SUPPLEMENTAL MONITORING REPORT:

SURFACE WATER MONITORING and 2008 SITE VISIT

CAMP LONELY LANDFILL, ALASKA

December 2008

Hoefler

CONSULTING GROUP

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CAMP LONELY LANDFILL, ALASKA

December 2008

Prepared for:

The Camp Lonely Landfill Potentially Responsible Parties

Prepared by:

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TABLE OF CONTENTS

1 INTRODUCTION 1
2 2008 SITE INSPECTION 1
3 SURFACE WATER SAMPLING ACTIVITIES 2
4 SURFACE WATER SAMPLE RESULTS 2
4.1 CLSW01 Characterization Samples 2
4.2 CLSW12 Characterization Samples 2
4.3 Quality Control Samples 3
5 BOOM REMOVAL ACTIVITIES 3
6 SUMMARY 4
7 REFERENCES 4

TABLES

Table 1. Surface Water Sample Results 5

FIGURES

Figure 1. Surface Water and Pore Water Sample Results, 2005-2008 6

APPENDICES

Appendix A Photo Log
Appendix B Laboratory Analytical Report
Appendix C Data Quality Assessment and ADEC Laboratory Data Review Checklist

1 INTRODUCTION

This Supplemental Monitoring Report presents the results from continued site monitoring at the Camp Lonely landfill, conducted on August 13, 2008 by Hoefler Consulting Group (HCG). The fieldwork was conducted following the ADEC-approved 2005 Work Plan for Camp Lonely (HCG 2005) and the ADEC-approved *Camp Lonely Site Characterization and Interim Action Work Plan Addendum* (HCG 2006a). Previous site activities and background are detailed in the reports *Final Report, Site Characterization and Interim Remedial Actions, Camp Lonely Landfill, Alaska* (HCG 2006b) and *Supplemental Monitoring Report: 2006 Site Characterization and Boom Maintenance, Camp Lonely Landfill, Alaska (Final)* (HCG 2007).

The fieldwork was performed as a supplement to the 2006 field activities to provide for continued monitoring of surface water at the site. The specific objectives of the 2008 fieldwork were to:

- Document current site conditions and perform maintenance on interim action locations, if needed;
- Re-sample surface water at sample location CLSW01 to determine if there are Alaska Water Quality Standard (AWQS) (18 AAC 70) exceedances for total aromatic hydrocarbons (TAH), and total aqueous hydrocarbons (TAqH);
- Sample surface water at 2006 sample location CLSW12 for TAH and TAqH to determine if these compounds are present in exceedance of AWQS;
- Inspect and, if necessary, replace or remove the sorbent boom downgradient of the former Drainage Course Drum and surrounding the Test Pit 16 area; and
- Produce a summary report documenting these activities and the associated results.

2 2008 SITE INSPECTION

A general inspection of the pad was conducted by Bret Berglund and Brent Veltkamp of HCG to document the 2008 site conditions. The surface of the pad and its entire perimeter were inspected during a site walk. Photographs of notable observations are contained in Appendix A.

The overall condition of the pad was good. There was no visual evidence of recent releases of hazardous substances (e.g., there were no new petroleum seeps or staining from buried or exposed drums). No petroleum-like sheens where observed on surface water adjacent to the pad.

The pad surface was well graded and did not appear subject to subsidence or thermokarsting. The pad was well drained with only a few isolated locations where standing water a few inches deep was present. Active erosion appeared evident along the northeast corner of the pad based on the presence of a 3-4 foot escarpment of gravel fill. However, erosion was not as pronounced as at the Point Lonely DEW line site, further to the east. A comparison of the current shoreline with its location in 2002 aerial photography indicates there has not been a dramatic change in the shoreline position, which is in contrast to Point Lonely, where the erosion rate is on the order of 10 feet per year. At its closest point, the Beaufort Sea was approximately 75 feet from the edge of the pad. There was no noticeable erosion of the landfill area along the western edge of the pad, other than incidental, localized sloughing of gravel. Coastal erosion was not causing buried debris to become exposed. Two stockpiles of gravel were present on the pad with an estimated total volume of around 1,000 cubic yards. The smaller of the two piles was located close to the edge of the pad on the northeast corner. It may start to lose gravel within the next couple years due to coastal erosion (see photograph 10).

3 SURFACE WATER SAMPLING ACTIVITIES

Water sampling was performed by Brent Veltkamp and Ben Siwiec of HCG. Water samples were collected downgradient of the landfill at previously sampled locations to assess current site conditions. Surface water samples were collected from surface water bodies adjacent to the gravel pad to evaluate potential contaminant migration from the landfill.

Sample location CLSW01 was sampled as part of the 2005 and 2006 site investigations; this location was sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) by Method 8021B and Polynuclear Aromatic Hydrocarbons (PAH) by Method 8270 SIM (TAH is the sum of BTEX concentrations, and TAqH is the sum of TAH and PAH compounds). 2006 Sample location CLSW12 was also sampled for BTEX and PAH. This location was sampled in 2006 for glycols, however, petroleum hydrocarbon samples were not collected previously.

4 SURFACE WATER SAMPLE RESULTS

Table 1 lists the samples collected, analyses performed, and analytical results for the 2008 surface water samples. Also included in the table are analytical results for 2005 and 2006 samples collected from these locations, as well as sample location CLSW02, which was not sampled in August 2008. Sample location CLSW02 is located in the same pond as CLSW12, at a distance of approximately 40 feet from the gravel pad. Figure 1 shows a map of the landfill site, indicating the sample locations and analytical results. Site photos from sampling activities are presented in Appendix A. The full laboratory analytical report is presented in Appendix B.

4.1 CLSW01 Characterization Samples

Surface water at the 2005 CLSW01 sample location was sampled to determine if there is a seasonal or persistent release of BTEX or PAH compounds at this location (Figure 1). During previous sampling events, the sample location was an isolated, shallow, small pond approximately 5 by 10 feet, and 2 inches deep. During the 2008 sampling, the location contained very shallow water, less than 1 inch deep, with visible flow coming from the direction of the gravel pad. No sheening was observed on the water surface at the sample location after sediments were disturbed. Photos 1 and 2 in Appendix A show photos of the sampling location. The 2008 sample was designated CLSW01-08.

Sample CLSW01-08, as well as a duplicate sample CLSW91-08, was analyzed for BTEX and PAHs. Sample results show that the benzene concentration in August 2008 was 2.96 micrograms per liter (µg/L) for the primary sample (Table 1). The TAH (total BTEX) and the TAqH concentrations were 7.38 and 7.42 µg/L, respectively. Unlike the 2005 and 2006 sample results, these concentrations do not exceed AWQS for benzene, TAH and TAqH.

4.2 CLSW12 Characterization Samples

The surface water at the 2006 CLSW12 sample location was sampled to determine if petroleum hydrocarbons from the landfill are being released into adjacent surface-water bodies. Previously, this location had been sampled only for glycols, which were not reported above method reporting limits. The sample location is a shallow pond directly adjacent to the gravel pad. The pond is 8 inches deep at the sample location, adjacent to the toe of the gravel pad for approximately 325 feet, and is approximately 100 feet wide at its widest point. No surface water sheening was observed at the sample location. Photos 3 and 4 in Appendix A show the sampling location for the 2008 sample, designated CLSW12-08.

Sample results for CLSW12-08 indicate that the benzene concentration in August 2008 was 2.59 µg/L (Table 1). The TAH (total BTEX) and the TAqH concentrations were 31.76 and 32.14 µg/L, respectively, both exceedances of the AWQS TAH and TAqH standards. TAH is the sum of the BTEX compounds, while TAqH is the sum of the TAH and the total PAH. Thus, the TAqH exceedance is almost entirely due to the TAH component (BTEX compounds). The PAH compounds are almost all below method detection limits, and their contribution to the TAqH exceedance is insignificant. Therefore, the PAH compounds and TAqH exceedance are not considered a concern. However, all BTEX compounds contribute significantly to the TAH exceedance.

