kg (ppm)		09/23/11	13:33
1,4-Dichlorobenzene	106-46-7	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	13:33
1,2-Dichlorobenzene	95-50-1	<0.5	0.5	0.02	mg/kg (ppm)		09/23/11	13:33
1,2-Dibromo-3-chloropropane	96-12-8	<5	5	0.02	mg/kg (ppm)		09/23/11	13:33
1,2,4-Trichlorobenzene	120-82-1	<2.5	2.5	0.009	mg/kg (ppm)		09/23/11	13:33
Hexachlorobutadiene	87-68-3	<2.5	2.5	0.02	mg/kg (ppm)		09/23/11	13:33
Naphthalene	91-20-3	0.86	0.5	0.01	mg/kg (ppm)		09/23/11	13:33
1,2,3-Trichlorobenzene	87-61-6	<2.5	2.5	0.02	mg/kg (ppm)		09/23/11	13:33

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	F	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	1019245-06
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092133.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	85	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<0.5	0.5	0.007	mg/kg (ppm)		09/22/11	4:13
Chloromethane	74-87-3	<0.5	0.5	0.009	mg/kg (ppm)		09/22/11	4:13
Vinyl chloride	75-01-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	4:13
Bromomethane	74-83-9	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/22/11	4:13
Chloroethane	75-00-3	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/22/11	4:13
Trichlorofluoromethane	75-69-4	<0.5	0.5	0.06	mg/kg (ppm)	ca	09/22/11	4:13
Acetone	67-64-1	0.14	0.5	0.03	mg/kg (ppm)	j lc	09/22/11	4:13
1,1-Dichloroethene	75-35-4	<0.05	0.05	0.02	mg/kg (ppm)	ca	09/22/11	4:13
Hexane	110-54-3	0.052	0.25	0.01	mg/kg (ppm)	j lc	09/22/11	4:13
Methylene chloride	75-09-2	<0.5	0.5	0.06	mg/kg (ppm)		09/22/11	4:13
Methyl t-butyl ether (MTBE)	1634-04-4	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:13
trans-1,2-Dichloroethene	156-60-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:13
1,1-Dichloroethane	75-34-3	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:13
2,2-Dichloropropane	594-20-7	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:13
cis-1,2-Dichloroethene	156-59-2	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:13
Chloroform	67-66-3	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:13
2-Butanone (MEK)	78-93-3	<0.5	0.5	0.03	mg/kg (ppm)		09/22/11	4:13
1,2-Dichloroethane (EDC)	107-06-2	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	4:13
1,1,1-Trichloroethane	71-55-6	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:13
1,1-Dichloropropene	563-58-6	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:13
Carbon tetrachloride	56-23-5	<0.05	0.05	0.009	mg/kg (ppm)		09/22/11	4:13
Benzene	71-43-2	<0.03	0.03	0.006	mg/kg (ppm)		09/22/11	4:13
Trichloroethene	79-01-6	<0.03	0.03	0.005	mg/kg (ppm)		09/22/11	4:13
1,2-Dichloropropane	78-87-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:13
Bromodichloromethane	75-27-4	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	4:13
Dibromomethane	74-95-3	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	4:13
4-Methyl-2-pentanone	108-10-1	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	4:13
cis-1,3-Dichloropropene	10061-01-5	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:13
Toluene	108-88-3	0.022	0.05	0.005	mg/kg (ppm)	j	09/22/11	4:13
trans-1,3-Dichloropropene	10061-02-6	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:13
1,1,2-Trichloroethane	79-00-5	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:13
2-Hexanone	591-78-6	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	4:13
1,3-Dichloropropane	142-28-9	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:13
Tetrachloroethene	127-18-4	<0.025	0.025	0.006	mg/kg (ppm)		09/22/11	4:13
Dibromochloromethane	124-48-1	<0.05	0.05	0.00	mg/kg (ppm)		09/22/11	4:13
1,2-Dibromoethane (EDB)	106-93-4	<0.05	0.05	0.01	mg/kg (ppm)		09/22/11	4:13
Chlorobenzene	108-90-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:13
Ethylbenzene	100-41-4	0.031	0.05	0.004	mg/kg (ppm)	j	09/22/11	4:13
1,1,1,2-Tetrachloroethane	630-20-6	<0.05	0.05	0.008	mg/kg (ppm)		09/22/11	4:13
m,p-Xylene	179601-23-1	0.17	0.1	0.01	mg/kg (ppm)		09/22/11	4:13

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	F	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	1019245-06
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092133.D

o-Xylene	95-47-6	0.019	0.05	0.003	mg/kg (ppm)	j	09/22/11	4:13
Styrene	100-42-5	<0.05	0.05	0.003	mg/kg (ppm)		09/22/11	4:13
Isopropylbenzene	98-82-8	0.11	0.05	0.004	mg/kg (ppm)		09/22/11	4:13
Bromoform	75-25-2	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:13
n-Propylbenzene	103-65-1	0.62	0.05	0.004	mg/kg (ppm)		09/22/11	4:13
Bromobenzene	108-86-1	<0.05	0.05	0.007	mg/kg (ppm)		09/22/11	4:13
1,3,5-Trimethylbenzene	108-67-8	5.1	0.05	0.006	mg/kg (ppm)		09/22/11	4:13
1,1,2,2-Tetrachloroethane	79-34-5	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	4:13
1,2,3-Trichloropropane	96-18-4	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	4:13
2-Chlorotoluene	95-49-8	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:13
4-Chlorotoluene	106-43-4	<0.05	0.05	0.004	mg/kg (ppm)		09/22/11	4:13
tert-Butylbenzene	98-06-6	0.018	0.05	0.005	mg/kg (ppm)	j	09/22/11	4:13
1,2,4-Trimethylbenzene	95-63-6	13	0.05	0.005	mg/kg (ppm)	ve	09/22/11	4:13
sec-Butylbenzene	135-98-8	0.57	0.05	0.005	mg/kg (ppm)		09/22/11	4:13
p-Isopropyltoluene	99-87-6	0.70	0.05	0.004	mg/kg (ppm)		09/22/11	4:13
1,3-Dichlorobenzene	541-73-1	<0.05	0.05	0.005	mg/kg (ppm)		09/22/11	4:13
1,4-Dichlorobenzene	106-46-7	<0.05	0.05	0.006	mg/kg (ppm)		09/22/11	4:13
1,2-Dichlorobenzene	95-50-1	<0.05	0.05	0.02	mg/kg (ppm)		09/22/11	4:13
1,2-Dibromo-3-chloropropane	96-12-8	<0.5	0.5	0.02	mg/kg (ppm)		09/22/11	4:13
1,2,4-Trichlorobenzene	120-82-1	<0.25	0.25	0.009	mg/kg (ppm)		09/22/11	4:13
Hexachlorobutadiene	87-68-3	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	4:13
Naphthalene	91-20-3	2.5	0.05	0.01	mg/kg (ppm)	ca	09/22/11	4:13
1,2,3-Trichlorobenzene	87-61-6	<0.25	0.25	0.02	mg/kg (ppm)		09/22/11	4:13

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	F	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-06 1/20
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092309.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	57	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<10	10	0.007	mg/kg (ppm)		09/23/11	12:50
Chloromethane	74-87-3	<10	10	0.009	mg/kg (ppm)		09/23/11	12:50
Vinyl chloride	75-01-4	<1	1	0.007	mg/kg (ppm)		09/23/11	12:50
Bromomethane	74-83-9	<10	10	0.04	mg/kg (ppm)		09/23/11	12:50
Chloroethane	75-00-3	<10	10	0.04	mg/kg (ppm)	ca	09/23/11	12:50
Trichlorofluoromethane	75-69-4	<10	10	0.06	mg/kg (ppm)		09/23/11	12:50
Acetone	67-64-1	1.2	10	0.03	mg/kg (ppm)	j lc	09/23/11	12:50
1,1-Dichloroethene	75-35-4	<1	1	0.02	mg/kg (ppm)		09/23/11	12:50
Methylene chloride	75-09-2	0.49	10	0.06	mg/kg (ppm)	j lc	09/23/11	12:50
Methyl t-butyl ether (MTBE)	1634-04-4	<1	1	0.005	mg/kg (ppm)		09/23/11	12:50
trans-1,2-Dichloroethene	156-60-5	<1	1	0.005	mg/kg (ppm)		09/23/11	12:50
1,1-Dichloroethane	75-34-3	<1	1	0.006	mg/kg (ppm)		09/23/11	12:50
2,2-Dichloropropane	594-20-7	<1	1	0.004	mg/kg (ppm)		09/23/11	12:50
cis-1,2-Dichloroethene	156-59-2	<1	1	0.006	mg/kg (ppm)		09/23/11	12:50
Chloroform	67-66-3	<1	1	0.004	mg/kg (ppm)		09/23/11	12:50
2-Butanone (MEK)	78-93-3	0.79	10	0.03	mg/kg (ppm)	j	09/23/11	12:50
1,2-Dichloroethane (EDC)	107-06-2	<1	1	0.009	mg/kg (ppm)		09/23/11	12:50
1,1,1-Trichloroethane	71-55-6	<1	1	0.006	mg/kg (ppm)		09/23/11	12:50
1,1-Dichloropropene	563-58-6	<1	1	0.004	mg/kg (ppm)		09/23/11	12:50
Carbon tetrachloride	56-23-5	<1	1	0.009	mg/kg (ppm)		09/23/11	12:50
Benzene	71-43-2	<0.6	0.6	0.006	mg/kg (ppm)		09/23/11	12:50
Trichloroethene	79-01-6	<0.6	0.6	0.005	mg/kg (ppm)		09/23/11	12:50
1,2-Dichloropropane	78-87-5	<1	1	0.004	mg/kg (ppm)		09/23/11	12:50
Bromodichloromethane	75-27-4	<1	1	0.007	mg/kg (ppm)		09/23/11	12:50
Dibromomethane	74-95-3	<1	1	0.008	mg/kg (ppm)		09/23/11	12:50
4-Methyl-2-pentanone	108-10-1	<10	10	0.02	mg/kg (ppm)		09/23/11	12:50
cis-1,3-Dichloropropene	10061-01-5	<1	1	0.004	mg/kg (ppm)		09/23/11	12:50
Toluene	108-88-3	<1	1	0.005	mg/kg (ppm)		09/23/11	12:50
trans-1,3-Dichloropropene	10061-02-6	<1	1	0.005	mg/kg (ppm)		09/23/11	12:50
1,1,2-Trichloroethane	79-00-5	<1	1	0.005	mg/kg (ppm)		09/23/11	12:50
2-Hexanone	591-78-6	<10	10	0.02	mg/kg (ppm)		09/23/11	12:50
1,3-Dichloropropane	142-28-9	<1	1	0.005	mg/kg (ppm)		09/23/11	12:50
Tetrachloroethene	127-18-4	<0.5	0.5	0.006	mg/kg (ppm)		09/23/11	12:50
Dibromochloromethane	124-48-1	<1	1	0.00	mg/kg (ppm)		09/23/11	12:50
1,2-Dibromoethane (EDB)	106-93-4	<1	1	0.01	mg/kg (ppm)		09/23/11	12:50
Chlorobenzene	108-90-7	<1	1	0.006	mg/kg (ppm)		09/23/11	12:50
Ethylbenzene	100-41-4	<1	1	0.004	mg/kg (ppm)		09/23/11	12:50
1,1,1,2-Tetrachloroethane	630-20-6	<1	1	0.008	mg/kg (ppm)		09/23/11	12:50
m,p-Xylene	179601-23-1	<2	2	0.01	mg/kg (ppm)		09/23/11	12:50
o-Xylene	95-47-6	<1	1	0.003	mg/kg (ppm)		09/23/11	12:50

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	F	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-06 1/20
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092309.D

Styrene	100-42-5	<1	1	0.003	mg/kg (ppm)		09/23/11	12:50
Isopropylbenzene	98-82-8	<1	1	0.004	mg/kg (ppm)		09/23/11	12:50
Bromoform	75-25-2	<1	1	0.005	mg/kg (ppm)		09/23/11	12:50
n-Propylbenzene	103-65-1	0.52	1	0.004	mg/kg (ppm)	j	09/23/11	12:50
Bromobenzene	108-86-1	<1	1	0.007	mg/kg (ppm)		09/23/11	12:50
1,3,5-Trimethylbenzene	108-67-8	3.4	1	0.006	mg/kg (ppm)		09/23/11	12:50
1,1,2,2-Tetrachloroethane	79-34-5	<1	1	0.02	mg/kg (ppm)		09/23/11	12:50
1,2,3-Trichloropropane	96-18-4	<1	1	0.02	mg/kg (ppm)		09/23/11	12:50
2-Chlorotoluene	95-49-8	<1	1	0.006	mg/kg (ppm)		09/23/11	12:50
4-Chlorotoluene	106-43-4	<1	1	0.004	mg/kg (ppm)		09/23/11	12:50
tert-Butylbenzene	98-06-6	<1	1	0.005	mg/kg (ppm)		09/23/11	12:50
1,2,4-Trimethylbenzene	95-63-6	8.0	1	0.005	mg/kg (ppm)		09/23/11	12:50
sec-Butylbenzene	135-98-8	0.45	1	0.005	mg/kg (ppm)	j	09/23/11	12:50
p-Isopropyltoluene	99-87-6	0.53	1	0.004	mg/kg (ppm)	j	09/23/11	12:50
1,3-Dichlorobenzene	541-73-1	<1	1	0.005	mg/kg (ppm)		09/23/11	12:50
1,4-Dichlorobenzene	106-46-7	<1	1	0.006	mg/kg (ppm)		09/23/11	12:50
1,2-Dichlorobenzene	95-50-1	<1	1	0.02	mg/kg (ppm)		09/23/11	12:50
1,2-Dibromo-3-chloropropane	96-12-8	<10	10	0.02	mg/kg (ppm)		09/23/11	12:50
1,2,4-Trichlorobenzene	120-82-1	<5	5	0.009	mg/kg (ppm)		09/23/11	12:50
Hexachlorobutadiene	87-68-3	<5	5	0.02	mg/kg (ppm)		09/23/11	12:50
Naphthalene	91-20-3	1.4	1	0.01	mg/kg (ppm)		09/23/11	12:50
1,2,3-Trichlorobenzene	87-61-6	<5	5	0.02	mg/kg (ppm)		09/23/11	12:50

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MeOH Blank	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-07
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092125.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<0.5	0.5	0.007	mg/kg (ppm)		09/21/11	23:56
Chloromethane	74-87-3	<0.5	0.5	0.009	mg/kg (ppm)		09/21/11	23:56
Vinyl chloride	75-01-4	<0.05	0.05	0.007	mg/kg (ppm)		09/21/11	23:56
Bromomethane	74-83-9	<0.5	0.5	0.04	mg/kg (ppm)		09/21/11	23:56
Chloroethane	75-00-3	<0.5	0.5	0.04	mg/kg (ppm)	ca	09/21/11	23:56
Trichlorofluoromethane	75-69-4	<0.5	0.5	0.06	mg/kg (ppm)		09/21/11	23:56
Acetone	67-64-1	0.096	0.5	0.03	mg/kg (ppm)	j lc	09/21/11	23:56
1,1-Dichloroethene	75-35-4	<0.05	0.05	0.02	mg/kg (ppm)		09/21/11	23:56
Methylene chloride	75-09-2	<0.5	0.5	0.06	mg/kg (ppm)		09/21/11	23:56
Methyl t-butyl ether (MTBE)	1634-04-4	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
trans-1,2-Dichloroethene	156-60-5	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
1,1-Dichloroethane	75-34-3	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:56
2,2-Dichloropropane	594-20-7	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:56
cis-1,2-Dichloroethene	156-59-2	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:56
Chloroform	67-66-3	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:56
2-Butanone (MEK)	78-93-3	0.059	0.5	0.03	mg/kg (ppm)	lc j	09/21/11	23:56
1,2-Dichloroethane (EDC)	107-06-2	<0.05	0.05	0.009	mg/kg (ppm)		09/21/11	23:56
1,1,1-Trichloroethane	71-55-6	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:56
1,1-Dichloropropene	563-58-6	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:56
Carbon tetrachloride	56-23-5	<0.05	0.05	0.009	mg/kg (ppm)		09/21/11	23:56
Benzene	71-43-2	<0.03	0.03	0.006	mg/kg (ppm)		09/21/11	23:56
Trichloroethene	79-01-6	<0.03	0.03	0.005	mg/kg (ppm)		09/21/11	23:56
1,2-Dichloropropane	78-87-5	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:56
Bromodichloromethane	75-27-4	<0.05	0.05	0.007	mg/kg (ppm)		09/21/11	23:56
Dibromomethane	74-95-3	<0.05	0.05	0.008	mg/kg (ppm)		09/21/11	23:56
4-Methyl-2-pentanone	108-10-1	<0.5	0.5	0.02	mg/kg (ppm)		09/21/11	23:56
cis-1,3-Dichloropropene	10061-01-5	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:56
Toluene	108-88-3	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
trans-1,3-Dichloropropene	10061-02-6	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
1,1,2-Trichloroethane	79-00-5	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
2-Hexanone	591-78-6	<0.5	0.5	0.02	mg/kg (ppm)		09/21/11	23:56
1,3-Dichloropropane	142-28-9	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
Tetrachloroethene	127-18-4	<0.025	0.025	0.006	mg/kg (ppm)		09/21/11	23:56
Dibromochloromethane	124-48-1	<0.05	0.05	0.00	mg/kg (ppm)		09/21/11	23:56
1,2-Dibromoethane (EDB)	106-93-4	<0.05	0.05	0.01	mg/kg (ppm)		09/21/11	23:56
Chlorobenzene	108-90-7	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:56
Ethylbenzene	100-41-4	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:56
1,1,1,2-Tetrachloroethane	630-20-6	<0.05	0.05	0.008	mg/kg (ppm)		09/21/11	23:56
m,p-Xylene	179601-23-1	<0.1	0.1	0.01	mg/kg (ppm)		09/21/11	23:56
o-Xylene	95-47-6	<0.05	0.05	0.003	mg/kg (ppm)		09/21/11	23:56