It should be noted that none of the BTEX compounds exceed the National Oceanic & Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuIRTs) for the protection of aquatic life (Table 1). Therefore, the ecological risk posed by the BTEX compounds may not be as significant as suggested by the AWQS exceedances. The water body where the AWQS exceedances occurred is best classified as a shallow brackish pond. It does not support fish, however, waterfowl and macro-invertebrates were observed in the pond in August of 2005 and 2006.

4.3 Quality Control Samples

The laboratory data was reviewed by HCG in accordance with ADEC's Environmental Laboratory Data and Quality Assurance Requirements (ADEC 2006). The corresponding ADEC Data Review Checklist and Data Quality Assessment is presented in Appendix C.

For 8021B BTEX analysis, there were no significant laboratory errors or quality control issues, and all of the sample results met the data quality objectives. Multiple anomalies occurred during the analysis of samples for 8270C PAH-SIM, however, and all sample results have been flagged J- on summary spreadsheets, indicating that sample results are considered estimated, with a low bias. The initial analysis of PAH samples was reported with low surrogate recovery, low LCS recovery, and low MS/MSD recovery. Samples were re-extracted and re-analyzed, however this analysis was three days outside of holding times. Results from the second analysis confirmed the initial results, with acceptable quality control results. The initial results were reported in the laboratory report. All results are significantly below 18 AAC 75 Table C Groundwater Cleanup Levels (June 9, 2008), and are considered usable.

5 BOOM REMOVAL ACTIVITIES

Sorbent boom was removed in August 2008 at two locations. Boom had been replaced in August 2006 where 2005 interim actions were taken to prevent the migration of petroleum hydrocarbons from a formerly leaking drum, uncovered in 2005 and referred to as the "Drainage Course Drum". Boom was also present surrounding the liner covering contaminated soil in Test Pit 16, where interim remedial actions were performed in 2005 (HCG 2006b).

In August 2008, the boom at Test Pit 16 was deteriorating and beginning to lose fill material, and boom at the Drainage Course Drum showed signs of wear. None of the boom exhibited staining that appeared oily or of a hydrocarbon nature. After completing the inspection it was decided that the boom was no longer needed and if left in place it would likely continue to deteriorate and litter the site. Therefore, the boom material was removed from the site and transported to the Pt. Lonely DEW line site for incineration. In addition, several small holes in the liner covering the Test Pit 16 soil were patched with duct tape. Photos 5 and 6 in Appendix A show the location of the sorbent boom prior to removal.

6 SUMMARY

HCG conducted fieldwork in August 2008 to continue surface water monitoring and characterization at Camp Lonely. Environmental samples from two previously sampled locations to the west of the landfill area were collected to evaluate the potential for migration of contaminants to the nearby surface water bodies.

The 2008 surface water results, together with surface water, pore water, and soil results from previous investigations, suggest that dissolved petroleum hydrocarbons are being transported by active zone pore water from the interior of the landfill to the edge, causing exceedances of AWQS for TAH and TAqH. However, at one location (CLSW01) BTEX concentrations were less than in 2005 and 2006 and no longer exceed AWQS. The direct migration of non aqueous petroleum hydrocarbons (free product) is not suspected of being the source of the BTEX in the surface water, as there were no visible surface seeps or visible surface water sheening. The source of the elevated BTEX compounds appears to be localized and located within the interior of the landfill as opposed to the soils around its perimeter. The source of the elevated BTEX is unknown, but may be originating from a source within the landfill such as a buried drum with a small quantity of diesel fuel. Previous results indicate that the soil along the edge of the landfill has relatively low contaminant concentrations and is unlikely to be the cause of the AWQS exceedances.

7 REFERENCES

Alaska Department of Environmental Conservation (ADEC), 2006. Environmental Laboratory Data and Quality Assurance Requirements. Technical Memorandum – 06-002. October 9.

Hoefler Consulting Group (HCG). 2005. *Site Characterization and Interim Action Work Plan, Camp Lonely Landfill, Alaska.* Prepared by HCG and Husky Oil Operations Limited for the Camp Lonely Landfill Potential Responsible Parties. Final. June 2005.

HCG. 2006a. *Camp Lonely Site Characterization and Interim Action Work Plan Addendum.* Prepared by HCG and Husky Oil Operations Limited for the Camp Lonely Landfill Potential Responsible Parties. August 16, 2006.

HCG. 2006b. *Site Characterization and Interim Remedial Actions, Camp Lonely Landfill, Alaska.* Prepared by HCG and Husky Oil Operations Limited for the Camp Lonely Landfill Potential Responsible Parties. Final. January 31, 2006.

HCG. 2006c. *Camp Lonely Feasibility Study.* Prepared by HCG and Husky Oil Operations Limited for the Camp Lonely Landfill Potential Responsible Parties. Pending December 2006.

HCG. 2007. *Supplemental Monitoring Report: 2006 Site Characterization and Boom Maintenance, Camp Lonely Landfill, Alaska.* Prepared by HCG and Husky Oil Operations Limited for the Camp Lonely Landfill Potential Responsible Parties. Final. May 2007.

Table 1. Surface Water Sample Results
Camp Lonely 2005 - 2008 Site Characterizations

Compound	Screening Criteria			Surface Water Sampling Locations																			
	Primary	Secondary		CLSW01												CLSW02				CLSW12			
micrograms per Liter ug/L	18 AAC 70 (MCL) [4]	NOAA SQuiRT [1] Aquatic Life		CLSW01		CLSW01R		CLSW01-06		CLSW91-06 (Duplicate)		CLSW01-08		CLSW91-08 (Duplicate)		CLSW02		CLSW02-06		CLSW12-06		CLSW12-08	
		Freshwater	Marine	Conc	Flag	Conc	Flag	Conc	Flag	Conc	Flag	Conc	Flag	Conc	Flag	Conc	Flag	Conc	Flag	Conc	Flag	Conc	Flag
Sample Date				7/17/2005		8/16/2005		8/28/2006		8/28/2006		8/28/2008		8/28/2008		7/17/2005		8/28/2006		8/28/2006		8/28/2008	
BTEX (Method 8021B for 2006 and 2008 results and Method 8260B for 2005 results) [5]																							
Benzene	5	5,300[CMC]	700	**7.34**	=	0.281	J	**8.15**	=			2.96	J-	3.35	J-	0.12	U					2.59	J-
Ethylbenzene	700	32,000[CMC]	430[CMC]	0.35	J	0.62	U	2.86	=			[0.620]	U J-	[0.620]	U J-	0.31	U					2.39	J-
o-Xylene	--	--	--	2.01	=	0.62	U	7.59	=			2.62	J-	2.68	J-	0.31	U					6.01	J-
P & M -Xylene	--	--	--	2.01	=	0.742	J	9.52	=			1.8	F J-	1.85	F J-	0.62	U					11.2	J-
Total Xylenes	10,000	--	--	4.02	=	0.742	J	17.11	=			4.42	J-	4.53	J-	0.62	U					17.21	J-
Toluene	1,000	17,500[CMC]	5,000	2.62	=	0.62	U	5.96	=			[0.620]	U J-	[0.620]	U J-	0.31	U					9.57	J-
Total BTEX = TAH [3]	10.0	--	--	**14.33**	J	1.02	J	**34.08**	=			7.38		7.88		0.62	U					**31.76**	J-
Glycols (Method 8015)																							
Ethylene glycol	--	--	--					2000	U							33,000	=	2000	U	2000	U	2000	U
Propylene glycol	--	--	--					2000	U							5,000	U	2000	U	2000	U	2000	U
di-Ethylene glycol	--	--	--					2000	U							5,000	U	2000	U	2000	U	2000	U
tri-Ethylene glycol	--	--	--					2000	U							5,000	U	2000	U	2000	U	2000	U
PAHs (Method 8270C SIM) - Only detected compounds listed																							
1-Methylnaphthalene	--	--	--	0.18	=	0.0614	=	0.203	=	0.213	=	0.0351	F J-	0.0305	F J-	0.018	J					0.143	J-
2-Methylnaphthalene	--	--	--	0.114	=	0.028	J	0.0437	J	0.0418	J	[0.0167]	U J-	[0.0158]	U J-	0.015	U					0.0815	J-
Acenaphthene	--	520	710	0.015	U	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Acenaphthylene	--	--	300[CMC]	0.015	U	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.0427	J					[0.0158]	U J-
Anthracene	--	--	300[CMC]	0.0213	J	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Benzo(a)Anthracene	--	--	300[CMC]	0.0288	J	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Benzo[a]pyrene	--	--	300[CMC]	0.015	U	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Benzo[b]Fluoranthene	--	--	300[CMC]	0.0372	J	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Benzo[g,h,i]perylene	--	--	300[CMC]	0.0206	J	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Benzo[k]fluoranthene	--	--	300[CMC]	0.015	U	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Chrysene	--	--	300[CMC]	0.0271	J	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Dibenzo[a,h]anthracene	--	--	300[CMC]	0.01	U	0.01	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.01	U					[0.0158]	U J-
Fluoranthene	--	3,980[CMC]	16	0.0758	=	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Fluorene	--	--	300[CMC]	0.015	U	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Indeno[1,2,3-c,d] pyrene	--	--	300[CMC]	0.0166	J	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Naphthalene	--	620	2,350[CMC]	0.242	=	0.054	J	0.133	=	0.13	=	[0.0344]	U J-	[0.0326]	U J-	0.031	U					0.154	J-
Phenanthrene	--	6.3	4.6	0.0657	=	0.015	U	0.031	U	0.0318	U	[0.0167]	U J-	[0.0158]	U J-	0.0172	J					[0.0158]	U J-
Pyrene	--	--	300[CMC]	0.0616	=	0.015	U	0.015	U	0.0154	U	[0.0167]	U J-	[0.0158]	U J-	0.015	U					[0.0158]	U J-
Total PAH [3]	--	--	--	0.8149	=	0.1434	J	0.3797	J	0.3848	J	0.0351	F J-	0.0305	F J-	0.0779	J					0.3785	J-
TAqH = TAH + TPAH [3]	15.0	--	--	**15.1**	=	1.17	J	**34.46**	J			7.42	J-	7.91	J-	0.0779	J					**32.14**	J-
RCRA Metals (Method 6020/7471A)																							
Total																							
Arsenic	50	850[CMC]	2319[CMC]	12.4	U	12.2	=	5	U	7.32	J					12.4	U						
Barium	2,000	--	--	353	=	341	=	274	=	293	=					176	=						
Cadmium	5	2.2[HD]	9.3	2.48	U	0.62	U	1	U	1	U					2.48	U						
Chromium	100 (total)	11(Cr6), 74[HD](Cr3)	50 (Cr6), 10300 (Cr3)[CMC]	4.8	U	4.53	=	10.2	=	17.8	=					4.8	U						
Lead	--	2.5[HD]	8.1	6.05	=	2.2	=	0.879	J	1.2	=					1.86	J						
Selenium	50	5	71	12.4	U	4.39	J	7.99	J	12	=					12.4	U						
Silver	--	0.12	0.95[CMC]	2.48	U	0.62	U	0.62	U	0.62	U					2.48	U						
Mercury by Cold Vapor	2	0.77	0.94	**5.16**	=	0.062	U	0.062	U	0.062	U					0.062	U						
pH (field data)				7.37	=			8.36	=	8.36	=					9.35	=	9.13	=	9.3	=	9.3	=
Conductivity (field data) [2]				1.46	=			1.775	=	1.775	=					1.08	=	1.69	=	1.706	=	1.706	=

Notes

1- NOAA SQuiRT values shown for freshwater and marine criteria continuous concentration (CCC) unless otherwise indicated. Criteria maximum concentration (CMC) shown if CCC is not available.
HD annotation means that the screening criteria is hardness dependent. The marine standard is considered most applicable because the surface water sample was near the coast and brackish.
2- Conductivity reported in millisiemens per centimeter.
3- Screening criteria values are from 18 AAC 70.020b. TAH = Total of BTEX compounds. Value is zero (-) if all compounds are non detectable.
TAqH = Total PAH + TAH Total PAH value is zero (-) if all values are non detectable.
4- Screening criteria values in 18 AAC 70.020b are adopted by reference from *Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances*, dated May 15, 2003.
5- Samples collected on 7/17/05 (CLSW01 and CLSW02) were analyzed by Method 8260b. All other samples were analyzed for BTEX compounds by Method 8021b.

Data Flags

" = "	A detected compound
F	Estimated quantity below the PQL.
U	Compound not detected (with MDL in adjacent parentheses)
J	Estimated value, a "+" or "-" indicates potential bias

Abbreviations

M	Matrix Effect
" -- "	Screening criteria did not exist for this compound.
HD	Hardness Dependent
MDL	Method Detection Limit
TAH	Total Aromatic Hydrocarbons (total BTEX)
TAqH	Total Aqueous Hydrocarbons
TPAH	Total Polynuclear Aromatic Hydrocarbons
Cr6	Hexavalent Chromium
Cr3	Trivalent Chromium

Bold and shaded items indicate an exceedance of the primary applicable criteria.
Shaded items indicate an exceedance of the secondary applicable criteria.

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CAMP LONELY

SURFACE WATER & PORE WATER SAMPLE RESULTS

CAMP LONELY, ALASKA

PROJECT NO: 1323-004

DATE: 10-14-08

FIGURE NO: 1

H:\1323 - Husky Energy\Camp Lonely (Husky)\2008 Monitoring\Rpt\FIG 1.dwg

Appendix A

Photo Log

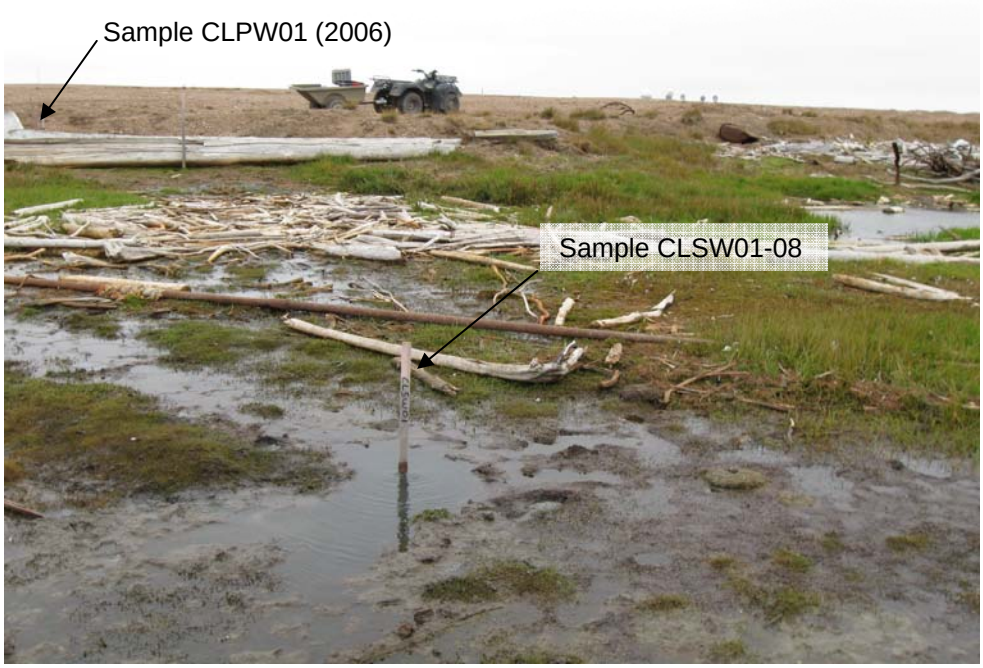

Photo 1. Sample location CLSW01. The location was drier than during previous sampling events. Sample CLPW01 (2006) is in the background. Photo taken facing east.