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MeOH Blank	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	109245-07
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092125.D

Styrene	100-42-5	<0.05	0.05	0.003	mg/kg (ppm)		09/21/11	23:56
Isopropylbenzene	98-82-8	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:56
Bromoform	75-25-2	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
n-Propylbenzene	103-65-1	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:56
Bromobenzene	108-86-1	<0.05	0.05	0.007	mg/kg (ppm)		09/21/11	23:56
1,3,5-Trimethylbenzene	108-67-8	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:56
1,1,2,2-Tetrachloroethane	79-34-5	<0.05	0.05	0.02	mg/kg (ppm)		09/21/11	23:56
1,2,3-Trichloropropane	96-18-4	<0.05	0.05	0.02	mg/kg (ppm)		09/21/11	23:56
2-Chlorotoluene	95-49-8	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:56
4-Chlorotoluene	106-43-4	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:56
tert-Butylbenzene	98-06-6	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
1,2,4-Trimethylbenzene	95-63-6	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
sec-Butylbenzene	135-98-8	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
p-Isopropyltoluene	99-87-6	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:56
1,3-Dichlorobenzene	541-73-1	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:56
1,4-Dichlorobenzene	106-46-7	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:56
1,2-Dichlorobenzene	95-50-1	<0.05	0.05	0.02	mg/kg (ppm)		09/21/11	23:56
1,2-Dibromo-3-chloropropane	96-12-8	<0.5	0.5	0.02	mg/kg (ppm)		09/21/11	23:56
1,2,4-Trichlorobenzene	120-82-1	<0.25	0.25	0.009	mg/kg (ppm)		09/21/11	23:56
Hexachlorobutadiene	87-68-3	<0.25	0.25	0.02	mg/kg (ppm)		09/21/11	23:56
Naphthalene	91-20-3	0.011	0.05	0.01	mg/kg (ppm)	j lc	09/21/11	23:56
1,2,3-Trichlorobenzene	87-61-6	<0.25	0.25	0.02	mg/kg (ppm)		09/21/11	23:56

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Chilkat Environmental
Date Received:	NA	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	01-1649 mb
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092124.D

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	107	50	150

Compounds:	CAS #	Result	RL	MDL	Units	Qual.	Date	Time
Dichlorodifluoromethane	75-71-8	<0.5	0.5	0.007	mg/kg (ppm)		09/21/11	23:13
Chloromethane	74-87-3	<0.5	0.5	0.009	mg/kg (ppm)		09/21/11	23:13
Vinyl chloride	75-01-4	<0.05	0.05	0.007	mg/kg (ppm)		09/21/11	23:13
Bromomethane	74-83-9	<0.5	0.5	0.04	mg/kg (ppm)		09/21/11	23:13
Chloroethane	75-00-3	<0.5	0.5	0.04	mg/kg (ppm)		09/21/11	23:13
Trichlorofluoromethane	75-69-4	<0.5	0.5	0.06	mg/kg (ppm)		09/21/11	23:13
Acetone	67-64-1	0.093	0.5	0.03	mg/kg (ppm)	j lc	09/21/11	23:13
1,1-Dichloroethene	75-35-4	<0.05	0.05	0.02	mg/kg (ppm)		09/21/11	23:13
Methylene chloride	75-09-2	0.13	0.5	0.06	mg/kg (ppm)	j lc	09/21/11	23:13
Methyl t-butyl ether (MTBE)	1634-04-4	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
trans-1,2-Dichloroethene	156-60-5	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
1,1-Dichloroethane	75-34-3	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:13
2,2-Dichloropropane	594-20-7	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:13
cis-1,2-Dichloroethene	156-59-2	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:13
Chloroform	67-66-3	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:13
2-Butanone (MEK)	78-93-3	<0.5	0.5	0.03	mg/kg (ppm)		09/21/11	23:13
1,2-Dichloroethane (EDC)	107-06-2	<0.05	0.05	0.009	mg/kg (ppm)		09/21/11	23:13
1,1,1-Trichloroethane	71-55-6	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:13
1,1-Dichloropropene	563-58-6	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:13
Carbon tetrachloride	56-23-5	<0.05	0.05	0.009	mg/kg (ppm)		09/21/11	23:13
Benzene	71-43-2	<0.03	0.03	0.006	mg/kg (ppm)		09/21/11	23:13
Trichloroethene	79-01-6	<0.03	0.03	0.005	mg/kg (ppm)		09/21/11	23:13
1,2-Dichloropropane	78-87-5	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:13
Bromodichloromethane	75-27-4	<0.05	0.05	0.007	mg/kg (ppm)		09/21/11	23:13
Dibromomethane	74-95-3	<0.05	0.05	0.008	mg/kg (ppm)		09/21/11	23:13
4-Methyl-2-pentanone	108-10-1	<0.5	0.5	0.02	mg/kg (ppm)		09/21/11	23:13
cis-1,3-Dichloropropene	10061-01-5	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:13
Toluene	108-88-3	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
trans-1,3-Dichloropropene	10061-02-6	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
1,1,2-Trichloroethane	79-00-5	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
2-Hexanone	591-78-6	<0.5	0.5	0.02	mg/kg (ppm)		09/21/11	23:13
1,3-Dichloropropane	142-28-9	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
Tetrachloroethene	127-18-4	<0.025	0.025	0.006	mg/kg (ppm)		09/21/11	23:13
Dibromochloromethane	124-48-1	<0.05	0.05	0.00	mg/kg (ppm)		09/21/11	23:13
1,2-Dibromoethane (EDB)	106-93-4	<0.05	0.05	0.01	mg/kg (ppm)		09/21/11	23:13
Chlorobenzene	108-90-7	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:13
Ethylbenzene	100-41-4	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:13
1,1,1,2-Tetrachloroethane	630-20-6	<0.05	0.05	0.008	mg/kg (ppm)		09/21/11	23:13
m,p-Xylene	179601-23-1	<0.1	0.1	0.01	mg/kg (ppm)		09/21/11	23:13
o-Xylene	95-47-6	<0.05	0.05	0.003	mg/kg (ppm)		09/21/11	23:13

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Chilkat Environmental
Date Received:	NA	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/15/11	Lab ID:	01-1649 mb
Matrix:	Soil	Instrument:	GCMS5
Units:	GCMS5	Operator:	092124.D

Styrene	100-42-5	<0.05	0.05	0.003	mg/kg (ppm)		09/21/11	23:13
Isopropylbenzene	98-82-8	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:13
Bromoform	75-25-2	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
n-Propylbenzene	103-65-1	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:13
Bromobenzene	108-86-1	<0.05	0.05	0.007	mg/kg (ppm)		09/21/11	23:13
1,3,5-Trimethylbenzene	108-67-8	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:13
1,1,2,2-Tetrachloroethane	79-34-5	<0.05	0.05	0.02	mg/kg (ppm)		09/21/11	23:13
1,2,3-Trichloropropane	96-18-4	<0.05	0.05	0.02	mg/kg (ppm)		09/21/11	23:13
2-Chlorotoluene	95-49-8	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:13
4-Chlorotoluene	106-43-4	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:13
tert-Butylbenzene	98-06-6	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
1,2,4-Trimethylbenzene	95-63-6	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
sec-Butylbenzene	135-98-8	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
p-Isopropyltoluene	99-87-6	<0.05	0.05	0.004	mg/kg (ppm)		09/21/11	23:13
1,3-Dichlorobenzene	541-73-1	<0.05	0.05	0.005	mg/kg (ppm)		09/21/11	23:13
1,4-Dichlorobenzene	106-46-7	<0.05	0.05	0.006	mg/kg (ppm)		09/21/11	23:13
1,2-Dichlorobenzene	95-50-1	<0.05	0.05	0.02	mg/kg (ppm)		09/21/11	23:13
1,2-Dibromo-3-chloropropane	96-12-8	<0.5	0.5	0.02	mg/kg (ppm)		09/21/11	23:13
1,2,4-Trichlorobenzene	120-82-1	<0.25	0.25	0.009	mg/kg (ppm)		09/21/11	23:13
Hexachlorobutadiene	87-68-3	<0.25	0.25	0.02	mg/kg (ppm)		09/21/11	23:13
Naphthalene	91-20-3	0.013	0.05	0.01	mg/kg (ppm)	j lc	09/21/11	23:13
1,2,3-Trichlorobenzene	87-61-6	<0.25	0.25	0.02	mg/kg (ppm)		09/21/11	23:13

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	1	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/20/11	Lab ID:	109245-08
Date Analyzed:	09/20/11	Data File:	092023.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2 pr	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	1.7
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	1-D	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/20/11	Lab ID:	109245-09
Date Analyzed:	09/20/11	Data File:	092024.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	2	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/20/11	Lab ID:	109245-10
Date Analyzed:	09/20/11	Data File:	092025.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	57	121
Toluene-d8	99	63	127
4-Bromofluorobenzene	94	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	25
Acetone	10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	60
Methylene chloride	<5	o-Xylene	10
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	34
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	46
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	120
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	1.4
Benzene	3.1	1,2,4-Trimethylbenzene	420 ve
Trichloroethene	<1	sec-Butylbenzene	17
1,2-Dichloropropane	<1	p-Isopropyltoluene	24
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	14	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	270 ve
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	2	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-10 1/10
Date Analyzed:	09/21/11	Data File:	092127.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	100	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	<10
Vinyl chloride	<2 pr	Dibromochloromethane	<10
Bromomethane	<10	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	<10
Trichlorofluoromethane	<10	Ethylbenzene	28
Acetone	<100	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	65
Methylene chloride	<50	o-Xylene	11
Methyl t-butyl ether (MTBE)	<10	Styrene	<10
trans-1,2-Dichloroethene	<10	Isopropylbenzene	51
1,1-Dichloroethane	<10	Bromoform	<10
2,2-Dichloropropane	<10	n-Propylbenzene	77
cis-1,2-Dichloroethene	<10	Bromobenzene	<10
Chloroform	<10	1,3,5-Trimethylbenzene	200
2-Butanone (MEK)	<100	1,1,2,2-Tetrachloroethane	<10
1,2-Dichloroethane (EDC)	<10	1,2,3-Trichloropropane	<10
1,1,1-Trichloroethane	<10	2-Chlorotoluene	<10
1,1-Dichloropropene	<10	4-Chlorotoluene	<10
Carbon tetrachloride	<10	tert-Butylbenzene	<10
Benzene	<3.5	1,2,4-Trimethylbenzene	630
Trichloroethene	<10	sec-Butylbenzene	44
1,2-Dichloropropane	<10	p-Isopropyltoluene	58
Bromodichloromethane	<10	1,3-Dichlorobenzene	<10
Dibromomethane	<10	1,4-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dichlorobenzene	<10
cis-1,3-Dichloropropene	<10	1,2-Dibromo-3-chloropropane	<100
Toluene	12	1,2,4-Trichlorobenzene	<10
trans-1,3-Dichloropropene	<10	Hexachlorobutadiene	<10
1,1,2-Trichloroethane	<10	Naphthalene	320
2-Hexanone	<100	1,2,3-Trichlorobenzene	<10

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	3	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/20/11	Lab ID:	109245-11
Date Analyzed:	09/20/11	Data File:	092026.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	95	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2 pr	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	28
Acetone	36	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	180
Methylene chloride	<5	o-Xylene	1.6
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	4.6
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	12
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	52
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	0.88	1,2,4-Trimethylbenzene	180 ve
Trichloroethene	<1	sec-Butylbenzene	2.7
1,2-Dichloropropane	<1	p-Isopropyltoluene	2.7
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	50
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	3	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-11 1/10
Date Analyzed:	09/21/11	Data File:	092126.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	57	121
Toluene-d8	96	63	127
4-Bromofluorobenzene	98	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<10	1,3-Dichloropropane	<10
Chloromethane	<100	Tetrachloroethene	<10
Vinyl chloride	<2 pr	Dibromochloromethane	<10
Bromomethane	<10	1,2-Dibromoethane (EDB)	<10
Chloroethane	<10	Chlorobenzene	<10
Trichlorofluoromethane	<10	Ethylbenzene	29
Acetone	<100	1,1,1,2-Tetrachloroethane	<10
1,1-Dichloroethene	<10	m,p-Xylene	190
Methylene chloride	<50	o-Xylene	<10
Methyl t-butyl ether (MTBE)	<10	Styrene	<10
trans-1,2-Dichloroethene	<10	Isopropylbenzene	<10
1,1-Dichloroethane	<10	Bromoform	<10
2,2-Dichloropropane	<10	n-Propylbenzene	11
cis-1,2-Dichloroethene	<10	Bromobenzene	<10
Chloroform	<10	1,3,5-Trimethylbenzene	53
2-Butanone (MEK)	<100	1,1,2,2-Tetrachloroethane	<10
1,2-Dichloroethane (EDC)	<10	1,2,3-Trichloropropane	<10
1,1,1-Trichloroethane	<10	2-Chlorotoluene	<10
1,1-Dichloropropene	<10	4-Chlorotoluene	<10
Carbon tetrachloride	<10	tert-Butylbenzene	<10
Benzene	<3.5	1,2,4-Trimethylbenzene	180
Trichloroethene	<10	sec-Butylbenzene	<10
1,2-Dichloropropane	<10	p-Isopropyltoluene	<10
Bromodichloromethane	<10	1,3-Dichlorobenzene	<10
Dibromomethane	<10	1,4-Dichlorobenzene	<10
4-Methyl-2-pentanone	<100	1,2-Dichlorobenzene	<10
cis-1,3-Dichloropropene	<10	1,2-Dibromo-3-chloropropane	<100
Toluene	<10	1,2,4-Trichlorobenzene	<10
trans-1,3-Dichloropropene	<10	Hexachlorobutadiene	<10
1,1,2-Trichloroethane	<10	Naphthalene	48
2-Hexanone	<100	1,2,3-Trichlorobenzene	<10