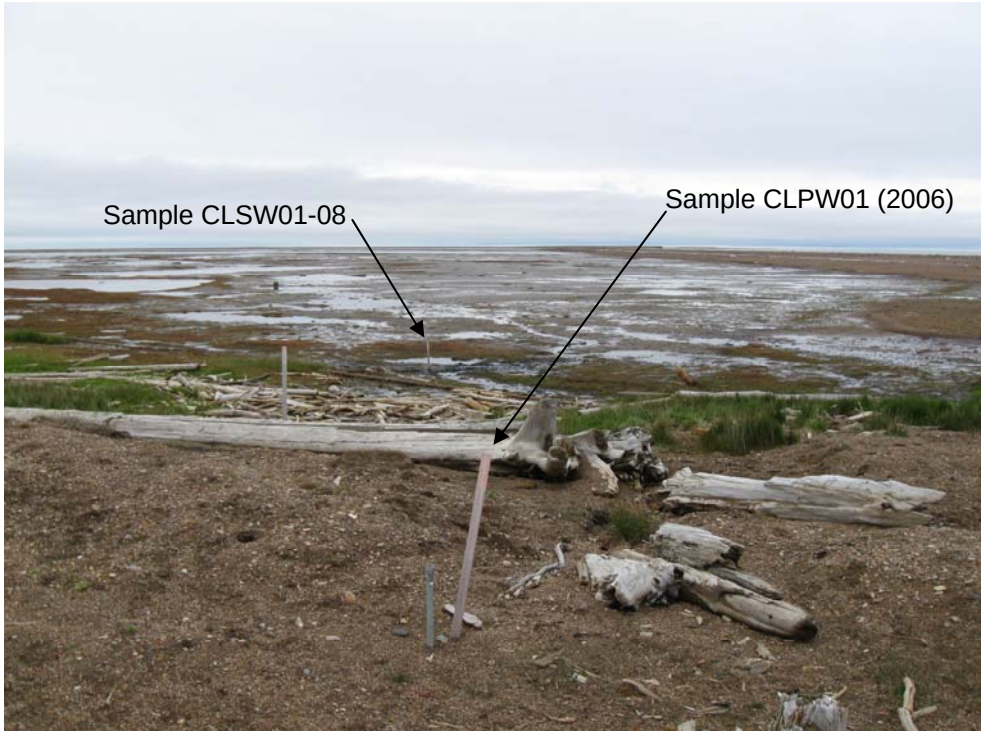

Photo 2. Sample location CLSW01, facing west across the brackish pond. CLPW01 (2006) is in the foreground.

Photo 3. Sample location CLSW12-08, facing west. Sample location CLSW02 is in the background.

Photo 4. Sample CLSW12-08, facing south. The pond at the edge of the pad continues to the left, around the southwest corner of the pad. The boom in the foreground was removed.

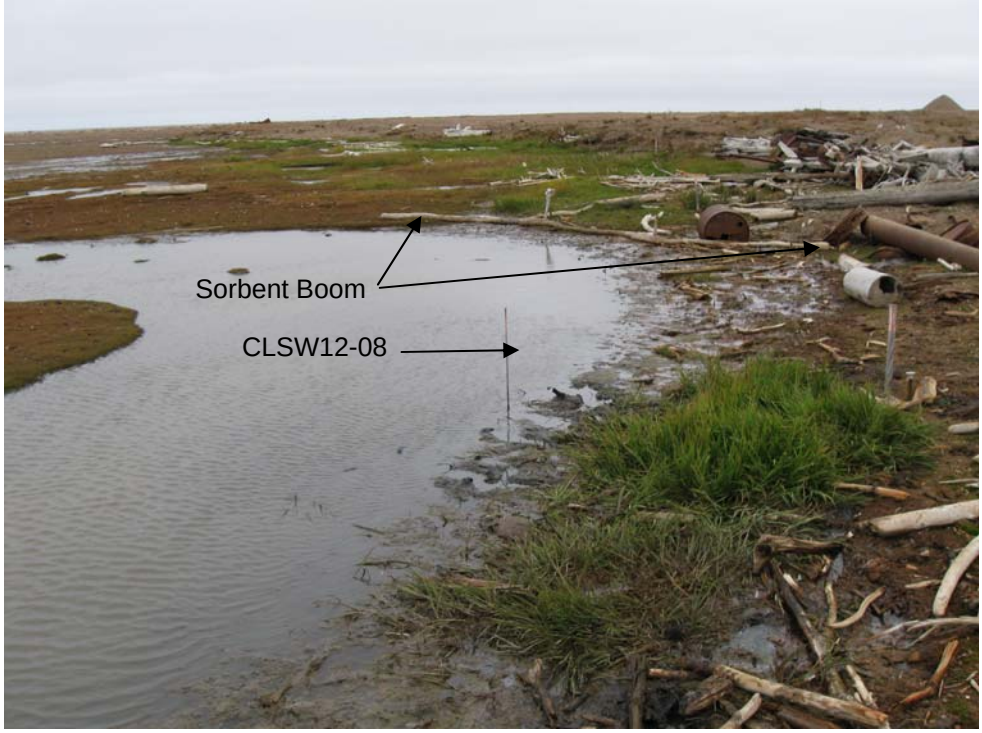

Photo 5. Sorbent boom downgradient from the landfill was removed and incinerated. No petroleum hydrocarbon staining was noted on the boom.

Photo 6. Sorbent boom from the Test Pit 16 area was degrading, and was removed and incinerated. No petroleum hydrocarbon staining was noted on the boom.

Photo 7. Surface of the Camp Lonely pad, shown facing north. The pad surface is in good condition, and no subsidence or thermokarsting is evident.
The small stockpile in the background is shown in detail on photo 10.

Photo 8. Surface of the Camp Lonely pad facing southeast. The Point Lonely DEW line site is in the background. The gravel stockpile at left is shown in detail on photo 9.

Photo 9. A large stockpile of gravel is located at the south edge of the pad. The gravel volume is estimated to be approximately 500-800 cubic yards.

Photo 10. Active erosion at the northeast edge of the Camp Lonely pad, facing west along the beach. The cut bank is approximately 4 feet high. A small stockpile of gravel is located near the edge of the pad with an estimated volume of around 100 cubic yards.

Appendix B

Laboratory Analytical Report

SGS Environmental Services
Alaska Division
Level II Laboratory Data Report

Project:	Camp Lonely
Client:	Hoefler Consulting Group
SGS Work Order:	1084326

Released by:

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:
Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.

SGS Environmental Services Inc.

Case Narrative

Customer: HOEFLCG **Hoefler Consulting Group**

Project: 1084326 **Camp Lonely**

Refer to the sample receipt form for information on sample condition.

1084326001 PS **CLSW01-08**

8270D SIM - Surrogate recovery for terphenyl d-14 is outside of QC criteria (biased low). The sample was re-extracted three days outside of the holding time and reanalyzed. The results did confirm with passing QC. The original results are reported here.

8270D SIM - LCS recovery is outside of QC criteria for multiple analytes (biased low). The sample was re-extracted three days outside of the holding time and reanalyzed. The results did confirm with passing QC. The original results are reported here.

1084326002 PS **CLSW091-08**

8270D SIM - Surrogate recovery for terphenyl d-14 is outside of QC criteria (biased low). The sample was re-extracted three days outside of the holding time and reanalyzed. The results did confirm with passing QC. The original results are reported here.

8270D SIM - LCS recovery is outside of QC criteria for multiple analytes (biased low). The sample was re-extracted three days outside of the holding time and reanalyzed. The results did confirm with passing QC. The original results are reported here.

1084326003 PS **CLSW12-08**

8270D SIM - Surrogate recovery for terphenyl d-14 is outside of QC criteria (biased low). The sample was re-extracted three days outside of the holding time and reanalyzed. The results did confirm with passing QC. The original results are reported here.

8270D SIM - LCS recovery is outside of QC criteria for multiple analytes (biased low). The sample was re-extracted three days outside of the holding time and reanalyzed. The results did confirm with passing QC. The original results are reported here.