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Chilkat Environmental
Date Received:	NA	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/20/11	Lab ID:	01-1648 mb
Date Analyzed:	09/20/11	Data File:	092006.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Chilkat Environmental
Date Received:	NA	Project:	Former Petro Marine Tank Farm, F&BI 1092
Date Extracted:	09/21/11	Lab ID:	01-1650 mb
Date Analyzed:	09/21/11	Data File:	092109.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	97	63	127
4-Bromofluorobenzene	95	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<10	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Methylene chloride	<5	o-Xylene	<1
Methyl t-butyl ether (MTBE)	<1	Styrene	<1
trans-1,2-Dichloroethene	<1	Isopropylbenzene	<1
1,1-Dichloroethane	<1	Bromoform	<1
2,2-Dichloropropane	<1	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<1	Bromobenzene	<1
Chloroform	<1	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<10	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<1	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<1	2-Chlorotoluene	<1
1,1-Dichloropropene	<1	4-Chlorotoluene	<1
Carbon tetrachloride	<1	tert-Butylbenzene	<1
Benzene	<0.35	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<1	p-Isopropyltoluene	<1
Bromodichloromethane	<1	1,3-Dichlorobenzene	<1
Dibromomethane	<1	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<1	1,2-Dibromo-3-chloropropane	<10
Toluene	<1	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<10	1,2,3-Trichlorobenzene	<1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	A	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-01 1/10
Date Analyzed:	09/23/11	Data File:	092317.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	142	50	150
Benzo(a)anthracene-d12	122	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.30
Acenaphthylene	<0.02
Acenaphthene	0.085
Fluorene	0.20
Phenanthrene	0.31
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	0.033
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	B	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-02 1/10
Date Analyzed:	09/23/11	Data File:	092315.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	158 ds	50	150
Benzo(a)anthracene-d12	104	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.02
Acenaphthylene	<0.02
Acenaphthene	0.077
Fluorene	0.055
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	0.034
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	C	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-03 1/10
Date Analyzed:	09/23/11	Data File:	092310.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	143	50	150
Benzo(a)anthracene-d12	114	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	4.1 ve
Acenaphthylene	<0.02
Acenaphthene	0.35
Fluorene	0.95
Phenanthrene	0.75
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	D	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-04 1/10
Date Analyzed:	09/23/11	Data File:	092313.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	152 ds	50	150
Benzo(a)anthracene-d12	101	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	2.4 ve
Acenaphthylene	<0.02
Acenaphthene	0.18
Fluorene	0.91
Phenanthrene	0.87
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	E	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-05 1/10
Date Analyzed:	09/23/11	Data File:	092316.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	153 ds	50	150
Benzo(a)anthracene-d12	131	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.34
Acenaphthylene	<0.02
Acenaphthene	0.040
Fluorene	0.13
Phenanthrene	0.10
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	F	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-06 1/10
Date Analyzed:	09/23/11	Data File:	092309.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	140	50	150
Benzo(a)anthracene-d12	110	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.31
Acenaphthylene	<0.02
Acenaphthene	0.074
Fluorene	0.26
Phenanthrene	0.47
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	0.037
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.02

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Chilkat Environmental
Date Received:	NA	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	01-1731 mb
Date Analyzed:	09/23/11	Data File:	092304.D
Matrix:	Soil	Instrument:	GCMS6
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93	50	150
Benzo(a)anthracene-d12	103	35	159

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	A	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-01 1/10
Date Analyzed:	09/23/11	Data File:	092313.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	69	50	150
Phenol-d6	74	50	150
Nitrobenzene-d5	170 ip	50	150
2-Fluorobiphenyl	73	50	150
2,4,6-Tribromophenol	72	50	150
Terphenyl-d14	80	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<3	3-Nitroaniline	<30
Bis(2-chloroethyl) ether	<0.3	Acenaphthene	<0.3
2-Chlorophenol	<3	2,4-Dinitrophenol	<9
1,3-Dichlorobenzene	<0.3	Dibenzofuran	<0.3
1,4-Dichlorobenzene	<0.3	2,4-Dinitrotoluene	<0.3
1,2-Dichlorobenzene	<0.3	4-Nitrophenol	<9
Benzyl alcohol	<3	Diethyl phthalate	<0.3
Bis(2-chloroisopropyl) ether	<0.3	Fluorene	<0.3
2-Methylphenol	<3	4-Chlorophenyl phenyl ether	<0.3
Hexachloroethane	<0.3	N-Nitrosodiphenylamine	<0.3
N-Nitroso-di-n-propylamine	<0.3	4-Nitroaniline	<30
3-Methylphenol + 4-Methylphenol	<6	4,6-Dinitro-2-methylphenol	<9
Nitrobenzene	<0.3	4-Bromophenyl phenyl ether	<0.3
Isophorone	<0.3	Hexachlorobenzene	<0.3
2-Nitrophenol	<3	Pentachlorophenol	<3
2,4-Dimethylphenol	<3	Phenanthrene	<0.3
Benzoic acid	<15	Anthracene	<0.3
Bis(2-chloroethoxy)methane	<0.3	Carbazole	<0.3
2,4-Dichlorophenol	<3	Di-n-butyl phthalate	<0.3
1,2,4-Trichlorobenzene	<0.3	Fluoranthene	<0.3
Naphthalene	<0.3	Pyrene	<0.3
Hexachlorobutadiene	<0.3	Benzyl butyl phthalate	<0.3
4-Chloroaniline	<30	Benz(a)anthracene	<0.3
4-Chloro-3-methylphenol	<3	Chrysene	<0.3
2-Methylnaphthalene	0.53 jr	Bis(2-ethylhexyl) phthalate	<3
Hexachlorocyclopentadiene	<0.9	Di-n-octyl phthalate	<0.3
2,4,6-Trichlorophenol	<3	Benzo(a)pyrene	<0.3
2,4,5-Trichlorophenol	<3	Benzo(b)fluoranthene	<0.3
2-Chloronaphthalene	<0.3	Benzo(k)fluoranthene	<0.3
2-Nitroaniline	<0.3	Indeno(1,2,3-cd)pyrene	<0.3
Dimethyl phthalate	<0.3	Dibenz(a,h)anthracene	<0.3
Acenaphthylene	<0.3	Benzo(g,h,i)perylene	<0.3
2,6-Dinitrotoluene	<0.3		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	B	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-02 1/10
Date Analyzed:	09/23/11	Data File:	092309.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	92	50	150
Phenol-d6	86	50	150
Nitrobenzene-d5	132	50	150
2-Fluorobiphenyl	93	50	150
2,4,6-Tribromophenol	90	50	150
Terphenyl-d14	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<3	3-Nitroaniline	<30
Bis(2-chloroethyl) ether	<0.3	Acenaphthene	<0.3
2-Chlorophenol	<3	2,4-Dinitrophenol	<9
1,3-Dichlorobenzene	<0.3	Dibenzofuran	<0.3
1,4-Dichlorobenzene	<0.3	2,4-Dinitrotoluene	<0.3
1,2-Dichlorobenzene	<0.3	4-Nitrophenol	<9
Benzyl alcohol	<3	Diethyl phthalate	<0.3
Bis(2-chloroisopropyl) ether	<0.3	Fluorene	<0.3
2-Methylphenol	<3	4-Chlorophenyl phenyl ether	<0.3
Hexachloroethane	<0.3	N-Nitrosodiphenylamine	<0.3
N-Nitroso-di-n-propylamine	<0.3	4-Nitroaniline	<30
3-Methylphenol + 4-Methylphenol	<6	4,6-Dinitro-2-methylphenol	<9
Nitrobenzene	<0.3	4-Bromophenyl phenyl ether	<0.3
Isophorone	<0.3	Hexachlorobenzene	<0.3
2-Nitrophenol	<3	Pentachlorophenol	<3
2,4-Dimethylphenol	<3	Phenanthrene	<0.3
Benzoic acid	<15	Anthracene	<0.3
Bis(2-chloroethoxy)methane	<0.3	Carbazole	<0.3
2,4-Dichlorophenol	<3	Di-n-butyl phthalate	<0.3
1,2,4-Trichlorobenzene	<0.3	Fluoranthene	<0.3
Naphthalene	<0.3	Pyrene	<0.3
Hexachlorobutadiene	<0.3	Benzyl butyl phthalate	<0.3
4-Chloroaniline	<30	Benz(a)anthracene	<0.3
4-Chloro-3-methylphenol	<3	Chrysene	<0.3
2-Methylnaphthalene	<0.3	Bis(2-ethylhexyl) phthalate	<3
Hexachlorocyclopentadiene	<0.9	Di-n-octyl phthalate	<0.3
2,4,6-Trichlorophenol	<3	Benzo(a)pyrene	<0.3
2,4,5-Trichlorophenol	<3	Benzo(b)fluoranthene	<0.3
2-Chloronaphthalene	<0.3	Benzo(k)fluoranthene	<0.3
2-Nitroaniline	<0.3	Indeno(1,2,3-cd)pyrene	<0.3
Dimethyl phthalate	<0.3	Dibenz(a,h)anthracene	<0.3
Acenaphthylene	<0.3	Benzo(g,h,i)perylene	<0.3
2,6-Dinitrotoluene	<0.3		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	C	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-03 1/10
Date Analyzed:	09/23/11	Data File:	092307.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	89	50	150
Phenol-d6	87	50	150
Nitrobenzene-d5	212 ip	50	150
2-Fluorobiphenyl	107	50	150
2,4,6-Tribromophenol	91	50	150
Terphenyl-d14	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<3	3-Nitroaniline	<30
Bis(2-chloroethyl) ether	<0.3	Acenaphthene	<0.3
2-Chlorophenol	<3	2,4-Dinitrophenol	<9
1,3-Dichlorobenzene	<0.3	Dibenzofuran	<0.3
1,4-Dichlorobenzene	<0.3	2,4-Dinitrotoluene	<0.3
1,2-Dichlorobenzene	<0.3	4-Nitrophenol	<9
Benzyl alcohol	<3	Diethyl phthalate	<0.3
Bis(2-chloroisopropyl) ether	<0.3	Fluorene	0.98
2-Methylphenol	<3	4-Chlorophenyl phenyl ether	<0.3
Hexachloroethane	<0.3	N-Nitrosodiphenylamine	<0.3
N-Nitroso-di-n-propylamine	<0.3	4-Nitroaniline	<30
3-Methylphenol + 4-Methylphenol	<6	4,6-Dinitro-2-methylphenol	<9
Nitrobenzene	<0.3	4-Bromophenyl phenyl ether	<0.3
Isophorone	<0.3	Hexachlorobenzene	<0.3
2-Nitrophenol	<3	Pentachlorophenol	<3
2,4-Dimethylphenol	<3	Phenanthrene	0.87
Benzoic acid	<15	Anthracene	<0.3
Bis(2-chloroethoxy)methane	<0.3	Carbazole	<0.3
2,4-Dichlorophenol	<3	Di-n-butyl phthalate	<0.3
1,2,4-Trichlorobenzene	<0.3	Fluoranthene	<0.3
Naphthalene	5.6	Pyrene	<0.3
Hexachlorobutadiene	<0.3	Benzyl butyl phthalate	<0.3
4-Chloroaniline	<30	Benz(a)anthracene	<0.3
4-Chloro-3-methylphenol	<3	Chrysene	<0.3
2-Methylnaphthalene	13 jr	Bis(2-ethylhexyl) phthalate	<3
Hexachlorocyclopentadiene	<0.9	Di-n-octyl phthalate	<0.3
2,4,6-Trichlorophenol	<3	Benzo(a)pyrene	<0.3
2,4,5-Trichlorophenol	<3	Benzo(b)fluoranthene	<0.3
2-Chloronaphthalene	<0.3	Benzo(k)fluoranthene	<0.3
2-Nitroaniline	<0.3	Indeno(1,2,3-cd)pyrene	<0.3
Dimethyl phthalate	<0.3	Dibenz(a,h)anthracene	<0.3
Acenaphthylene	<0.3	Benzo(g,h,i)perylene	<0.3
2,6-Dinitrotoluene	<0.3		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	D	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-04 1/10
Date Analyzed:	09/23/11	Data File:	092312.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	87	50	150
Phenol-d6	85	50	150
Nitrobenzene-d5	143	50	150
2-Fluorobiphenyl	92	50	150
2,4,6-Tribromophenol	72	50	150
Terphenyl-d14	93	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<3	3-Nitroaniline	<30
Bis(2-chloroethyl) ether	<0.3	Acenaphthene	<0.3
2-Chlorophenol	<3	2,4-Dinitrophenol	<9
1,3-Dichlorobenzene	<0.3	Dibenzofuran	<0.3
1,4-Dichlorobenzene	<0.3	2,4-Dinitrotoluene	<0.3
1,2-Dichlorobenzene	<0.3	4-Nitrophenol	<9
Benzyl alcohol	<3	Diethyl phthalate	<0.3
Bis(2-chloroisopropyl) ether	<0.3	Fluorene	0.71
2-Methylphenol	<3	4-Chlorophenyl phenyl ether	<0.3
Hexachloroethane	<0.3	N-Nitrosodiphenylamine	<0.3
N-Nitroso-di-n-propylamine	<0.3	4-Nitroaniline	<30
3-Methylphenol + 4-Methylphenol	<6	4,6-Dinitro-2-methylphenol	<9
Nitrobenzene	<0.3	4-Bromophenyl phenyl ether	<0.3
Isophorone	<0.3	Hexachlorobenzene	<0.3
2-Nitrophenol	<3	Pentachlorophenol	<3
2,4-Dimethylphenol	<3	Phenanthrene	0.82
Benzoic acid	<15	Anthracene	<0.3
Bis(2-chloroethoxy)methane	<0.3	Carbazole	<0.3
2,4-Dichlorophenol	<3	Di-n-butyl phthalate	<0.3
1,2,4-Trichlorobenzene	<0.3	Fluoranthene	<0.3
Naphthalene	1.8	Pyrene	<0.3
Hexachlorobutadiene	<0.3	Benzyl butyl phthalate	<0.3
4-Chloroaniline	<30	Benz(a)anthracene	<0.3
4-Chloro-3-methylphenol	<3	Chrysene	<0.3
2-Methylnaphthalene	5.8 jr	Bis(2-ethylhexyl) phthalate	<3
Hexachlorocyclopentadiene	<0.9	Di-n-octyl phthalate	<0.3
2,4,6-Trichlorophenol	<3	Benzo(a)pyrene	<0.3
2,4,5-Trichlorophenol	<3	Benzo(b)fluoranthene	<0.3
2-Chloronaphthalene	<0.3	Benzo(k)fluoranthene	<0.3
2-Nitroaniline	<0.3	Indeno(1,2,3-cd)pyrene	<0.3
Dimethyl phthalate	<0.3	Dibenz(a,h)anthracene	<0.3
Acenaphthylene	<0.3	Benzo(g,h,i)perylene	<0.3
2,6-Dinitrotoluene	<0.3		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	E	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-05 1/10
Date Analyzed:	09/23/11	Data File:	092308.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	93	50	150
Phenol-d6	86	50	150
Nitrobenzene-d5	122	50	150
2-Fluorobiphenyl	93	50	150
2,4,6-Tribromophenol	91	50	150
Terphenyl-d14	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<3	3-Nitroaniline	<30
Bis(2-chloroethyl) ether	<0.3	Acenaphthene	<0.3
2-Chlorophenol	<3	2,4-Dinitrophenol	<9
1,3-Dichlorobenzene	<0.3	Dibenzofuran	<0.3
1,4-Dichlorobenzene	<0.3	2,4-Dinitrotoluene	<0.3
1,2-Dichlorobenzene	<0.3	4-Nitrophenol	<9
Benzyl alcohol	<3	Diethyl phthalate	<0.3
Bis(2-chloroisopropyl) ether	<0.3	Fluorene	<0.3
2-Methylphenol	<3	4-Chlorophenyl phenyl ether	<0.3
Hexachloroethane	<0.3	N-Nitrosodiphenylamine	<0.3
N-Nitroso-di-n-propylamine	<0.3	4-Nitroaniline	<30
3-Methylphenol + 4-Methylphenol	<6	4,6-Dinitro-2-methylphenol	<9
Nitrobenzene	<0.3	4-Bromophenyl phenyl ether	<0.3
Isophorone	<0.3	Hexachlorobenzene	<0.3
2-Nitrophenol	<3	Pentachlorophenol	<3
2,4-Dimethylphenol	<3	Phenanthrene	<0.3
Benzoic acid	<15	Anthracene	<0.3
Bis(2-chloroethoxy)methane	<0.3	Carbazole	<0.3
2,4-Dichlorophenol	<3	Di-n-butyl phthalate	<0.3
1,2,4-Trichlorobenzene	<0.3	Fluoranthene	<0.3
Naphthalene	<0.3	Pyrene	<0.3
Hexachlorobutadiene	<0.3	Benzyl butyl phthalate	<0.3
4-Chloroaniline	<30	Benz(a)anthracene	<0.3
4-Chloro-3-methylphenol	<3	Chrysene	<0.3
2-Methylnaphthalene	1.6 jr	Bis(2-ethylhexyl) phthalate	<3
Hexachlorocyclopentadiene	<0.9	Di-n-octyl phthalate	<0.3
2,4,6-Trichlorophenol	<3	Benzo(a)pyrene	<0.3
2,4,5-Trichlorophenol	<3	Benzo(b)fluoranthene	<0.3
2-Chloronaphthalene	<0.3	Benzo(k)fluoranthene	<0.3
2-Nitroaniline	<0.3	Indeno(1,2,3-cd)pyrene	<0.3
Dimethyl phthalate	<0.3	Dibenz(a,h)anthracene	<0.3
Acenaphthylene	<0.3	Benzo(g,h,i)perylene	<0.3
2,6-Dinitrotoluene	<0.3		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	F	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-06 1/10
Date Analyzed:	09/23/11	Data File:	092310.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	94	50	150
Phenol-d6	84	50	150
Nitrobenzene-d5	98	50	150
2-Fluorobiphenyl	91	50	150
2,4,6-Tribromophenol	86	50	150
Terphenyl-d14	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<3	3-Nitroaniline	<30
Bis(2-chloroethyl) ether	<0.3	Acenaphthene	<0.3
2-Chlorophenol	<3	2,4-Dinitrophenol	<9
1,3-Dichlorobenzene	<0.3	Dibenzofuran	<0.3
1,4-Dichlorobenzene	<0.3	2,4-Dinitrotoluene	<0.3
1,2-Dichlorobenzene	<0.3	4-Nitrophenol	<9
Benzyl alcohol	<3	Diethyl phthalate	<0.3
Bis(2-chloroisopropyl) ether	<0.3	Fluorene	<0.3
2-Methylphenol	<3	4-Chlorophenyl phenyl ether	<0.3
Hexachloroethane	<0.3	N-Nitrosodiphenylamine	<0.3
N-Nitroso-di-n-propylamine	<0.3	4-Nitroaniline	<30
3-Methylphenol + 4-Methylphenol	<6	4,6-Dinitro-2-methylphenol	<9
Nitrobenzene	<0.3	4-Bromophenyl phenyl ether	<0.3
Isophorone	<0.3	Hexachlorobenzene	<0.3
2-Nitrophenol	<3	Pentachlorophenol	<3
2,4-Dimethylphenol	<3	Phenanthrene	0.53
Benzoic acid	<15	Anthracene	<0.3
Bis(2-chloroethoxy)methane	<0.3	Carbazole	<0.3
2,4-Dichlorophenol	<3	Di-n-butyl phthalate	<0.3
1,2,4-Trichlorobenzene	<0.3	Fluoranthene	<0.3
Naphthalene	0.34	Pyrene	<0.3
Hexachlorobutadiene	<0.3	Benzyl butyl phthalate	<0.3
4-Chloroaniline	<30	Benz(a)anthracene	<0.3
4-Chloro-3-methylphenol	<3	Chrysene	<0.3
2-Methylnaphthalene	<0.3	Bis(2-ethylhexyl) phthalate	<3
Hexachlorocyclopentadiene	<0.9	Di-n-octyl phthalate	<0.3
2,4,6-Trichlorophenol	<3	Benzo(a)pyrene	<0.3
2,4,5-Trichlorophenol	<3	Benzo(b)fluoranthene	<0.3
2-Chloronaphthalene	<0.3	Benzo(k)fluoranthene	<0.3
2-Nitroaniline	<0.3	Indeno(1,2,3-cd)pyrene	<0.3
Dimethyl phthalate	<0.3	Dibenz(a,h)anthracene	<0.3
Acenaphthylene	<0.3	Benzo(g,h,i)perylene	<0.3
2,6-Dinitrotoluene	<0.3		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	Chilkat Environmental
Date Received:	NA	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	01-1732 mb
Date Analyzed:	09/23/11	Data File:	092305.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	89	50	150
Phenol-d6	84	50	150
Nitrobenzene-d5	90	50	150
2-Fluorobiphenyl	85	50	150
2,4,6-Tribromophenol	88	50	150
Terphenyl-d14	88	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.3	3-Nitroaniline	<3
Bis(2-chloroethyl) ether	<0.03	Acenaphthene	<0.03
2-Chlorophenol	<0.3	2,4-Dinitrophenol	<0.9
1,3-Dichlorobenzene	<0.03	Dibenzofuran	<0.03
1,4-Dichlorobenzene	<0.03	2,4-Dinitrotoluene	<0.03
1,2-Dichlorobenzene	<0.03	4-Nitrophenol	<0.9
Benzyl alcohol	<0.3	Diethyl phthalate	<0.03
Bis(2-chloroisopropyl) ether	<0.03	Fluorene	<0.03
2-Methylphenol	<0.3	4-Chlorophenyl phenyl ether	<0.03
Hexachloroethane	<0.03	N-Nitrosodiphenylamine	<0.03
N-Nitroso-di-n-propylamine	<0.03	4-Nitroaniline	<3
3-Methylphenol + 4-Methylphenol	<0.6	4,6-Dinitro-2-methylphenol	<0.9
Nitrobenzene	<0.03	4-Bromophenyl phenyl ether	<0.03
Isophorone	<0.03	Hexachlorobenzene	<0.03
2-Nitrophenol	<0.3	Pentachlorophenol	<0.3
2,4-Dimethylphenol	<0.3	Phenanthrene	<0.03
Benzoic acid	<1.5	Anthracene	<0.03
Bis(2-chloroethoxy)methane	<0.03	Carbazole	<0.03
2,4-Dichlorophenol	<0.3	Di-n-butyl phthalate	<0.03
1,2,4-Trichlorobenzene	<0.03	Fluoranthene	<0.03
Naphthalene	<0.03	Pyrene	<0.03
Hexachlorobutadiene	<0.03	Benzyl butyl phthalate	<0.03
4-Chloroaniline	<3	Benz(a)anthracene	<0.03
4-Chloro-3-methylphenol	<0.3	Chrysene	<0.03
2-Methylnaphthalene	<0.03	Bis(2-ethylhexyl) phthalate	<0.3
Hexachlorocyclopentadiene	<0.09	Di-n-octyl phthalate	<0.03
2,4,6-Trichlorophenol	<0.3	Benzo(a)pyrene	<0.03
2,4,5-Trichlorophenol	<0.3	Benzo(b)fluoranthene	<0.03
2-Chloronaphthalene	<0.03	Benzo(k)fluoranthene	<0.03
2-Nitroaniline	<0.03	Indeno(1,2,3-cd)pyrene	<0.03
Dimethyl phthalate	<0.03	Dibenz(a,h)anthracene	<0.03
Acenaphthylene	<0.03	Benzo(g,h,i)perylene	<0.03
2,6-Dinitrotoluene	<0.03		