849893 MS **1084311002MS**

8270D SIM - LCS recovery is outside of QC criteria for multiple analytes (biased low). The associated samples may have a low bias. All associated samples were re-extracted and reanalyzed outside of the 14 day holding time for confirmation.

8270D SIM - Surrogate recovery for terphenyl d-14is outside of QC criteria for multiple analytes (biased low).

8270D SIM - MS recovery is outside of QC criteria for multiple analytes (biased low). The associated samples may have a low bias. All associated samples were re-extracted and reanalyzed outside of the 14 day holding time for confirmation.

8270D SIM - MS/MSD recoveries for naphthalene does not meet QC RPD criteria (biased high). Result for the original sample is considered estimated.

849894 MSD **1084311002MSD**

8270D SIM - LCS recovery is outside of QC criteria for multiple analytes (biased low). The associated samples may have a low bias. All associated samples were re-extracted and reanalyzed outside of the 14 day holding time for confirmation.

8270D SIM - Surrogate recovery for terphenyl d-14is outside of QC criteria for multiple analytes (biased low).

8270D SIM - MSD recovery is outside of QC criteria for multiple analytes (biased low). The associated samples may have a low bias. All associated samples were re-extracted and reanalyzed outside of the 14 day holding time for confirmation.

8270D SIM - MS/MSD recovery for naphthalene does not meet QC RPD criteria (biased high). Result for the original sample is considered estimated.

849891 MB **XXX/19872]**

8270D SIM - Surrogate recovery for terphenyl-d14 is outside of QC criteria (biased low).

849892 LCS **XXX/19872]**

8270D SIM - Surrogate recovery for terphenyl-d14 is outside of QC criteria (biased low).

8270D SIM - LCS recovery is outside of QC criteria for multiple analytes (biased low). The associated samples may have a low bias. All associated samples were re-extracted and reanalyzed outside of the 14 day holding time for confirmation.

Laboratory Analytical Report

Client: **Hoefler Consulting Group**
3401 Minnesota Drive, Ste. 300
Anchorage, AK 99503

Attn: **Wendy Mitchell**
T: (907) 563-2196 F:(907) 563-2164
wmitchell@hoeflernet.com

Project: **Camp Lonely**

Workorder No.: **1084326**

Certification:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, other than the conditions noted on the sample data sheet(s) and/or the case narrative. This certification applies only to the tested parameters and the specific sample(s) received at the laboratory.

If you have any questions regarding this report, or if we can be of further assistance, please contact your SGS Project Manager.

Tamara Rentz

tamara.rentz@sgs.com

Project Manager

Print Date: 8/28/2008

Enclosed are the analytical results associated with this workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program is available at your request.

The laboratory certification numbers are AK971-05 (DW), UST-005 (CS) and AK00971 (Micro) for ADEC and 001992 for NELAP (RCRA methods: 1020A, 1311, 6010B, 7470A,7471A,9040B,9045C, 9056, 9060, 9065, 8015B, 8021B, 8081A/8082, 8260B, 8270C).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any assistance, please contact your SGS Project Manager at 907-562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

MDL	Method Detection Limit
PQL	Practical Quantitation Limit (reporting limit).
CL	Control Limit
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
D	The analyte concentration is the result of dilution.
GT	Greater Than
LT	Less Than
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
E	The analyte result is above the calibrated range.
R	Rejected
DF	Analytical Dilution Factor
JL	The analyte was positively identified, but the quantitation is a low estimation.
<Surr>	Surrogate QC spiked standard
<Surr/IS>	Surrogate / Internal Standard QC spiked standard
QC	Quality Control
QA	Quality Assurance
MB	Method Blank
LCS (D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
BMS(D)	Site Specific Matrix Spike
RPD	Relative Percent Difference
ICV	Initial Calibration Verification
CCV	Continuous Calibration Verification
MSA	Method of Standard Addition

Notes: Soil samples are reported on a dry weight basis unless otherwise specified
All DRO/RRO analysese are integrated per SOP.

SAMPLE SUMMARY

Print Date: 8/28/2008

Client Name: Hoefler Consulting Group
Project Name: Camp Lonely
Workorder No.: 1084326

Analytical Methods

Method Description	Analytical Method
8270 PAH SIM Semi-Vol GC/MS Liq/Liq ext.	8270D SIMS
BTEX 8021	SW8021B

Sample ID Cross Reference

Lab Sample ID	Client Sample ID
1084326001	CLSW01-08
1084326002	CLSW091-08
1084326003	CLSW12-08
1084326004	Trip Blank

Hoefler Consulting Group Print Date: 8/28/2008

Client Sample ID: **CLSW01-08**
SGS Ref. #: 1084326001
Project ID: Camp Lonely
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/13/08 09:05
Receipt Date/Time: 08/18/08 11:20

Volatile Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Benzene	2.96	0.500	0.150	ug/L	1	VFC9123	VXX18604	
Toluene	ND	2.00	0.620	ug/L	1	VFC9123	VXX18604	
Ethylbenzene	ND	2.00	0.620	ug/L	1	VFC9123	VXX18604	
o-Xylene	2.62	2.00	0.620	ug/L	1	VFC9123	VXX18604	
P & M -Xylene	1.80 J	2.00	0.620	ug/L	1	VFC9123	VXX18604	
1,4-Difluorobenzene <surr>	91.4	80-120		%	1	VFC9123	VXX18604	

Batch Information

Analytical Batch: VFC9123
Analytical Method: SW8021B
Analysis Date/Time: 08/20/08 17:51
Dilution Factor: 1

Prep Batch: VXX18604
Prep Method: SW5030B
Prep Date/Time: 08/20/08 00:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1084326001-A
Analyst: DVG

Hoefler Consulting Group Print Date: 8/28/2008

Client Sample ID: **CLSW01-08**
SGS Ref. #: 1084326001
Project ID: Camp Lonely
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/13/08 09:05
Receipt Date/Time: 08/18/08 11:20

Polynuclear Aromatics GC/MS

Parameter	Result		PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Acenaphthylene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Acenaphthene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Fluorene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Phenanthrene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Anthracene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Fluoranthene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Pyrene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Benzo(a)Anthracene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Chrysene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Benzo[b]Fluoranthene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Benzo[k]fluoranthene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Benzo[a]pyrene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Indeno[1,2,3-c,d] pyrene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Dibenzo[a,h]anthracene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Benzo[g,h,i]perylene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Naphthalene	ND		0.111	0.0344	ug/L	1	XMS4662	XXX19872	
1-Methylnaphthalene	0.0351 J		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
2-Methylnaphthalene	ND		0.0556	0.0167	ug/L	1	XMS4662	XXX19872	
Terphenyl-d14 <surr>	39.5	*	50-135		%	1	XMS4662	XXX19872	

Batch Information

Analytical Batch: XMS4662
Analytical Method: 8270D SIMS
Analysis Date/Time: 08/20/08 18:15
Dilution Factor: 1

Prep Batch: XXX19872
Prep Method: SW3520C
Prep Date/Time: 08/20/08 10:50

Initial Prep Wt./Vol.: 900 mL
Prep Extract Vol.: 1 mL
Container ID:1084326001-D
Analyst: JDH

Hoefler Consulting Group Print Date: 8/28/2008

Client Sample ID: **CLSW091-08**
SGS Ref. #: 1084326002
Project ID: Camp Lonely
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/13/08 09:10
Receipt Date/Time: 08/18/08 11:20

Volatile Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Benzene	3.35	0.500	0.150	ug/L	1	VFC9123	VXX18604	
Toluene	ND	2.00	0.620	ug/L	1	VFC9123	VXX18604	
Ethylbenzene	ND	2.00	0.620	ug/L	1	VFC9123	VXX18604	
o-Xylene	2.68	2.00	0.620	ug/L	1	VFC9123	VXX18604	
P & M -Xylene	1.85 J	2.00	0.620	ug/L	1	VFC9123	VXX18604	
1,4-Difluorobenzene <surr>	92	80-120		%	1	VFC9123	VXX18604	

Batch Information

Analytical Batch: VFC9123
Analytical Method: SW8021B
Analysis Date/Time: 08/20/08 18:09
Dilution Factor: 1