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	1	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-08
Date Analyzed:	09/22/11	Data File:	092219.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	95	50	150
Benzo(a)anthracene-d12	106	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	12 ve
Acenaphthylene	<0.1
Acenaphthene	0.82
Fluorene	2.2
Phenanthrene	0.66
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	1-D	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-09
Date Analyzed:	09/22/11	Data File:	092220.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	93	50	150
Benzo(a)anthracene-d12	99	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	12 ve
Acenaphthylene	<0.1
Acenaphthene	0.69
Fluorene	2.1
Phenanthrene	0.85
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	2	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-10 1/50
Date Analyzed:	09/22/11	Data File:	092222.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	380 ds	50	150
Benzo(a)anthracene-d12	138 ds	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	510 ve
Acenaphthylene	<5
Acenaphthene	30
Fluorene	130
Phenanthrene	100
Anthracene	<5
Fluoranthene	<5
Pyrene	<5
Benz(a)anthracene	<5
Chrysene	<5
Benzo(a)pyrene	<5
Benzo(b)fluoranthene	<5
Benzo(k)fluoranthene	<5
Indeno(1,2,3-cd)pyrene	<5
Dibenz(a,h)anthracene	<5
Benzo(g,h,i)perylene	<5

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	3	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-11
Date Analyzed:	09/22/11	Data File:	092221.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	96	50	150
Benzo(a)anthracene-d12	100	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	33 ve
Acenaphthylene	<0.1
Acenaphthene	0.61
Fluorene	2.3
Phenanthrene	2.2
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	0.19
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D SIM

Client Sample ID:	Method Blank	Client:	Chilkat Environmental
Date Received:	NA	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	01-1733 mb
Date Analyzed:	09/22/11	Data File:	092209.D
Matrix:	Water	Instrument:	GCMS6
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Anthracene-d10	105	50	150
Benzo(a)anthracene-d12	103	50	129

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.1
Acenaphthylene	<0.1
Acenaphthene	<0.1
Fluorene	<0.1
Phenanthrene	<0.1
Anthracene	<0.1
Fluoranthene	<0.1
Pyrene	<0.1
Benz(a)anthracene	<0.1
Chrysene	<0.1
Benzo(a)pyrene	<0.1
Benzo(b)fluoranthene	<0.1
Benzo(k)fluoranthene	<0.1
Indeno(1,2,3-cd)pyrene	<0.1
Dibenz(a,h)anthracene	<0.1
Benzo(g,h,i)perylene	<0.1

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	1	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-08
Date Analyzed:	09/22/11	Data File:	092208.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	41	32	162
Phenol-d6	25	10	170
Nitrobenzene-d5	60	50	150
2-Fluorobiphenyl	49	43	158
2,4,6-Tribromophenol	56	43	146
Terphenyl-d14	56	39	168

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	3-Nitroaniline	<3
Bis(2-chloroethyl) ether	<10	Acenaphthene	<1
2-Chlorophenol	<10	2,4-Dinitrophenol	<30
1,3-Dichlorobenzene	<1	Dibenzofuran	<1
1,4-Dichlorobenzene	<1	2,4-Dinitrotoluene	<1
1,2-Dichlorobenzene	<1	4-Nitrophenol	<10
Benzyl alcohol	<10	Diethyl phthalate	<1
Bis(2-chloroisopropyl) ether	<10	Fluorene	<1
2-Methylphenol	<10	4-Chlorophenyl phenyl ether	<1
Hexachloroethane	<1	N-Nitrosodiphenylamine	<1
N-Nitroso-di-n-propylamine	<10	4-Nitroaniline	<10
3-Methylphenol + 4-Methylphenol	<20	4,6-Dinitro-2-methylphenol	<30
Nitrobenzene	<1	4-Bromophenyl phenyl ether	<1
Isophorone	<1	Hexachlorobenzene	<1
2-Nitrophenol	<10	Pentachlorophenol	<10
2,4-Dimethylphenol	<10	Phenanthrene	<1
Benzoic acid	<50	Anthracene	<1
Bis(2-chloroethoxy)methane	<1	Carbazole	<1
2,4-Dichlorophenol	<10	Di-n-butyl phthalate	<1
1,2,4-Trichlorobenzene	<1	Fluoranthene	<1
Naphthalene	10	Pyrene	<1
Hexachlorobutadiene	<1	Benzyl butyl phthalate	<1
4-Chloroaniline	<3	Benz(a)anthracene	<1
4-Chloro-3-methylphenol	<10	Chrysene	<1
2-Methylnaphthalene	6.8	Bis(2-ethylhexyl) phthalate	<10
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<1
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<1
2-Chloronaphthalene	<1	Benzo(k)fluoranthene	<1
2-Nitroaniline	<1	Indeno(1,2,3-cd)pyrene	<1
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<1
Acenaphthylene	<1	Benzo(g,h,i)perylene	<1
2,6-Dinitrotoluene	<1		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	1-D	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-09
Date Analyzed:	09/22/11	Data File:	092209.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	46	32	162
Phenol-d6	29	10	170
Nitrobenzene-d5	67	50	150
2-Fluorobiphenyl	59	43	158
2,4,6-Tribromophenol	70	43	146
Terphenyl-d14	62	39	168

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	3-Nitroaniline	<3
Bis(2-chloroethyl) ether	<10	Acenaphthene	<1
2-Chlorophenol	<10	2,4-Dinitrophenol	<30
1,3-Dichlorobenzene	<1	Dibenzofuran	<1
1,4-Dichlorobenzene	<1	2,4-Dinitrotoluene	<1
1,2-Dichlorobenzene	<1	4-Nitrophenol	<10
Benzyl alcohol	<10	Diethyl phthalate	<1
Bis(2-chloroisopropyl) ether	<10	Fluorene	1.8
2-Methylphenol	<10	4-Chlorophenyl phenyl ether	<1
Hexachloroethane	<1	N-Nitrosodiphenylamine	<1
N-Nitroso-di-n-propylamine	<10	4-Nitroaniline	<10
3-Methylphenol + 4-Methylphenol	<20	4,6-Dinitro-2-methylphenol	<30
Nitrobenzene	<1	4-Bromophenyl phenyl ether	<1
Isophorone	<1	Hexachlorobenzene	<1
2-Nitrophenol	<10	Pentachlorophenol	<10
2,4-Dimethylphenol	<10	Phenanthrene	<1
Benzoic acid	<50	Anthracene	<1
Bis(2-chloroethoxy)methane	<1	Carbazole	<1
2,4-Dichlorophenol	<10	Di-n-butyl phthalate	<1
1,2,4-Trichlorobenzene	<1	Fluoranthene	<1
Naphthalene	11	Pyrene	<1
Hexachlorobutadiene	<1	Benzyl butyl phthalate	<1
4-Chloroaniline	<3	Benz(a)anthracene	<1
4-Chloro-3-methylphenol	<10	Chrysene	<1
2-Methylnaphthalene	8.8	Bis(2-ethylhexyl) phthalate	<10
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<1
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<1
2-Chloronaphthalene	<1	Benzo(k)fluoranthene	<1
2-Nitroaniline	<1	Indeno(1,2,3-cd)pyrene	<1
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<1
Acenaphthylene	<1	Benzo(g,h,i)perylene	<1
2,6-Dinitrotoluene	<1		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	2	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-10 1/50
Date Analyzed:	09/22/11	Data File:	092211.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	57	32	162
Phenol-d6	38	10	170
Nitrobenzene-d5	392 ip	50	150
2-Fluorobiphenyl	87	43	158
2,4,6-Tribromophenol	77	43	146
Terphenyl-d14	82	39	168

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<500	3-Nitroaniline	<150
Bis(2-chloroethyl) ether	<500	Acenaphthene	<50
2-Chlorophenol	<500	2,4-Dinitrophenol	<1,500
1,3-Dichlorobenzene	<50	Dibenzofuran	<50
1,4-Dichlorobenzene	<50	2,4-Dinitrotoluene	<50
1,2-Dichlorobenzene	<50	4-Nitrophenol	<500
Benzyl alcohol	<500	Diethyl phthalate	<50
Bis(2-chloroisopropyl) ether	<500	Fluorene	100
2-Methylphenol	<500	4-Chlorophenyl phenyl ether	<50
Hexachloroethane	<50	N-Nitrosodiphenylamine	<50
N-Nitroso-di-n-propylamine	<500	4-Nitroaniline	<500
3-Methylphenol + 4-Methylphenol	<1,000	4,6-Dinitro-2-methylphenol	<1,500
Nitrobenzene	<50	4-Bromophenyl phenyl ether	<50
Isophorone	<50	Hexachlorobenzene	<50
2-Nitrophenol	<500	Pentachlorophenol	<500
2,4-Dimethylphenol	<500	Phenanthrene	95
Benzoic acid	<2,500	Anthracene	<50
Bis(2-chloroethoxy)methane	<50	Carbazole	<50
2,4-Dichlorophenol	<500	Di-n-butyl phthalate	<50
1,2,4-Trichlorobenzene	<50	Fluoranthene	<50
Naphthalene	470	Pyrene	<50
Hexachlorobutadiene	<50	Benzyl butyl phthalate	<50
4-Chloroaniline	<150	Benz(a)anthracene	<50
4-Chloro-3-methylphenol	<500	Chrysene	<50
2-Methylnaphthalene	1,600	Bis(2-ethylhexyl) phthalate	<500
Hexachlorocyclopentadiene	<150	Di-n-octyl phthalate	<50
2,4,6-Trichlorophenol	<500	Benzo(a)pyrene	<50
2,4,5-Trichlorophenol	<500	Benzo(b)fluoranthene	<50
2-Chloronaphthalene	<50	Benzo(k)fluoranthene	<50
2-Nitroaniline	<50	Indeno(1,2,3-cd)pyrene	<50
Dimethyl phthalate	<50	Dibenz(a,h)anthracene	<50
Acenaphthylene	<50	Benzo(g,h,i)perylene	<50
2,6-Dinitrotoluene	<50		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	3	Client:	Chilkat Environmental
Date Received:	09/19/11	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	109245-11
Date Analyzed:	09/22/11	Data File:	092210.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	65	32	162
Phenol-d6	40	10	170
Nitrobenzene-d5	85	50	150
2-Fluorobiphenyl	77	43	158
2,4,6-Tribromophenol	92	43	146
Terphenyl-d14	78	39	168