Prep Batch: VXX18604
Prep Method: SW5030B
Prep Date/Time: 08/20/08 00:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1084326002-A
Analyst: DVG

Hoefler Consulting Group Print Date: 8/28/2008

Client Sample ID: **CLSW091-08**
SGS Ref. #: 1084326002
Project ID: Camp Lonely
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/13/08 09:10
Receipt Date/Time: 08/18/08 11:20

Polynuclear Aromatics GC/MS

Parameter	Result		PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Acenaphthylene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Acenaphthene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Fluorene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Phenanthrene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Anthracene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Fluoranthene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Pyrene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Benzo(a)Anthracene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Chrysene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Benzo[b]Fluoranthene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Benzo[k]fluoranthene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Benzo[a]pyrene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Indeno[1,2,3-c,d] pyrene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Dibenzo[a,h]anthracene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Benzo[g,h,i]perylene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Naphthalene	ND		0.105	0.0326	ug/L	1	XMS4662	XXX19872	
1-Methylnaphthalene	0.0305 J		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
2-Methylnaphthalene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Terphenyl-d14 <surr>	40.1	*	50-135		%	1	XMS4662	XXX19872	

Batch Information

Analytical Batch: XMS4662
Analytical Method: 8270D SIMS
Analysis Date/Time: 08/20/08 18:48
Dilution Factor: 1

Prep Batch: XXX19872
Prep Method: SW3520C
Prep Date/Time: 08/20/08 10:50

Initial Prep Wt./Vol.: 950 mL
Prep Extract Vol.: 1 mL
Container ID:1084326002-D
Analyst: JDH

Hoefler Consulting Group Print Date: 8/28/2008

Client Sample ID: **CLSW12-08**
SGS Ref. #: 1084326003
Project ID: Camp Lonely
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/13/08 09:35
Receipt Date/Time: 08/18/08 11:20

Volatile Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Benzene	2.59	0.500	0.150	ug/L	1	VFC9128	VXX18621	
Toluene	9.57	2.00	0.620	ug/L	1	VFC9128	VXX18621	
Ethylbenzene	2.39	2.00	0.620	ug/L	1	VFC9128	VXX18621	
o-Xylene	6.01	2.00	0.620	ug/L	1	VFC9128	VXX18621	
P & M -Xylene	11.2	2.00	0.620	ug/L	1	VFC9128	VXX18621	
1,4-Difluorobenzene <surr>	91.1	80-120		%	1	VFC9128	VXX18621	

Batch Information

Analytical Batch: VFC9128
Analytical Method: SW8021B
Analysis Date/Time: 08/22/08 11:27
Dilution Factor: 1

Prep Batch: VXX18621
Prep Method: SW5030B
Prep Date/Time: 08/22/08 00:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1084326003-B
Analyst: DVG

Hoefler Consulting Group Print Date: 8/28/2008

Client Sample ID: **CLSW12-08**
SGS Ref. #: 1084326003
Project ID: Camp Lonely
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/13/08 09:35
Receipt Date/Time: 08/18/08 11:20

Polynuclear Aromatics GC/MS

Parameter	Result		PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Acenaphthylene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Acenaphthene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Fluorene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Phenanthrene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Anthracene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Fluoranthene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Pyrene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Benzo(a)Anthracene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Chrysene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Benzo[b]Fluoranthene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Benzo[k]fluoranthene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Benzo[a]pyrene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Indeno[1,2,3-c,d] pyrene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Dibenzo[a,h]anthracene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Benzo[g,h,i]perylene	ND		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Naphthalene	0.154		0.105	0.0326	ug/L	1	XMS4662	XXX19872	
1-Methylnaphthalene	0.143		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
2-Methylnaphthalene	0.0815		0.0526	0.0158	ug/L	1	XMS4662	XXX19872	
Terphenyl-d14 <surr>	41.8	*	50-135		%	1	XMS4662	XXX19872	

Batch Information

Analytical Batch: XMS4662
Analytical Method: 8270D SIMS
Analysis Date/Time: 08/20/08 19:21
Dilution Factor: 1

Prep Batch: XXX19872
Prep Method: SW3520C
Prep Date/Time: 08/20/08 10:50

Initial Prep Wt./Vol.: 950 mL
Prep Extract Vol.: 1 mL
Container ID:1084326003-D
Analyst: JDH

Hoefler Consulting Group Print Date: 8/28/2008

Client Sample ID: **Trip Blank**
SGS Ref. #: 1084326004
Project ID: Camp Lonely
Matrix: Water (Surface, Eff., Ground)

Collection Date/Time: 08/13/08 09:05
Receipt Date/Time: 08/18/08 11:20

Volatile Fuels Department

Parameter	Result	PQL/CL	MDL	Units	DF	Analytical Batch	Prep Batch	Qualifiers
Benzene	ND	0.500	0.150	ug/L	1	VFC9123	VXX18603	
Toluene	ND	2.00	0.620	ug/L	1	VFC9123	VXX18603	
Ethylbenzene	ND	2.00	0.620	ug/L	1	VFC9123	VXX18603	
o-Xylene	ND	2.00	0.620	ug/L	1	VFC9123	VXX18603	
P & M -Xylene	ND	2.00	0.620	ug/L	1	VFC9123	VXX18603	
1,4-Difluorobenzene <surr>	93.3	80-120		%	1	VFC9123	VXX18603	

Batch Information

Analytical Batch: VFC9123
Analytical Method: SW8021B
Analysis Date/Time: 08/20/08 12:35
Dilution Factor: 1

Prep Batch: VXX18603
Prep Method: SW5030B
Prep Date/Time: 08/20/08 00:00

Initial Prep Wt./Vol.: 5 mL
Prep Extract Vol.: 5 mL
Container ID:1084326004-A
Analyst: DVG

SGS Ref.#	849891	Method Blank	**Printed Date/Time**	08/28/2008 13:51
Client Name	Hoefler Consulting Group		**Prep Batch**	XXX19872
Project Name/#	Camp Lonely		**Method**	SW3520C
Matrix	Water (Surface, Eff., Ground)		**Date**	08/20/2008

QC results affect the following production samples:

1084326001, 1084326002, 1084326003

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Polynuclear Aromatics GC/MS					
Acenaphthylene	ND	0.0500	0.0150	ug/L	08/20/08
Acenaphthene	ND	0.0500	0.0150	ug/L	08/20/08
Fluorene	ND	0.0500	0.0150	ug/L	08/20/08
Phenanthrene	ND	0.0500	0.0150	ug/L	08/20/08
Anthracene	ND	0.0500	0.0150	ug/L	08/20/08
Fluoranthene	ND	0.0500	0.0150	ug/L	08/20/08
Pyrene	ND	0.0500	0.0150	ug/L	08/20/08
Benzo(a)Anthracene	ND	0.0500	0.0150	ug/L	08/20/08
Chrysene	ND	0.0500	0.0150	ug/L	08/20/08
Benzo[b]Fluoranthene	ND	0.0500	0.0150	ug/L	08/20/08
Benzo[k]fluoranthene	ND	0.0500	0.0150	ug/L	08/20/08
Benzo[a]pyrene	ND	0.0500	0.0150	ug/L	08/20/08
Indeno[1,2,3-c,d] pyrene	ND	0.0500	0.0150	ug/L	08/20/08
Dibenzo[a,h]anthracene	ND	0.0500	0.0150	ug/L	08/20/08
Benzo[g,h,i]perylene	ND	0.0500	0.0150	ug/L	08/20/08
Naphthalene	ND	0.100	0.0310	ug/L	08/20/08
1-Methylnaphthalene	ND	0.0500	0.0150	ug/L	08/20/08
2-Methylnaphthalene	ND	0.0500	0.0150	ug/L	08/20/08
Surrogates					
Terphenyl-d14 <surr>	39.8	* 50-135		%	08/20/08

Batch	XMS4662
Method	8270D SIMS
Instrument	HP 6890/5973 MS SVOA

SGS Ref.#	850307	Method Blank	**Printed Date/Time**	08/28/2008 13:51
Client Name	Hoefler Consulting Group		**Prep Batch**	VXX18603
Project Name/#	Camp Lonely		**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)		**Date**	08/20/2008

QC results affect the following production samples:

1084326004

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Volatile Fuels Department					
Benzene	ND	0.500	0.150	ug/L	08/20/08
Toluene	ND	2.00	0.620	ug/L	08/20/08
Ethylbenzene	ND	2.00	0.620	ug/L	08/20/08
o-Xylene	ND	2.00	0.620	ug/L	08/20/08
P & M -Xylene	ND	2.00	0.620	ug/L	08/20/08
Surrogates					
1,4-Difluorobenzene <surr>	92.9	80-120		%	08/20/08

Batch VFC9123
Method SW8021B
Instrument HP 5890 Series II PID+HECD VBA

SGS Ref.#	850317	Method Blank	**Printed Date/Time**	08/28/2008 13:51
Client Name	Hoefler Consulting Group		**Prep Batch**	VXX18604
Project Name/#	Camp Lonely		**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)		**Date**	08/20/2008

QC results affect the following production samples:

1084326001, 1084326002

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Volatile Fuels Department					
Benzene	0.225 J	0.500	0.150	ug/L	08/20/08
Toluene	ND	2.00	0.620	ug/L	08/20/08
Ethylbenzene	ND	2.00	0.620	ug/L	08/20/08
o-Xylene	ND	2.00	0.620	ug/L	08/20/08
P & M -Xylene	ND	2.00	0.620	ug/L	08/20/08
Surrogates					
1,4-Difluorobenzene <surr>	91.4	80-120		%	08/20/08

Batch VFC9123
Method SW8021B
Instrument HP 5890 Series II PID+HECD VBA

SGS Ref.#	851030	Method Blank	**Printed Date/Time**	08/28/2008 13:51
Client Name	Hoefler Consulting Group		**Prep Batch**	VXX18621
Project Name/#	Camp Lonely		**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)		**Date**	08/22/2008

QC results affect the following production samples:

1084326003

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Volatile Fuels Department					
Benzene	ND	0.500	0.150	ug/L	08/22/08
Toluene	ND	2.00	0.620	ug/L	08/22/08
Ethylbenzene	ND	2.00	0.620	ug/L	08/22/08
o-Xylene	ND	2.00	0.620	ug/L	08/22/08
P & M -Xylene	ND	2.00	0.620	ug/L	08/22/08
Surrogates					
1,4-Difluorobenzene <surr>	95.1	80-120		%	08/22/08

Batch VFC9128
Method SW8021B
Instrument HP 5890 Series II PID+FID VCA

SGS Ref.#	851040	Method Blank	**Printed Date/Time**	08/28/2008 13:51
Client Name	Hoefler Consulting Group		**Prep Batch**	VXX18621
Project Name/#	Camp Lonely		**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)		**Date**	08/22/2008

QC results affect the following production samples:

1084326003

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Volatile Fuels Department					
Benzene	ND	0.500	0.150	ug/L	08/22/08
Toluene	ND	2.00	0.620	ug/L	08/22/08
Ethylbenzene	ND	2.00	0.620	ug/L	08/22/08
o-Xylene	ND	2.00	0.620	ug/L	08/22/08
P & M -Xylene	ND	2.00	0.620	ug/L	08/22/08
Surrogates					
1,4-Difluorobenzene <surr>	93.7	80-120		%	08/22/08

Batch VFC9128
Method SW8021B
Instrument HP 5890 Series II PID+FID VCA

SGS Ref.#	849892	Lab Control Sample	**Printed Date/Time**	08/28/2008	13:51
			Prep **Batch**	XXX19872	
Client Name	Hoefler Consulting Group		**Method**	SW3520C	
Project Name/#	Camp Lonely		**Date**	08/20/2008	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1084326001, 1084326002, 1084326003

Parameter		QC Results	Pct Recov		LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Polynuclear Aromatics GC/MS									
Acenaphthylene	LCS	0.129	26	*	(50-105)			0.5 ug/L	08/20/2008
Acenaphthene	LCS	0.133	27	*	(45-110)			0.5 ug/L	08/20/2008
Fluorene	LCS	0.133	27	*	(50-110)			0.5 ug/L	08/20/2008
Phenanthrene	LCS	0.142	28	*	(50-115)			0.5 ug/L	08/20/2008
Anthracene	LCS	0.135	27	*	(55-110)			0.5 ug/L	08/20/2008
Fluoranthene	LCS	0.154	31	*	(55-125)			0.5 ug/L	08/20/2008
Pyrene	LCS	0.147	29	*	(50-130)			0.5 ug/L	08/20/2008
Benzo(a)Anthracene	LCS	0.152	30	*	(55-120)			0.5 ug/L	08/20/2008
Chrysene	LCS	0.158	32	*	(55-120)			0.5 ug/L	08/20/2008
Benzo[b]Fluoranthene	LCS	0.147	29	*	(46-130)			0.5 ug/L	08/20/2008
Benzo[k]fluoranthene	LCS	0.159	32	*	(60-125)			0.5 ug/L	08/20/2008
Benzo[a]pyrene	LCS	0.159	32	*	(55-120)			0.5 ug/L	08/20/2008
Indeno[1,2,3-c,d] pyrene	LCS	0.148	30	*	(45-125)			0.5 ug/L	08/20/2008
Dibenzo[a,h]anthracene	LCS	0.149	30	*	(41-140)			0.5 ug/L	08/20/2008
Benzo[g,h,i]perylene	LCS	0.142	28	*	(46-125)			0.5 ug/L	08/20/2008
Naphthalene	LCS	0.126	25	*	(42-100)			0.5 ug/L	08/20/2008
1-Methylnaphthalene	LCS	0.120	24	*	(46-115)			0.5 ug/L	08/20/2008
2-Methylnaphthalene	LCS	0.116	23	*	(45-105)			0.5 ug/L	08/20/2008
Surrogates									
Terphenyl-d14 <surr>	LCS		32	*	(50-135)				08/20/2008

SGS Ref.#	849892	Lab Control Sample	**Printed Date/Time**	08/28/2008	13:51
			Prep **Batch**	XXX19872	
Client Name	Hoefler Consulting Group		**Method**	SW3520C	
Project Name/#	Camp Lonely		**Date**	08/20/2008	
Matrix	Water (Surface, Eff., Ground)				

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Polynuclear Aromatics GC/MS

Batch	XMS4662
Method	8270D SIMS
Instrument	HP 6890/5973 MS SVOA

SGS Ref.#	850308	Lab Control Sample	**Printed Date/Time**	08/28/2008	13:51
	850309	Lab Control Sample Duplicate	**Prep** **Batch**	VXX18603	
Client Name	Hoefler Consulting Group		**Method**	SW5030B	
Project Name/#	Camp Lonely		**Date**	08/20/2008	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1084326004

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Benzene	LCS	99.3	99	(80-120)			100 ug/L	08/20/2008
	LCSD	95.8	96		4	(< 20)	100 ug/L	08/20/2008
Toluene	LCS	106	106	(80-120)			100 ug/L	08/20/2008
	LCSD	105	105		1	(< 20)	100 ug/L	08/20/2008
Ethylbenzene	LCS	114	114	(87-125)			100 ug/L	08/20/2008
	LCSD	111	111		2	(< 20)	100 ug/L	08/20/2008
o-Xylene	LCS	111	111	(85-120)			100 ug/L	08/20/2008
	LCSD	108	108		2	(< 20)	100 ug/L	08/20/2008
P & M -Xylene	LCS	226	113	(87-125)			200 ug/L	08/20/2008
	LCSD	222	111		2	(< 20)	200 ug/L	08/20/2008
Surrogates								
1,4-Difluorobenzene <surr>	LCS		100	(80-120)				08/20/2008
	LCSD		100		0			08/20/2008