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	3-Nitroaniline	<3
Bis(2-chloroethyl) ether	<10	Acenaphthene	<1
2-Chlorophenol	<10	2,4-Dinitrophenol	<30
1,3-Dichlorobenzene	<1	Dibenzofuran	1.1
1,4-Dichlorobenzene	<1	2,4-Dinitrotoluene	<1
1,2-Dichlorobenzene	<1	4-Nitrophenol	<10
Benzyl alcohol	<10	Diethyl phthalate	<1
Bis(2-chloroisopropyl) ether	<10	Fluorene	2.0
2-Methylphenol	<10	4-Chlorophenyl phenyl ether	<1
Hexachloroethane	<1	N-Nitrosodiphenylamine	<1
N-Nitroso-di-n-propylamine	<10	4-Nitroaniline	<10
3-Methylphenol + 4-Methylphenol	<20	4,6-Dinitro-2-methylphenol	<30
Nitrobenzene	<1	4-Bromophenyl phenyl ether	<1
Isophorone	<1	Hexachlorobenzene	<1
2-Nitrophenol	<10	Pentachlorophenol	<10
2,4-Dimethylphenol	<10	Phenanthrene	2.2
Benzoic acid	<50	Anthracene	<1
Bis(2-chloroethoxy)methane	<1	Carbazole	<1
2,4-Dichlorophenol	<10	Di-n-butyl phthalate	<1
1,2,4-Trichlorobenzene	<1	Fluoranthene	<1
Naphthalene	36	Pyrene	<1
Hexachlorobutadiene	<1	Benzyl butyl phthalate	<1
4-Chloroaniline	<3	Benz(a)anthracene	<1
4-Chloro-3-methylphenol	<10	Chrysene	<1
2-Methylnaphthalene	36	Bis(2-ethylhexyl) phthalate	<10
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<1
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<1
2-Chloronaphthalene	<1	Benzo(k)fluoranthene	<1
2-Nitroaniline	<1	Indeno(1,2,3-cd)pyrene	<1
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<1
Acenaphthylene	<1	Benzo(g,h,i)perylene	<1
2,6-Dinitrotoluene	<1		

Analysis For Semivolatile Compounds By EPA Method 8270D

Client Sample ID:	Method Blank	Client:	Chilkat Environmental
Date Received:	NA	Project:	Former Petro Marine Tank Farm
Date Extracted:	09/21/11	Lab ID:	01-1734 mb
Date Analyzed:	09/22/11	Data File:	092207.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	55	32	162
Phenol-d6	35	10	170
Nitrobenzene-d5	78	50	150
2-Fluorobiphenyl	73	43	158
2,4,6-Tribromophenol	74	43	146
Terphenyl-d14	79	39	168

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<10	3-Nitroaniline	<3
Bis(2-chloroethyl) ether	<10	Acenaphthene	<1
2-Chlorophenol	<10	2,4-Dinitrophenol	<30
1,3-Dichlorobenzene	<1	Dibenzofuran	<1
1,4-Dichlorobenzene	<1	2,4-Dinitrotoluene	<1
1,2-Dichlorobenzene	<1	4-Nitrophenol	<10
Benzyl alcohol	<10	Diethyl phthalate	<1
Bis(2-chloroisopropyl) ether	<10	Fluorene	<1
2-Methylphenol	<10	4-Chlorophenyl phenyl ether	<1
Hexachloroethane	<1	N-Nitrosodiphenylamine	<1
N-Nitroso-di-n-propylamine	<10	4-Nitroaniline	<10
3-Methylphenol + 4-Methylphenol	<20	4,6-Dinitro-2-methylphenol	<30
Nitrobenzene	<1	4-Bromophenyl phenyl ether	<1
Isophorone	<1	Hexachlorobenzene	<1
2-Nitrophenol	<10	Pentachlorophenol	<10
2,4-Dimethylphenol	<10	Phenanthrene	<1
Benzoic acid	<50	Anthracene	<1
Bis(2-chloroethoxy)methane	<1	Carbazole	<1
2,4-Dichlorophenol	<10	Di-n-butyl phthalate	<1
1,2,4-Trichlorobenzene	<1	Fluoranthene	<1
Naphthalene	<1	Pyrene	<1
Hexachlorobutadiene	<1	Benzyl butyl phthalate	<1
4-Chloroaniline	<3	Benz(a)anthracene	<1
4-Chloro-3-methylphenol	<10	Chrysene	<1
2-Methylnaphthalene	<1	Bis(2-ethylhexyl) phthalate	<10
Hexachlorocyclopentadiene	<3	Di-n-octyl phthalate	<1
2,4,6-Trichlorophenol	<10	Benzo(a)pyrene	<1
2,4,5-Trichlorophenol	<10	Benzo(b)fluoranthene	<1
2-Chloronaphthalene	<1	Benzo(k)fluoranthene	<1
2-Nitroaniline	<1	Indeno(1,2,3-cd)pyrene	<1
Dimethyl phthalate	<1	Dibenz(a,h)anthracene	<1
Acenaphthylene	<1	Benzo(g,h,i)perylene	<1
2,6-Dinitrotoluene	<1		

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD AK 101

Laboratory Code: 109245-01 (Duplicate)

Analyte	Reporting Units	(Wet Wt) Sample Result	(Wet Wt) Duplicate Result	Relative Percent Difference (Limit 20)
Gasoline	mg/kg (ppm)	250	270	9

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	mg/kg (ppm)	20	100	105	71-131	5

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD AK 101

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Gasoline	ug/L (ppb)	1,000	103	101	70-119	2

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD AK 102

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel	ug/L (ppb)	2,500	95	100	75-125	5

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD AK 102

Laboratory Code: 109245-04 (Duplicate)

Analyte	Reporting Units	(Wet wt) Sample Result	(Wet wt) Duplicate Result	Relative Percent Difference	Acceptance Criteria
Diesel	mg/kg (ppm)	2,000	2,000	0	0-20

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel	mg/kg (ppm)	500	101	108	75-125	7

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING METHOD AK 103

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Motor Oil	ug/L (ppb)	2,500	95	98	60-120	3

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING METHOD AK 103

Laboratory Code: 109245-04 (Duplicate)

Analyte	Reporting Units	(Wet wt) Sample Result	(Wet wt) Duplicate Result	Relative Percent Difference	Acceptance Criteria
Motor Oil	mg/kg (ppm)	<25	<25	nm	0-20

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Motor Oil	mg/kg (ppm)	500	93	93	60-120	0

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 109245-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	<0.5	<0.5	nm
Chloromethane	mg/kg (ppm)	<0.5	<0.5	nm
Vinyl chloride	mg/kg (ppm)	<0.05	<0.05	nm
Bromomethane	mg/kg (ppm)	<0.5	<0.5	nm
Chloroethane	mg/kg (ppm)	<0.5	<0.5	nm
Trichlorofluoromethane	mg/kg (ppm)	<0.5	<0.5	nm
Acetone	mg/kg (ppm)	0.28 j lc	0.24 j lc	15
1,1-Dichloroethene	mg/kg (ppm)	<0.05	<0.05	nm
Methylene chloride	mg/kg (ppm)	0.54 lc	0.53 lc	2
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	<0.05	<0.05	nm
trans-1,2-Dichloroethene	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloroethane	mg/kg (ppm)	<0.05	<0.05	nm
2,2-Dichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
cis-1,2-Dichloroethene	mg/kg (ppm)	<0.05	<0.05	nm
Chloroform	mg/kg (ppm)	<0.05	<0.05	nm
2-Butanone (MEK)	mg/kg (ppm)	0.26 j	0.27 j	4
1,2-Dichloroethane (EDC)	mg/kg (ppm)	<0.05	<0.05	nm
1,1,1-Trichloroethane	mg/kg (ppm)	<0.05	<0.05	nm
1,1-Dichloropropene	mg/kg (ppm)	<0.05	<0.05	nm
Carbon tetrachloride	mg/kg (ppm)	<0.05	<0.05	nm
Benzene	mg/kg (ppm)	0.17	0.15	12
Trichloroethene	mg/kg (ppm)	<0.03	<0.03	nm
1,2-Dichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Bromodichloromethane	mg/kg (ppm)	<0.05	<0.05	nm
Dibromomethane	mg/kg (ppm)	<0.05	<0.05	nm
4-Methyl-2-pentanone	mg/kg (ppm)	<0.5	<0.5	nm
cis-1,3-Dichloropropene	mg/kg (ppm)	<0.05	<0.05	nm
Toluene	mg/kg (ppm)	0.89	0.90	1
trans-1,3-Dichloropropene	mg/kg (ppm)	<0.05	<0.05	nm
1,1,2-Trichloroethane	mg/kg (ppm)	<0.05	<0.05	nm
2-Hexanone	mg/kg (ppm)	<0.5	<0.5	nm
1,3-Dichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
Tetrachloroethene	mg/kg (ppm)	<0.025	<0.025	nm
Dibromochloromethane	mg/kg (ppm)	<0.05	<0.05	nm
1,2-Dibromoethane (EDB)	mg/kg (ppm)	<0.05	<0.05	nm
Chlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
Ethylbenzene	mg/kg (ppm)	0.17	0.17	0
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	<0.05	<0.05	nm
m,p-Xylene	mg/kg (ppm)	12 ve	11 ve	9
o-Xylene	mg/kg (ppm)	25 ve	23 ve	8
Styrene	mg/kg (ppm)	0.061	0.059	3
Isopropylbenzene	mg/kg (ppm)	0.16	0.15	6
Bromoform	mg/kg (ppm)	<0.05	<0.05	nm
n-Propylbenzene	mg/kg (ppm)	0.25	0.24	4
Bromobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,3,5-Trimethylbenzene	mg/kg (ppm)	29 ve	29 ve	0
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	<0.05	<0.05	nm
1,2,3-Trichloropropane	mg/kg (ppm)	<0.05	<0.05	nm
2-Chlorotoluene	mg/kg (ppm)	<0.05	<0.05	nm
4-Chlorotoluene	mg/kg (ppm)	<0.05	<0.05	nm
tert-Butylbenzene	mg/kg (ppm)	0.28	0.28	0
1,2,4-Trimethylbenzene	mg/kg (ppm)	37 ve	36 ve	3
sec-Butylbenzene	mg/kg (ppm)	0.61	0.62	2
p-Isopropyltoluene	mg/kg (ppm)	4.3	4.4	2
1,3-Dichlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.05	<0.05	nm
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	<0.5	<0.5	nm
1,2,4-Trichlorobenzene	mg/kg (ppm)	<0.25	<0.25	nm
Hexachlorobutadiene	mg/kg (ppm)	<0.25	<0.25	nm
Naphthalene	mg/kg (ppm)	2.4	2.4	0
1,2,3-Trichlorobenzene	mg/kg (ppm)	<0.25	<0.25	nm

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	57	54	10-142	5
Chloromethane	mg/kg (ppm)	2.5	77	72	25-121	7
Vinyl chloride	mg/kg (ppm)	2.5	90	85	29-135	6
Bromomethane	mg/kg (ppm)	2.5	81	80	33-123	1
Chloroethane	mg/kg (ppm)	2.5	82	71	10-281	14
Trichlorofluoromethane	mg/kg (ppm)	2.5	73	72	13-151	1
Acetone	mg/kg (ppm)	12.5	86	97	10-151	12
1,1-Dichloroethene	mg/kg (ppm)	2.5	82	90	22-151	9
Methylene chloride	mg/kg (ppm)	2.5	77	86	42-144	11
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	78	88	62-124	12
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	87	96	60-125	10
1,1-Dichloroethane	mg/kg (ppm)	2.5	94	91	66-123	3
2,2-Dichloropropane	mg/kg (ppm)	2.5	103	98	53-134	5
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	97	96	72-118	1
Chloroform	mg/kg (ppm)	2.5	92	91	71-123	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	100	89	10-150	12
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	82	82	60-124	0
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	87	87	68-128	0
1,1-Dichloropropene	mg/kg (ppm)	2.5	92	91	71-123	1
Carbon tetrachloride	mg/kg (ppm)	2.5	87	82	64-136	6
Benzene	mg/kg (ppm)	2.5	93	94	69-122	1
Trichloroethene	mg/kg (ppm)	2.5	93	93	71-122	0
1,2-Dichloropropane	mg/kg (ppm)	2.5	100	99	71-120	1
Bromodichloromethane	mg/kg (ppm)	2.5	93	90	68-140	3
Dibromomethane	mg/kg (ppm)	2.5	93	93	72-121	0
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	98	97	10-150	1
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	97	97	74-126	0
Toluene	mg/kg (ppm)	2.5	100	99	72-122	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	101	98	70-131	3
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	97	93	70-122	4
2-Hexanone	mg/kg (ppm)	12.5	93	94	10-152	1
1,3-Dichloropropane	mg/kg (ppm)	2.5	98	96	72-121	2
Tetrachloroethene	mg/kg (ppm)	2.5	100	100	69-125	0
Dibromochloromethane	mg/kg (ppm)	2.5	94	95	68-130	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	100	96	72-121	4
Chlorobenzene	mg/kg (ppm)	2.5	101	98	69-125	3
Ethylbenzene	mg/kg (ppm)	2.5	98	97	72-130	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	97	96	69-133	1
m,p-Xylene	mg/kg (ppm)	5	101	98	72-131	3
o-Xylene	mg/kg (ppm)	2.5	98	98	71-129	0
Styrene	mg/kg (ppm)	2.5	100	99	73-132	1
Isopropylbenzene	mg/kg (ppm)	2.5	99	97	73-134	2
Bromoform	mg/kg (ppm)	2.5	98	95	68-129	3
n-Propylbenzene	mg/kg (ppm)	2.5	101	99	72-136	2
Bromobenzene	mg/kg (ppm)	2.5	100	99	73-125	1
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	100	100	72-132	0
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	101	103	67-116	2
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	94	97	67-123	3
2-Chlorotoluene	mg/kg (ppm)	2.5	99	100	72-130	1
4-Chlorotoluene	mg/kg (ppm)	2.5	99	97	73-129	2
tert-Butylbenzene	mg/kg (ppm)	2.5	100	99	71-130	1
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	98	98	70-132	0
sec-Butylbenzene	mg/kg (ppm)	2.5	100	98	71-134	2
p-Isopropyltoluene	mg/kg (ppm)	2.5	100	98	71-135	2
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	98	100	70-124	2
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	99	100	68-126	1
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	97	98	71-125	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	94	96	63-122	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	103	104	69-132	1
Hexachlorobutadiene	mg/kg (ppm)	2.5	99	102	68-121	3
Naphthalene	mg/kg (ppm)	2.5	101	103	60-125	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	104	107	68-121	3

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 109257-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<10	97	10-172
Chloromethane	ug/L (ppb)	50	<10	105	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	115	36-166
Bromomethane	ug/L (ppb)	50	<1	116	47-169
Chloroethane	ug/L (ppb)	50	<1	118	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	100	44-165
Acetone	ug/L (ppb)	250	<10	66	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	110	60-136
Methylene chloride	ug/L (ppb)	50	<5	121	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	96	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	114	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	102	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	94	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	104	71-127
Chloroform	ug/L (ppb)	50	<1	99	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	68	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	88	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	95	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	94	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	83	56-152
Benzene	ug/L (ppb)	50	26	101 b	76-125
Trichloroethene	ug/L (ppb)	50	<0.5 j	94	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	103	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	93	61-150
Dibromomethane	ug/L (ppb)	50	<1	99	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	93	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	102	72-132
Toluene	ug/L (ppb)	50	2.4	99	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	103	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	105	68-131
2-Hexanone	ug/L (ppb)	250	<10	90	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	101	71-128
Tetrachloroethene	ug/L (ppb)	50	<0.5 j	93	73-129
Dibromochloromethane	ug/L (ppb)	50	<1	97	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	100	69-134
Chlorobenzene	ug/L (ppb)	50	<1	92	77-122
Ethylbenzene	ug/L (ppb)	50	<1	88	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	93	73-137
m,p-Xylene	ug/L (ppb)	100	<2	90	69-135
o-Xylene	ug/L (ppb)	50	<1	88	68-137
Styrene	ug/L (ppb)	50	<1	93	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	85	65-142
Bromoform	ug/L (ppb)	50	<1	88	65-142
n-Propylbenzene	ug/L (ppb)	50	1.5	85	58-144
Bromobenzene	ug/L (ppb)	50	<1	93	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	88	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	100	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	95	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	88	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	86	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	88	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	87	59-146
sec-Butylbenzene	ug/L (ppb)	50	1.7	85	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	87	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	87	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	86	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	86	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	91	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	90	76-132
Hexachlorobutadiene	ug/L (ppb)	50	<1	97	60-143
Naphthalene	ug/L (ppb)	50	<1	101	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	93	69-148

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	102	111	25-158	8
Chloromethane	ug/L (ppb)	50	88	109	45-156	21 vo
Vinyl chloride	ug/L (ppb)	50	99	112	50-154	12
Bromomethane	ug/L (ppb)	50	117	115	55-143	2
Chloroethane	ug/L (ppb)	50	112	111	58-146	1
Trichlorofluoromethane	ug/L (ppb)	50	115	108	50-150	6
Acetone	ug/L (ppb)	250	112	110	60-155	2
1,1-Dichloroethene	ug/L (ppb)	50	85	112	67-136	27 vo
Methylene chloride	ug/L (ppb)	50	120	101	39-148	17
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	107	108	64-147	1
trans-1,2-Dichloroethene	ug/L (ppb)	50	108	114	68-128	5
1,1-Dichloroethane	ug/L (ppb)	50	103	106	79-121	3
2,2-Dichloropropane	ug/L (ppb)	50	109	108	55-143	1
cis-1,2-Dichloroethene	ug/L (ppb)	50	104	108	80-123	4
Chloroform	ug/L (ppb)	50	104	108	80-121	4
2-Butanone (MEK)	ug/L (ppb)	250	95	97	57-149	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	102	106	73-132	4
1,1,1-Trichloroethane	ug/L (ppb)	50	111	115	83-130	4
1,1-Dichloropropene	ug/L (ppb)	50	104	109	77-129	5
Carbon tetrachloride	ug/L (ppb)	50	103	107	75-158	4
Benzene	ug/L (ppb)	50	104	107	69-134	3
Trichloroethene	ug/L (ppb)	50	104	106	80-120	2
1,2-Dichloropropane	ug/L (ppb)	50	105	108	77-123	3
Bromodichloromethane	ug/L (ppb)	50	104	107	81-133	3
Dibromomethane	ug/L (ppb)	50	108	111	82-125	3
4-Methyl-2-pentanone	ug/L (ppb)	250	99	100	70-140	1
cis-1,3-Dichloropropene	ug/L (ppb)	50	105	107	82-132	2
Toluene	ug/L (ppb)	50	107	109	72-122	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	113	114	80-136	1
1,1,2-Trichloroethane	ug/L (ppb)	50	105	108	75-124	3
2-Hexanone	ug/L (ppb)	250	101	100	64-152	1
1,3-Dichloropropane	ug/L (ppb)	50	107	108	76-126	1
Tetrachloroethene	ug/L (ppb)	50	111	111	76-121	0
Dibromochloromethane	ug/L (ppb)	50	111	112	84-133	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	108	111	82-125	3
Chlorobenzene	ug/L (ppb)	50	103	105	83-114	2
Ethylbenzene	ug/L (ppb)	50	105	106	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	107	108	84-127	1
m,p-Xylene	ug/L (ppb)	100	105	106	83-125	1
o-Xylene	ug/L (ppb)	50	104	104	86-121	0
Styrene	ug/L (ppb)	50	106	108	85-127	2
Isopropylbenzene	ug/L (ppb)	50	105	107	87-122	2
Bromoform	ug/L (ppb)	50	106	104	74-136	2
n-Propylbenzene	ug/L (ppb)	50	105	107	74-126	2
Bromobenzene	ug/L (ppb)	50	108	106	80-121	2
1,3,5-Trimethylbenzene	ug/L (ppb)	50	106	107	80-126	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	104	101	66-126	3
1,2,3-Trichloropropane	ug/L (ppb)	50	103	104	67-124	1
2-Chlorotoluene	ug/L (ppb)	50	107	108	77-127	1
4-Chlorotoluene	ug/L (ppb)	50	105	106	78-128	1
tert-Butylbenzene	ug/L (ppb)	50	107	106	85-127	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	106	106	82-125	0
sec-Butylbenzene	ug/L (ppb)	50	105	106	80-125	1
p-Isopropyltoluene	ug/L (ppb)	50	107	106	82-127	1
1,3-Dichlorobenzene	ug/L (ppb)	50	105	107	85-116	2
1,4-Dichlorobenzene	ug/L (ppb)	50	105	106	84-121	1
1,2-Dichlorobenzene	ug/L (ppb)	50	105	104	85-116	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	111	106	57-141	5
1,2,4-Trichlorobenzene	ug/L (ppb)	50	114	108	72-130	5
Hexachlorobutadiene	ug/L (ppb)	50	114	109	53-141	4
Naphthalene	ug/L (ppb)	50	117	110	64-133	6
1,2,3-Trichlorobenzene	ug/L (ppb)	50	112	110	65-136	2

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 109292-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<10	104	10-172
Chloromethane	ug/L (ppb)	50	<10	101	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	111	36-166
Bromomethane	ug/L (ppb)	50	<1	99	47-169
Chloroethane	ug/L (ppb)	50	<1	104	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	104	44-165
Acetone	ug/L (ppb)	250	<10	121	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	108	60-136
Methylene chloride	ug/L (ppb)	50	<5	113	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	105	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	114	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	101	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	77	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	104	71-127
Chloroform	ug/L (ppb)	50	<1	101	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	97	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	96	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	103	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	102	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	99	56-152
Benzene	ug/L (ppb)	50	<0.35	103	76-125
Trichloroethene	ug/L (ppb)	50	<1	103	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	107	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	100	61-150
Dibromomethane	ug/L (ppb)	50	<1	103	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	103	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	99	72-132
Toluene	ug/L (ppb)	50	<1	107	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	104	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	106	68-131
2-Hexanone	ug/L (ppb)	250	<10	101	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	106	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	110	73-129
Dibromochloromethane	ug/L (ppb)	50	<1	105	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	106	69-134
Chlorobenzene	ug/L (ppb)	50	<1	104	77-122
Ethylbenzene	ug/L (ppb)	50	<1	102	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	106	73-137
m,p-Xylene	ug/L (ppb)	100	<2	102	69-135
o-Xylene	ug/L (ppb)	50	<1	102	68-137
Styrene	ug/L (ppb)	50	<1	104	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	103	65-142
Bromoform	ug/L (ppb)	50	<1	101	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	104	58-144
Bromobenzene	ug/L (ppb)	50	<1	106	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	105	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	102	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	103	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	106	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	102	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	105	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	104	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	103	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	104	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	104	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	103	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	102	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	99	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	104	76-132
Hexachlorobutadiene	ug/L (ppb)	50	<1	100	60-143
Naphthalene	ug/L (ppb)	50	<1	110	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	105	69-148

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	104	104	25-158	0
Chloromethane	ug/L (ppb)	50	100	103	45-156	3
Vinyl chloride	ug/L (ppb)	50	107	110	50-154	3
Bromomethane	ug/L (ppb)	50	104	109	55-143	5
Chloroethane	ug/L (ppb)	50	110	96	58-146	14
Trichlorofluoromethane	ug/L (ppb)	50	93	93	50-150	0
Acetone	ug/L (ppb)	250	106	122	60-155	14
1,1-Dichloroethene	ug/L (ppb)	50	94	111	67-136	17
Methylene chloride	ug/L (ppb)	50	96	122	39-148	24 vo
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	88	101	64-147	14
trans-1,2-Dichloroethene	ug/L (ppb)	50	97	115	68-128	17
1,1-Dichloroethane	ug/L (ppb)	50	87	101	79-121	15
2,2-Dichloropropane	ug/L (ppb)	50	93	92	55-143	1
cis-1,2-Dichloroethene	ug/L (ppb)	50	102	107	80-123	5
Chloroform	ug/L (ppb)	50	97	98	80-121	1
2-Butanone (MEK)	ug/L (ppb)	250	99	101	57-149	2
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	84	88	73-132	5
1,1,1-Trichloroethane	ug/L (ppb)	50	91	95	83-130	4
1,1-Dichloropropene	ug/L (ppb)	50	100	103	77-129	3
Carbon tetrachloride	ug/L (ppb)	50	88	92	75-158	4
Benzene	ug/L (ppb)	50	103	106	69-134	3
Trichloroethene	ug/L (ppb)	50	95	100	80-120	5
1,2-Dichloropropane	ug/L (ppb)	50	104	108	77-123	4
Bromodichloromethane	ug/L (ppb)	50	92	94	81-133	2
Dibromomethane	ug/L (ppb)	50	100	102	82-125	2
4-Methyl-2-pentanone	ug/L (ppb)	250	99	103	70-140	4
cis-1,3-Dichloropropene	ug/L (ppb)	50	100	104	82-132	4
Toluene	ug/L (ppb)	50	104	110	72-122	6
trans-1,3-Dichloropropene	ug/L (ppb)	50	104	107	80-136	3
1,1,2-Trichloroethane	ug/L (ppb)	50	106	108	75-124	2
2-Hexanone	ug/L (ppb)	250	94	97	64-152	3
1,3-Dichloropropane	ug/L (ppb)	50	104	105	76-126	1
Tetrachloroethene	ug/L (ppb)	50	108	111	76-121	3
Dibromochloromethane	ug/L (ppb)	50	101	102	84-133	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	104	106	82-125	2
Chlorobenzene	ug/L (ppb)	50	101	104	83-114	3
Ethylbenzene	ug/L (ppb)	50	100	103	77-124	3
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	101	102	84-127	1
m,p-Xylene	ug/L (ppb)	100	102	106	83-125	4
o-Xylene	ug/L (ppb)	50	99	103	86-121	4
Styrene	ug/L (ppb)	50	106	108	85-127	2
Isopropylbenzene	ug/L (ppb)	50	102	103	87-122	1
Bromoform	ug/L (ppb)	50	96	101	74-136	5
n-Propylbenzene	ug/L (ppb)	50	101	105	74-126	4
Bromobenzene	ug/L (ppb)	50	105	109	80-121	4
1,3,5-Trimethylbenzene	ug/L (ppb)	50	102	106	80-126	4
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	102	104	66-126	2
1,2,3-Trichloropropane	ug/L (ppb)	50	96	101	67-124	5
2-Chlorotoluene	ug/L (ppb)	50	102	105	77-127	3
4-Chlorotoluene	ug/L (ppb)	50	98	103	78-128	5
tert-Butylbenzene	ug/L (ppb)	50	102	104	85-127	2
1,2,4-Trimethylbenzene	ug/L (ppb)	50	100	104	82-125	4
sec-Butylbenzene	ug/L (ppb)	50	100	104	80-125	4
p-Isopropyltoluene	ug/L (ppb)	50	102	105	82-127	3
1,3-Dichlorobenzene	ug/L (ppb)	50	103	106	85-116	3
1,4-Dichlorobenzene	ug/L (ppb)	50	103	105	84-121	2
1,2-Dichlorobenzene	ug/L (ppb)	50	102	104	85-116	2
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	95	98	57-141	3
1,2,4-Trichlorobenzene	ug/L (ppb)	50	106	110	72-130	4
Hexachlorobutadiene	ug/L (ppb)	50	100	102	53-141	2
Naphthalene	ug/L (ppb)	50	108	111	64-133	3
1,2,3-Trichlorobenzene	ug/L (ppb)	50	105	108	65-136	3

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: 109245-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Naphthalene	mg/kg (ppm)	2.4 ve	2.0 ve	18
Acenaphthylene	mg/kg (ppm)	<0.02	<0.02	nm
Acenaphthene	mg/kg (ppm)	0.18	0.17	6
Fluorene	mg/kg (ppm)	0.91	0.82	10
Phenanthrene	mg/kg (ppm)	0.87	0.80	8
Anthracene	mg/kg (ppm)	<0.02	<0.02	nm
Fluoranthene	mg/kg (ppm)	<0.02	<0.02	nm
Pyrene	mg/kg (ppm)	<0.02	<0.02	nm
Benz(a)anthracene	mg/kg (ppm)	<0.02	<0.02	nm
Chrysene	mg/kg (ppm)	<0.02	<0.02	nm
Benzo(b)fluoranthene	mg/kg (ppm)	<0.02	<0.02	nm
Benzo(k)fluoranthene	mg/kg (ppm)	<0.02	<0.02	nm
Benzo(a)pyrene	mg/kg (ppm)	<0.02	<0.02	nm
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	<0.02	<0.02	nm
Dibenz(a,h)anthracene	mg/kg (ppm)	<0.02	<0.02	nm
Benzo(g,h,i)perylene	mg/kg (ppm)	<0.02	<0.02	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.17	81	82	61-115	1
Acenaphthylene	mg/kg (ppm)	0.17	80	80	63-110	0
Acenaphthene	mg/kg (ppm)	0.17	81	81	60-115	0
Fluorene	mg/kg (ppm)	0.17	85	85	59-116	0
Phenanthrene	mg/kg (ppm)	0.17	83	83	60-113	0
Anthracene	mg/kg (ppm)	0.17	77	77	56-103	0
Fluoranthene	mg/kg (ppm)	0.17	85	84	60-116	1
Pyrene	mg/kg (ppm)	0.17	87	87	60-116	0
Benz(a)anthracene	mg/kg (ppm)	0.17	77	77	53-109	0
Chrysene	mg/kg (ppm)	0.17	85	85	61-116	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.17	86	86	57-118	0
Benzo(k)fluoranthene	mg/kg (ppm)	0.17	87	88	61-118	1
Benzo(a)pyrene	mg/kg (ppm)	0.17	77	78	53-108	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.17	100	100	46-127	0
Dibenz(a,h)anthracene	mg/kg (ppm)	0.17	90	89	55-121	1
Benzo(g,h,i)perylene	mg/kg (ppm)	0.17	86	86	56-118	0

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: 109245-04 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Phenol	mg/kg (ppm)	<3	<3 J	nm
Bis(2-chloroethyl) ether	mg/kg (ppm)	<0.3	<0.3 J	nm
2-Chlorophenol	mg/kg (ppm)	<3	<3 J	nm
1,3-Dichlorobenzene	mg/kg (ppm)	<0.3	<0.3 J	nm
1,4-Dichlorobenzene	mg/kg (ppm)	<0.3	<0.3 J	nm
1,2-Dichlorobenzene	mg/kg (ppm)	<0.3	<0.3 J	nm
Benzyl alcohol	mg/kg (ppm)	<3	<3 J	nm
Bis(2-chloroisopropyl) ether	mg/kg (ppm)	<0.3	<0.3 J	nm
2-Methylphenol	mg/kg (ppm)	<3	<3 J	nm
Hexachloroethane	mg/kg (ppm)	<0.3	<0.3 J	nm
N-Nitroso-di-n-propylamine	mg/kg (ppm)	<0.3	<0.3 J	nm
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	<6	<6 J	nm
Nitrobenzene	mg/kg (ppm)	<0.3	<0.3 J	nm
Isophorone	mg/kg (ppm)	<0.3	<0.3 J	nm
2-Nitrophenol	mg/kg (ppm)	<3	<3 J	nm
2,4-Dimethylphenol	mg/kg (ppm)	<3	<3 J	nm
Benzoic acid	mg/kg (ppm)	<15	<15 J	nm
Bis(2-chloroethoxy)methane	mg/kg (ppm)	<0.3	<0.3 J	nm
2,4-Dichlorophenol	mg/kg (ppm)	<3	<3 J	nm
1,2,4-Trichlorobenzene	mg/kg (ppm)	<0.3	<0.3 J	nm
Naphthalene	mg/kg (ppm)	1.8	2.3 J	24 a
Hexachlorobutadiene	mg/kg (ppm)	<0.3	<0.3 J	nm
4-Chloroaniline	mg/kg (ppm)	<30	<30 J	nm
4-Chloro-3-methylphenol	mg/kg (ppm)	<3	<3 J	nm
2-Methylnaphthalene	mg/kg (ppm)	5.8	7.3 J	23 vo
Hexachlorocyclopentadiene	mg/kg (ppm)	<0.9	<0.9 J	nm
2,4,6-Trichlorophenol	mg/kg (ppm)	<3	<3 J	nm
2,4,5-Trichlorophenol	mg/kg (ppm)	<3	<3 J	nm
2-Chloronaphthalene	mg/kg (ppm)	<0.3	<0.3 J	nm
2-Nitroaniline	mg/kg (ppm)	<0.3	<0.3 J	nm
Dimethyl phthalate	mg/kg (ppm)	<0.3	<0.3 J	nm
Acenaphthylene	mg/kg (ppm)	<0.3	<0.3 J	nm
2,6-Dinitrotoluene	mg/kg (ppm)	<0.3	<0.3 J	nm
3-Nitroaniline	mg/kg (ppm)	<30	<3 J	nm
Acenaphthene	mg/kg (ppm)	<0.3	<0.3 J	nm
2,4-Dinitrophenol	mg/kg (ppm)	<9	<9 J	nm
Dibenzofuran	mg/kg (ppm)	<0.3	<0.3 J	nm
2,4-Dinitrotoluene	mg/kg (ppm)	<0.3	<0.3 J	nm
4-Nitrophenol	mg/kg (ppm)	<9	<9 J	nm
Diethyl phthalate	mg/kg (ppm)	<0.3	<0.3 J	nm
Fluorene	mg/kg (ppm)	0.71	0.85 J	18
4-Chlorophenyl phenyl ether	mg/kg (ppm)	<0.3	<0.3 J	nm
N-Nitrosodiphenylamine	mg/kg (ppm)	<0.3	<0.3 J	nm
4-Nitroaniline	mg/kg (ppm)	<30	<30 J	nm
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	<9	<9 J	nm
4-Bromophenyl phenyl ether	mg/kg (ppm)	<0.3	<0.3 J	nm
Hexachlorobenzene	mg/kg (ppm)	<0.3	<0.3 J	nm
Pentachlorophenol	mg/kg (ppm)	<3	<3 J	nm
Phenanthrene	mg/kg (ppm)	0.82	0.92 J	11
Anthracene	mg/kg (ppm)	<0.3	<0.3 J	nm
Carbazole	mg/kg (ppm)	<0.3	<0.3 J	nm
Di-n-butyl phthalate	mg/kg (ppm)	<0.3	<0.3 J	nm
Fluoranthene	mg/kg (ppm)	<0.3	<0.3 J	nm
Pyrene	mg/kg (ppm)	<0.3	<0.3 J	nm
Benzyl butyl phthalate	mg/kg (ppm)	<0.3	<0.3 J	nm
Benz(a)anthracene	mg/kg (ppm)	<0.3	<0.3 J	nm
Chrysene	mg/kg (ppm)	<0.3	<0.3 J	nm
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	<3	<3 J	nm
Di-n-octyl phthalate	mg/kg (ppm)	<0.3	<0.3 J	nm
Benzo(a)pyrene	mg/kg (ppm)	<0.3	<0.3 J	nm
Benzo(b)fluoranthene	mg/kg (ppm)	<0.3	<0.3 J	nm
Benzo(k)fluoranthene	mg/kg (ppm)	<0.3	<0.3 J	nm
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	<0.3	<0.3 J	nm
Dibenz(a,h)anthracene	mg/kg (ppm)	<0.3	<0.3 J	nm
Benzo(g,h,i)perylene	mg/kg (ppm)	<0.3	<0.3 J	nm

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	1.7	63	79	51-119	23 vo
Bis(2-chloroethyl) ether	mg/kg (ppm)	1.7	58 vo	72	60-112	22 vo
2-Chlorophenol	mg/kg (ppm)	1.7	65	78	59-114	18
1,3-Dichlorobenzene	mg/kg (ppm)	1.7	66	81	62-113	20
1,4-Dichlorobenzene	mg/kg (ppm)	1.7	65	79	61-114	19
1,2-Dichlorobenzene	mg/kg (ppm)	1.7	65	79	61-113	19
Benzyl alcohol	mg/kg (ppm)	1.7	66	78	50-119	17
Bis(2-chloroisopropyl) ether	mg/kg (ppm)	1.7	65	78	59-113	18
2-Methylphenol	mg/kg (ppm)	1.7	64	77	58-115	18
Hexachloroethane	mg/kg (ppm)	1.7	66	80	63-114	19
N-Nitroso-di-n-propylamine	mg/kg (ppm)	1.7	64	78	62-114	20
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	1.7	64	79	54-120	21 vo
Nitrobenzene	mg/kg (ppm)	1.7	68	81	59-114	17
Isophorone	mg/kg (ppm)	1.7	66	79	61-113	18
2-Nitrophenol	mg/kg (ppm)	1.7	63	76	59-114	19
2,4-Dimethylphenol	mg/kg (ppm)	1.7	61	74	54-107	19
Benzoic acid	mg/kg (ppm)	2.5	112	129	43-150	14
Bis(2-chloroethoxy)methane	mg/kg (ppm)	1.7	66	78	60-114	17
2,4-Dichlorophenol	mg/kg (ppm)	1.7	67	80	57-118	18
1,2,4-Trichlorobenzene	mg/kg (ppm)	1.7	62	74	56-112	18
Naphthalene	mg/kg (ppm)	1.7	67	80	61-113	18
Hexachlorobutadiene	mg/kg (ppm)	1.7	66	79	60-116	18
4-Chloroaniline	mg/kg (ppm)	3.3	44	46	17-66	4
4-Chloro-3-methylphenol	mg/kg (ppm)	1.7	66	78	59-115	17
2-Methylnaphthalene	mg/kg (ppm)	1.7	66	80	60-115	19
Hexachlorocyclopentadiene	mg/kg (ppm)	1.7	51	56	41-107	9
2,4,6-Trichlorophenol	mg/kg (ppm)	1.7	66	78	47-119	17
2,4,5-Trichlorophenol	mg/kg (ppm)	1.7	67	77	61-121	14
2-Chloronaphthalene	mg/kg (ppm)	1.7	65	77	58-114	17
2-Nitroaniline	mg/kg (ppm)	1.7	68	80	55-119	16
Dimethyl phthalate	mg/kg (ppm)	1.7	66	77	58-116	15
Acenaphthylene	mg/kg (ppm)	1.7	65	76	56-114	16
2,6-Dinitrotoluene	mg/kg (ppm)	1.7	67	74	57-119	10
3-Nitroaniline	mg/kg (ppm)	3.3	41	50	31-79	20
Acenaphthene	mg/kg (ppm)	1.7	66	78	57-114	17
2,4-Dinitrophenol	mg/kg (ppm)	1.7	67	81	40-122	19
Dibenzofuran	mg/kg (ppm)	1.7	66	79	56-115	18
2,4-Dinitrotoluene	mg/kg (ppm)	1.7	70	82	53-126	16
4-Nitrophenol	mg/kg (ppm)	1.7	83	97	40-124	16
Diethyl phthalate	mg/kg (ppm)	1.7	67	78	57-116	15
Fluorene	mg/kg (ppm)	1.7	68	84	57-118	21 vo
4-Chlorophenyl phenyl ether	mg/kg (ppm)	1.7	68	84	54-119	21 vo
N-Nitrosodiphenylamine	mg/kg (ppm)	1.7	63	75	54-113	17
4-Nitroaniline	mg/kg (ppm)	3.3	59	64	47-109	8
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	1.7	65	79	57-108	19
4-Bromophenyl phenyl ether	mg/kg (ppm)	1.7	65	76	56-116	16
Hexachlorobenzene	mg/kg (ppm)	1.7	66	77	57-115	15
Pentachlorophenol	mg/kg (ppm)	1.7	77	91	45-123	17
Phenanthrene	mg/kg (ppm)	1.7	66	78	57-113	17
Anthracene	mg/kg (ppm)	1.7	65	77	60-118	17
Carbazole	mg/kg (ppm)	1.7	65	77	57-116	17
Di-n-butyl phthalate	mg/kg (ppm)	1.7	67	79	56-118	16
Fluoranthene	mg/kg (ppm)	1.7	66	78	58-117	17
Pyrene	mg/kg (ppm)	1.7	66	78	58-120	17
Benzyl butyl phthalate	mg/kg (ppm)	1.7	66	78	56-122	17
Benz(a)anthracene	mg/kg (ppm)	1.7	66	73	54-114	10
Chrysene	mg/kg (ppm)	1.7	63	79	57-119	23 vo
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	1.7	66	79	56-125	18
Di-n-octyl phthalate	mg/kg (ppm)	1.7	67	79	58-120	16
Benzo(a)pyrene	mg/kg (ppm)	1.7	66	77	56-119	15
Benzo(b)fluoranthene	mg/kg (ppm)	1.7	64	74	47-121	14
Benzo(k)fluoranthene	mg/kg (ppm)	1.7	68	85	59-126	22 vo
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	1.7	66	76	54-122	14
Dibenz(a,h)anthracene	mg/kg (ppm)	1.7	68	79	54-128	15
Benzo(g,h,i)perylene	mg/kg (ppm)	1.7	67	77	55-122	14

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR PNA'S BY EPA METHOD 8270D SIM

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	1	85	76	64-100	11
Acenaphthylene	ug/L (ppb)	1	87	77	67-104	12
Acenaphthene	ug/L (ppb)	1	87	77	65-103	12
Fluorene	ug/L (ppb)	1	91	79	64-106	14
Phenanthrene	ug/L (ppb)	1	89	78	66-106	13
Anthracene	ug/L (ppb)	1	89	79	67-112	12
Fluoranthene	ug/L (ppb)	1	93	80	69-116	15
Pyrene	ug/L (ppb)	1	91	81	68-115	12
Benz(a)anthracene	ug/L (ppb)	1	88	76	59-100	15
Chrysene	ug/L (ppb)	1	94	83	66-103	12
Benzo(b)fluoranthene	ug/L (ppb)	1	99	83	59-114	18
Benzo(k)fluoranthene	ug/L (ppb)	1	94	85	55-111	10
Benzo(a)pyrene	ug/L (ppb)	1	95	84	54-111	12
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	1	100	93	35-124	7
Dibenz(a,h)anthracene	ug/L (ppb)	1	90	82	35-116	9
Benzo(g,h,i)perylene	ug/L (ppb)	1	88	81	39-114	8

Date of Report: 09/30/11
Date Received: 09/19/11
Project: Former Petro Marine Tank Farm, F&BI 109245

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	50	36	34	18-52	6
Bis(2-chloroethyl) ether	ug/L (ppb)	50	62	60	52-113	3
2-Chlorophenol	ug/L (ppb)	50	68	65	50-110	5
1,3-Dichlorobenzene	ug/L (ppb)	50	72	68	45-109	6
1,4-Dichlorobenzene	ug/L (ppb)	50	70	66	44-118	6
1,2-Dichlorobenzene	ug/L (ppb)	50	69	66	46-116	4
Benzyl alcohol	ug/L (ppb)	50	63	60	42-100	5
Bis(2-chloroisopropyl) ether	ug/L (ppb)	50	72	69	51-124	4
2-Methylphenol	ug/L (ppb)	50	62	59	38-100	5
Hexachloroethane	ug/L (ppb)	50	71	67	42-117	6
N-Nitroso-di-n-propylamine	ug/L (ppb)	50	67	66	48-124	2
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	50	59	56	48-87	5
Nitrobenzene	ug/L (ppb)	50	73	70	50-118	4
Isophorone	ug/L (ppb)	50	73	70	55-116	4
2-Nitrophenol	ug/L (ppb)	50	68	65	42-127	5
2,4-Dimethylphenol	ug/L (ppb)	50	57	58	45-100	2
Benzoic acid	ug/L (ppb)	75	58 vo	49 vo	10-46	17
Bis(2-chloroethoxy)methane	ug/L (ppb)	50	71	69	55-115	3
2,4-Dichlorophenol	ug/L (ppb)	50	71	69	55-113	3
1,2,4-Trichlorobenzene	ug/L (ppb)	50	66	63	50-109	5
Naphthalene	ug/L (ppb)	50	71	68	53-112	4
Hexachlorobutadiene	ug/L (ppb)	50	71	67	50-109	6
4-Chloroaniline	ug/L (ppb)	100	51	55	34-85	8
4-Chloro-3-methylphenol	ug/L (ppb)	50	70	68	54-114	3
2-Methylnaphthalene	ug/L (ppb)	50	71	68	53-113	4
Hexachlorocyclopentadiene	ug/L (ppb)	50	41	49	26-94	18
2,4,6-Trichlorophenol	ug/L (ppb)	50	70	68	46-114	3
2,4,5-Trichlorophenol	ug/L (ppb)	50	72	70	57-122	3
2-Chloronaphthalene	ug/L (ppb)	50	70	68	52-112	3
2-Nitroaniline	ug/L (ppb)	50	74	72	47-128	3
Dimethyl phthalate	ug/L (ppb)	50	72	70	55-116	3
Acenaphthylene	ug/L (ppb)	50	70	68	52-112	3
2,6-Dinitrotoluene	ug/L (ppb)	50	70	67	49-126	4
3-Nitroaniline	ug/L (ppb)	100	47	50	32-89	6
Acenaphthene	ug/L (ppb)	50	71	68	52-114	4
2,4-Dinitrophenol	ug/L (ppb)	50	77	73	29-130	5
Dibenzofuran	ug/L (ppb)	50	70	69	53-113	1
2,4-Dinitrotoluene	ug/L (ppb)	50	74	72	48-129	3
4-Nitrophenol	ug/L (ppb)	50	45	42	12-59	7
Diethyl phthalate	ug/L (ppb)	50	72	70	55-116	3
Fluorene	ug/L (ppb)	50	73	71	54-115	3
4-Chlorophenyl phenyl ether	ug/L (ppb)	50	73	70	52-115	4
N-Nitrosodiphenylamine	ug/L (ppb)	50	68	67	51-112	1
4-Nitroaniline	ug/L (ppb)	100	64	63	42-115	2
4,6-Dinitro-2-methylphenol	ug/L (ppb)	50	73	71	40-128	3
4-Bromophenyl phenyl ether	ug/L (ppb)	50	69	69	53-114	0
Hexachlorobenzene	ug/L (ppb)	50	69	69	54-115	0
Pentachlorophenol	ug/L (ppb)	50	84	83	49-114	1
Phenanthrene	ug/L (ppb)	50	71	70	53-113	1
Anthracene	ug/L (ppb)	50	70	70	56-119	0
Carbazole	ug/L (ppb)	50	70	69	54-115	1
Di-n-butyl phthalate	ug/L (ppb)	50	72	71	54-115	1
Fluoranthene	ug/L (ppb)	50	70	70	55-116	0
Pyrene	ug/L (ppb)	50	71	70	54-121	1
Benzyl butyl phthalate	ug/L (ppb)	50	72	71	53-122	1
Benz(a)anthracene	ug/L (ppb)	50	67	66	52-114	2
Chrysene	ug/L (ppb)	50	73	71	54-119	3
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	50	73	71	54-122	3
Di-n-octyl phthalate	ug/L (ppb)	50	74	72	50-131	3
Benzo(a)pyrene	ug/L (ppb)	50	72	70	54-120	3
Benzo(b)fluoranthene	ug/L (ppb)	50	66	65	46-118	2
Benzo(k)fluoranthene	ug/L (ppb)	50	83	77	56-125	7
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	50	71	69	52-120	3
Dibenz(a,h)anthracene	ug/L (ppb)	50	74	72	54-122	3
Benzo(g,h,i)perylene	ug/L (ppb)	50	72	70	54-118	3

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

109245

SAMPLE CHAIN OF CUSTODY ME 09-19-11

R2/CF2/B05

Page # 1 of 2

Send Report To Elijah Donat
Company Chilkat Environmental
Address PO Box 865
City, State, ZIP Haines, AK 99827
Phone # 907-303-7899 Fax #

SAMPLERS (signature)

PROJECT NAME/NO.: Former Petro Marine Tank Farm Haines

PO#

REMARKS 8 containers per water sample:
1-Liter - DRO/RRO
1-liter - SVOC
4-VOA - HCL & 2 VOA no preservative

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☒ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	AK101 GRO	AK102 DRO	AK103 RRO				Notes
						ANALYSES REQUESTED												
A	01A-C	9.15.11	1143	Soil	3				X	X		X	X	X				1-8oz 2-40z w/ MeOH
B	02 T	9.15.11	1217	Soil	3				X	X		X	X	X				
C	03	9.15.11	1403	Soil	3				X	X		X	X	X				
D	04	9.15.11	1412	Soil	3				X	X		X	X	X				
E	05	9.15.11	1501	Soil	3				X	X		X	X	X				
F	06	9.15.11	1602	Soil	3				X	X		X	X	X				
MeOH BLANK	07	9.15.11	—	—	1													Run if Needed
TEMP BLANK		9.15.11	—	—	1													
1	08A-H	9.15.11	1347	WATER	8				X	X		X	X	X				1 Liter - RRO/DRO 1 Liter - SVOC 4x HCl 2x NO
1-D	09 T	9.15.11	1350	WATER	8				X	X		X	X	X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Elijah Donat	Chilkat Env	9.16.11	0930
Received by:	Nhan Phan	FeBI	9/19/11	0715
Relinquished by:				
Received by:		Samples received at 4 °C		

109245

SAMPLE CHAIN OF CUSTODY 09-19-11

V2/CH2/B05

Page # 2 of 2

Send Report To Elijah Donat
Company Chilkat Environmental
Address PO Box 865
City, State, ZIP Haines, Ak. 99827
Phone # 907/303/7599 Fax #

SAMPLERS (signature)

PROJECT NAME/NO. former Petro Marine Tank Farm Haines

PO#

REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☑ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	AK 101 GRO	AK 102 DRO	AK 103 RRO				Notes
						ANALYSES REQUESTED												
2	10A-H	9-15-11	1444	Water	8				X	X		X	X	X				
3	11A-H	9-15-11	1618	Water	8				X	X		X	X	X				

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Received by:	Nhan Phan	FEBI	9/16/11	0715
Relinquished by:				
Received by:		Samples received at 4 °C		

FORMS\COC\COC.DOC

Laboratory Data Review Checklist

Completed by: Elijah Doncat

Title: Project Manager

Date: 3/11/12

CS Report Name: Former Petro Marine Tank Farm Haines II

Report Date: 9/30/11

Consultant Firm: Chilkat Env.

Laboratory Name: F&B

Laboratory Report Number: 109245

ADEC File Number: 1508.38.020 Ledger Code: 14147760

ADEC RecKey Number:

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
   ☒ Yes ☐ No Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
   ☐ Yes ☐ No Comments: N/A

2. Chain of Custody (COC)

   a. COC information completed, signed, and dated (including released/received by)?
   ☒ Yes ☐ No Comments:

   b. Correct analyses requested?
   ☒ Yes ☐ No Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?

☒ Yes ☐ No Comments: 4°C

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

☒ Yes ☐ No Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

☒ Yes ☐ No Comments: No issues

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

☐ Yes ☒ No Comments:

e. Data quality or usability affected? Explain.

No Comments:

4. Case Narrative

a. Present and understandable?

☒ Yes ☐ No Comments:

b. Discrepancies, errors or QC failures identified by the lab?

☒ Yes ☐ No Comments:

c. Were all corrective actions documented?

☒ Yes ☐ No Comments:

d. What is the effect on data quality/usability according to the case narrative?

Comments: Several analytes reported as estimates, no effect on usability.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

☒ Yes ☐ No Comments:

b. All applicable holding times met?

☒ Yes ☐ No Comments:

c. All soils reported on a dry weight basis?

☒ Yes ☐ No Comments:

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

☐ Yes ☒ No Comments: VOC table attached

e. Data quality or usability affected?

No

Comments:

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

☒ Yes ☐ No Comments:

ii. All method blank results less than PQL?

☒ Yes ☐ No Comments:

iii. If above PQL, what samples are affected?

None.

Comments:

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☒ Yes ☐ No Comments:

v. Data quality or usability affected? Explain.

No Comments:

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

☒ Yes ☐ No Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

☒ Yes ☐ No Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

☐ Yes ☒ No Comments: Bis(2-chloroethyl) ether (8270 soil) and Benzoic Acid (8270 water) outside acceptance criteria. Analytes not detected.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

☐ Yes ☒ No Comments: OUT = Chloromethane, Acetone, methylene chloride (8260 water LCS/LCSD); 2-methylnaphthalene (8270D soil sample/dup) phenol, Bis(2-chloroethyl)ether, 3&4-methylphenol, diethyl phthalate, fluorene, benz(a)anthracene, benzo(b) fluoranthene (8270D soil LCS/D)

v. If %R or RPD is outside of acceptable limits, what samples are affected? Comments:

None affected

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

☒ Yes ☐ No Comments:

vii. Data quality or usability affected? (Use comment box to explain)

No Comments:

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

☒ Yes ☐ No Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

☐ Yes ☒ No Comments: several AK102, AK103 surrogates out due to matrix interferences.

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

☒ Yes ☐ No Comments:

DATA FLAGGED AS "IP"

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

No

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and cooler?

☒ Yes ☐ No Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

☒ Yes ☐ No Comments:

iii. All results less than PQL?

☒ Yes ☐ No Comments:

iv. If above PQL, what samples are affected?

Comments:

None

v. Data quality or usability affected? Explain.

Comments:

No

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

☒ Yes ☐ No Comments:

ii. Submitted blind to lab?

☐ Yes ☒ No Comments:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

☐ Yes ☐ No Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below.)

☐ Yes ☐ No ☐ Not Applicable

i. All results less than PQL?

☐ Yes ☐ No Comments:

ii. If above PQL, what samples are affected?

Comments:

iii. Data quality or usability affected? Explain.

Comments:

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

☐ Yes ☐ No Comments:

Attachment H:

Conceptual Site Model

Human Health Conceptual Site Model
Scoping Form

Site Name: Former Petro Marine Tank Farm. aka Haines II

File Number: ADEC 1508 38.020

Completed by: Elijah Donat, Principal Investigator. Chilkat Env.

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, a CSM graphic and text must be submitted with the site characterization work plan.

General Instructions: Follow the italicized instructions in each section below.

1. *General Information:*

Sources *(check potential sources at the site)*

- ☐ USTs
- ☑ ASTs
- ☑ Dispensers/fuel loading racks
- ☑ Drums
- ☑ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☑ Other: historic tank farm

Release Mechanisms *(check potential release mechanisms at the site)*

- ☑ Spills
- ☑ Leaks
- ☑ Direct discharge
- ☐ Burning
- ☑ Other: oil water separator

Impacted Media *(check potentially-impacted media at the site)*

- ☑ Surface soil (0-2 feet bgs*)
- ☑ Subsurface Soil (>2 feet bgs)
- ☐ Air
- ☑ Groundwater
- ☑ Surface water
- ☐ Other: _____

Receptors (*check receptors that could be affected by contamination at the site)*

- ☐ Residents (adult or child)
- ☑ Commercial or industrial worker
- ☑ Construction worker
- ☐ Subsistence harvester (i.e., gathers wild foods)
- ☐ Subsistence consumer (i.e., eats wild foods)
- ☑ Site visitor
- ☑ Trespasser
- ☐ Recreational user
- ☐ Farmer
- ☐ Other: _____

* bgs – below ground surface

2. *Exposure Pathways:* *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact –

1 Incidental Soil Ingestion

Is soil contaminated anywhere between 0 and 15 feet bgs? ☑

Do people use the site or is there a chance they will use the site in the future? ☑

If both boxes are checked, label this pathway complete: complete

2 Dermal Absorption of Contaminants from Soil

Is soil contaminated anywhere between 0 and 15 feet bgs? ☑

Do people use the site or is there a chance they will use the site in the future? ☑

Can the soil contaminants permeate the skin? (Contaminants listed below, or within the groups listed below, should be evaluated for dermal absorption). ☑

Arsenic	Lindane
Cadmium	PAHs
Chlordane	Pentachlorophenol
2,4-dichlorophenoxyacetic acid	PCBs
Dioxins	SVOCs
DDT	

If all of the boxes are checked, label this pathway complete: complete

b) Ingestion –

1 Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, OR are contaminants expected to migrate to groundwater in the future? ☑

Could the potentially affected groundwater be used as a current or future drinking water source? *Please note, only leave the box unchecked if ADEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350.* ☐

If both the boxes are checked, label this pathway complete: _____

2 Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water OR are contaminants expected to migrate to surface water in the future? ☑

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? *Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities).* ☐

If both boxes are checked, label this pathway complete: _____

3 Ingestion of Wild Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild food? ☐

Do the site contaminants have the potential to bioaccumulate (*see* Appendix A)? ☐

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. the top 6 feet of soil, in groundwater that **could be** connected to surface water, etc.) ☐

If all of the boxes are checked, label this pathway complete: _____

c) Inhalation

1 Inhalation of Outdoor Air

Is soil contaminated anywhere between 0 and 15 feet bgs? ☑

Do people use the site or is there a chance they will use the site in the future? ☑

Are the contaminants in soil volatile (*See Appendix B*)? ☑

If all of the boxes are checked, label this pathway complete: complete

2 Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be placed on the site in an area that could be affected by contaminant vapors? (i.e., within 100 feet, horizontally or vertically, of the contaminated soil or groundwater, <u>or</u> subject to "preferential pathways" that promote easy airflow, like utility conduits or rock fractures) ☐

Are volatile compounds present in soil or groundwater (*See Appendix C*)? ☐

If both boxes are checked, label this pathway complete: _____

3. Additional Exposure Pathways: *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Exposure from this pathway may need to be assessed only in cases where DEC water-quality or drinking-water standards are not being applied as cleanup levels. Examples of conditions that may warrant further investigation include:

- Climate permits recreational use of waters for swimming,
- Climate permits exposure to groundwater during activities, such as construction, without protective clothing, or
- Groundwater or surface water is used for household purposes.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Volatile Compounds in Household Water

Exposure from this pathway may need to be assessed only in cases where DEC water-quality or drinking-water standards are not being applied as cleanup levels. Examples of conditions that may warrant further investigation include:

- The contaminated water is used for household purposes such as showering, laundering, and dish washing, and
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix B)

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Fugitive Dust

Generally DEC soil ingestion cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway, although this is not true in the case of chromium. Examples of conditions that may warrant further investigation include:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers. This size can be inhaled and would be of concern for determining if this pathway is complete.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during recreational or some types of subsistence activities. People then incidentally **ingest** sediment from normal hand-to-mouth activities. In addition, **dermal absorption of contaminants** may be of concern if people come in contact with sediment and the contaminants are able to permeate the skin (see dermal exposure to soil section). This type of exposure is rare but it should be investigated if:

- Climate permits recreational activities around sediment, and/or
- Community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

ADEC soil ingestion cleanup levels are protective of direct contact with sediment. If they are determined to be over-protective for sediment exposure at a particular site, other screening levels could be adopted or developed.

Check the box if further evaluation of this pathway is needed: ☑

Comments:

Subject property is across street and up gradient from community waterfront but contamination has not been observed there

4. Other Comments (*Provide other comments as necessary to support the information provided in this form.)*

The roadside ditch appears to be performing as an oil water separator thereby mitigating migration of contaminated soil and water. The ditch is not normally accessed, is overgrown and pedestrian facilities are on the other (waterfront) side of the street. Direct exposure to the contaminated soil and water is not anticipated except during construction activities. Off site migration has extended into the right of way. It is unknown if the contaminated soil and water extend under the road or to the other side were the slope drops into the tideland and no contamination has been observed.

APPENDIX A

BIOACCUMULATIVE COMPOUNDS

Table A-1: List of Compounds of Potential Concern for Bioaccumulation

Organic compounds are identified as bioaccumulative if they have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5. Inorganic compounds are identified as bioaccumulative if they are listed as such by EPA (2000). Those compounds in Table X of 18 AAC 75.345 that are bioaccumulative, based on the definition above, are listed below.

Aldrin	DDT	Lead
Arsenic	Dibenzo(a,h)anthracene	Mercury
Benzo(a)anthracene	Dieldrin	Methoxychlor
Benzo(a)pyrene	Dioxin	Nickel
Benzo(b)fluoranthene	Endrin	PCBs
Benzo(k)fluoranthene	Fluoranthene	
Cadmium	Heptachlor	Pyrene
Chlordane	Heptachlor epoxide	Selenium
Chrysene	Hexachlorobenzene	Silver
Copper	Hexachlorocyclopentadiene	Toxaphene
DDD	Indeno(1,2,3-c,d)pyrene	Zinc
DDE		

Because BCF values can relatively easily be measured or estimated, the BCF is frequently used to determine the potential for a chemical to bioaccumulate. A compound with a BCF greater than 1,000 is considered to bioaccumulate in tissue (EPA 2004b).

For inorganic compounds, the BCF approach has not been shown to be effective in estimating the compound's ability to bioaccumulate. Information available, either through scientific literature or site-specific data, regarding the bioaccumulative potential of an inorganic site contaminant should be used to determine if the pathway is complete.

The list was developed by including organic compounds that either have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5 and inorganic compounds that are listed by the United States Environmental Protection Agency (EPA) as being bioaccumulative (EPA 2000). The BCF can also be estimated from a chemical's physical and chemical properties. A chemical's octanol-water partitioning coefficient (K_{ow}) along with defined regression equations can be used to estimate the BCF. EPA's Persistent, Bioaccumulative, and Toxic (PBT) Profiler (EPA 2004) can be used to estimate the BCF using the K_{ow} and linear regressions presented by Meylan et al. (1996). The PBT Profiler is located at http://www.pbtprofiler.net/. For compounds not found in the PBT Profiler, DEC recommends using a log K_{ow} greater than 3.5 to determine if a compound is bioaccumulative.

APPENDIX B

VOLATILE COMPOUNDS

Table B-1: List of Volatile Compounds of Potential Concern
Common volatile contaminants of concern at contaminated sites. A chemical is defined as volatile if the Henry's Law constant is 1 x 10^{-5} atm-m^3/mol or greater and the molecular weight less than 200 g/mole (g/mole; EPA 2004a). Those compounds in Table X of 18 AAC 75.345 that are volatile, based on the definition above, are listed below.

Acenaphthene	1,4-dichlorobenzene	Pyrene
Acetone	1,1-dichloroethane	Styrene
Anthracene	1,2-dichloroethane	1,1,2,2-tetrachloroethane
Benzene	1,1-dichloroethylene	Tetrachloroethylene
Bis(2-chlorethyl)ether	Cis-1,2-dichloroethylene	Toluene
Bromodichloromethane	Trans-1,2-dichloroethylene	1,2,4-trichlorobenzene
Carbon disulfide	1,2-dichloropropane	1,1,1-trichloroethane
Carbon tetrachloride	1,3-dichloropropane	1,1,2-trichloroethane
Chlorobenzene	Ethylbenzene	Trichloroethylene
Chlorodibromomethane	Fluorene	Vinyl acetate
Chloroform	Methyl bromide	Vinyl chloride
2-chlorophenol	Methylene chloride	Xylenes
Cyanide	Naphthalene	GRO
1,2-dichlorobenzene	Nitrobenzene	DRO

APPENDIX C

COMPOUNDS OF CONCERN FOR VAPOR MIGRATION

Table C-1: List of Compounds of Potential Concern for the Vapor Migration

A chemical is considered sufficiently toxic if the vapor concentration of the pure component poses an incremental lifetime cancer risk greater than 10-6 or a non-cancer hazard index greater than 1. A chemical is considered sufficiently volatile if it's Henry's Law constant is 1 x 10^{-5} atm-m^3/mol or greater.

Acenaphthene	Dibenzofuran	Hexachlorobenzene
Acetaldehyde	1,2-Dibromo-3-chloropropane	Hexachlorocyclopentadiene
Acetone	1,2-Dibromoethane (EDB)	Hexachloroethane
Acetonitrile	1,3-Dichlorobenzene	Hexane
Acetophenone	1,2-Dichlorobenzene	Hydrogen cyanide
Acrolein	1,4-Dichlorobenzene	Isobutanol
Acrylonitrile	2-Nitropropane	Mercury (elemental)
Aldrin	N-Nitroso-di-n-butylamine	Methacrylonitrile
alpha-HCH (alpha-BHC)	n-Propylbenzene	Methoxychlor
Benzaldehyde	o-Nitrotoluene	Methyl acetate
Benzene	o-Xylene	Methyl acrylate
Benzo(b)fluoranthene	p-Xylene	Methyl bromide
Benzylchloride	Pyrene	Methyl chloride chloromethane)
beta-Chloronaphthalene	sec-Butylbenzene	Methylcyclohexane
Biphenyl	Styrene	Methylene bromide
Bis(2-chloroethyl)ether	tert-Butylbenzene	Methylene chloride
Bis(2-chloroisopropyl)ether	1,1,1,2-Tetrachloroethane	Methylethylketone (2-butanone)
Bis(chloromethyl)ether	1,1,2,2-Tetrachloroethane	Methylisobutylketone
Bromodichloromethane	Tetrachloroethylene	Methylmethacrylate
Bromoform	Dichlorodifluoromethane	2-Methylnaphthalene
1,3-Butadiene	1,1-Dichloroethane	MTBE
Carbon disulfide	1,2-Dichloroethane	m-Xylene
Carbon tetrachloride	1,1-Dichloroethylene	Naphthalene
Chlordane	1,2-Dichloropropane	n-Butylbenzene
2-Chloro-1,3-butadiene (chloroprene)	1,3-Dichloropropene	Nitrobenzene
Chlorobenzene	Dieldrin	Toluene
1-Chlorobutane	Endosulfan	trans-1,2-Dichloroethylene
Chlorodibromomethane	Epichlorohydrin	1,1,2-Trichloro-1,2,2-trifluoroethane
Chlorodifluoromethane	Ethyl ether	1,2,4-Trichlorobenzene
Chloroethane (ethyl chloride)	Ethylacetate	1,1,2-Trichloroethane
Chloroform	Ethylbenzene	1,1,1-Trichloroethane
2-Chlorophenol	Ethylene oxide	Trichloroethylene
2-Chloropropane	Ethylmethacrylate	Trichlorofluoromethane
Chrysene	Fluorene	1,2,3-Trichloropropane
cis-1,2-Dichloroethylene	Furan	1,2,4-Trimethylbenzene
Crotonaldehyde (2-butenal)	Gamma-HCH (Lindane)	1,3,5-Trimethylbenzene
Cumene	Heptachlor	Vinyl acetate
DDE	Hexachloro-1,3-butadiene	Vinyl chloride (chloroethene)

Source: EPA 2002.