Batch	VFC9123
Method	SW8021B
Instrument	HP 5890 Series II PID+HECD VBA

SGS Ref.#	850318	Lab Control Sample	**Printed Date/Time**	08/28/2008	13:51
	850319	Lab Control Sample Duplicate	**Prep** **Batch**	VXX18604	
Client Name	Hoefler Consulting Group		**Method**	SW5030B	
Project Name/#	Camp Lonely		**Date**	08/20/2008	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1084326001, 1084326002

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Benzene	LCS	94.9	95	(80-120)			100 ug/L	08/20/2008
	LCSD	96.6	97		2	(< 20)	100 ug/L	08/20/2008
Toluene	LCS	104	104	(80-120)			100 ug/L	08/20/2008
	LCSD	106	106		2	(< 20)	100 ug/L	08/20/2008
Ethylbenzene	LCS	111	111	(87-125)			100 ug/L	08/20/2008
	LCSD	112	112		1	(< 20)	100 ug/L	08/20/2008
o-Xylene	LCS	108	108	(85-120)			100 ug/L	08/20/2008
	LCSD	109	109		1	(< 20)	100 ug/L	08/20/2008
P & M -Xylene	LCS	221	110	(87-125)			200 ug/L	08/20/2008
	LCSD	223	112		1	(< 20)	200 ug/L	08/20/2008
Surrogates								
1,4-Difluorobenzene <surr>	LCS		99	(80-120)				08/20/2008
	LCSD		100		0			08/20/2008

Batch	VFC9123
Method	SW8021B
Instrument	HP 5890 Series II PID+HECD VBA

SGS Ref.#	851031	Lab Control Sample	**Printed Date/Time**	08/28/2008	13:51
	851032	Lab Control Sample Duplicate	**Prep** **Batch**	VXX18621	
Client Name	Hoefler Consulting Group		**Method**	SW5030B	
Project Name/#	Camp Lonely		**Date**	08/22/2008	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1084326003

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Fuels Department								
Benzene	LCS	109	109	(80-120)			100 ug/L	08/22/2008
	LCSD	108	108		2	(< 20)	100 ug/L	08/22/2008
Toluene	LCS	102	102	(80-120)			100 ug/L	08/22/2008
	LCSD	101	101		1	(< 20)	100 ug/L	08/22/2008
Ethylbenzene	LCS	106	106	(87-125)			100 ug/L	08/22/2008
	LCSD	104	104		2	(< 20)	100 ug/L	08/22/2008
o-Xylene	LCS	107	107	(85-120)			100 ug/L	08/22/2008
	LCSD	105	105		2	(< 20)	100 ug/L	08/22/2008
P & M -Xylene	LCS	215	108	(87-125)			200 ug/L	08/22/2008
	LCSD	212	106		2	(< 20)	200 ug/L	08/22/2008
Surrogates								
1,4-Difluorobenzene <surr>	LCS		104	(80-120)				08/22/2008
	LCSD		104		0			08/22/2008

Batch	VFC9128
Method	SW8021B
Instrument	HP 5890 Series II PID+FID VCA

SGS Ref.#	849893	Matrix Spike	**Printed Date/Time**	08/28/2008	13:51
	849894	Matrix Spike Duplicate	**Prep** **Batch**	XXX19872	
			Method	3520 Liquid/Liquid Ext for 827	
			Date	08/20/2008	
Original	1084311002				
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:
1084326001, 1084326002, 1084326003

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount		Analysis Date
Polynuclear Aromatics GC/MS										
Acenaphthylene	MS	ND	.204	35*	(50-105)			0.581	ug/L	08/20/2008
	MSD		0.158	28*		25	(< 30)	0.568	ug/L	08/20/2008
Acenaphthene	MS	ND	.205	35*	(45-110)			0.581	ug/L	08/20/2008
	MSD		0.154	27*		29	(< 30)	0.568	ug/L	08/20/2008
Fluorene	MS	ND	.211	36*	(50-110)			0.581	ug/L	08/20/2008
	MSD		0.173	31*		19	(< 30)	0.568	ug/L	08/20/2008
Phenanthrene	MS	ND	.217	37*	(50-115)			0.581	ug/L	08/20/2008
	MSD		0.196	34*		10	(< 30)	0.568	ug/L	08/20/2008
Anthracene	MS	ND	.214	37*	(55-110)			0.581	ug/L	08/20/2008
	MSD		0.203	36*		5	(< 30)	0.568	ug/L	08/20/2008
Fluoranthene	MS	ND	.225	39*	(55-125)			0.581	ug/L	08/20/2008
	MSD		0.214	38*		5	(< 30)	0.568	ug/L	08/20/2008
Pyrene	MS	ND	.216	37*	(50-130)			0.581	ug/L	08/20/2008
	MSD		0.208	37*		4	(< 30)	0.568	ug/L	08/20/2008
Benzo(a)Anthracene	MS	ND	.228	39*	(55-120)			0.581	ug/L	08/20/2008
	MSD		0.228	40*		0	(< 30)	0.568	ug/L	08/20/2008
Chrysene	MS	ND	.229	39*	(55-120)			0.581	ug/L	08/20/2008
	MSD		0.227	40*		1	(< 30)	0.568	ug/L	08/20/2008
Benzo[b]Fluoranthene	MS	ND	.218	38*	(46-130)			0.581	ug/L	08/20/2008
	MSD		0.215	38*		2	(< 30)	0.568	ug/L	08/20/2008
Benzo[k]fluoranthene	MS	ND	.233	40*	(60-125)			0.581	ug/L	08/20/2008
	MSD		0.240	42*		3	(< 30)	0.568	ug/L	08/20/2008
Benzo[a]pyrene	MS	ND	.232	40*	(55-120)			0.581	ug/L	08/20/2008
	MSD		0.235	41*		1	(< 30)	0.568	ug/L	08/20/2008
Indeno[1,2,3-c,d] pyrene	MS	ND	.228	39*	(45-125)			0.581	ug/L	08/20/2008
	MSD		0.230	40*		1	(< 30)	0.568	ug/L	08/20/2008
Dibenzo[a,h]anthracene	MS	ND	.23	40*	(41-140)			0.581	ug/L	08/20/2008
	MSD		0.234	41		2	(< 30)	0.568	ug/L	08/20/2008
Benzo[g,h,i]perylene	MS	ND	.218	38*	(46-125)			0.581	ug/L	08/20/2008
	MSD		0.222	39*		2	(< 30)	0.568	ug/L	08/20/2008
Naphthalene	MS	ND	.191	33*	(42-100)			0.581	ug/L	08/20/2008
	MSD		0.132	23*		37 *	(< 30)	0.568	ug/L	08/20/2008
Surrogates										
Terphenyl-d14 <surr>	MS		.231	40*	(50-135)					08/20/2008
	MSD		0.231	41*		0				08/20/2008

SGS Ref.#	849893	Matrix Spike	**Printed Date/Time**	08/28/2008	13:51
	849894	Matrix Spike Duplicate	**Prep** **Batch**	XXX19872	
			Method	3520 Liquid/Liquid Ext for 827	
			Date	08/20/2008	
Original	1084311002				
Matrix	Water (Surface, Eff., Ground)				

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Polynuclear Aromatics GC/MS

Batch	XMS4662
Method	8270D SIMS
Instrument	HP 6890/5973 MS SVOA

SGS

1084326

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(1)

CLIENT: Hoefler Consulting Group
CONTACT: Wendy Mitchell PHONE NO: (907) 563-2137
PROJECT: Gaplanely SITE/PWSID#:
REPORTS TO: Wendy Mitchell, Bret Berglund E-MAIL: wmitchell@hoeflernet.com
FAX NO.: (907) 563-2164
INVOICE TO: Wendy Mitchell QUOTE #
P.O. NUMBER

SGS Reference:

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C= COMP, G= GRAB)	Preservatives Used: N/P	HCl								REMARKS
							Analysis Required (3): PAH 8270C SIM	BTEX 8021								
(1) A-E	CLSW01-08	8/13/08	0905	water	5	G	X	X								
(2)	CLSW11-08	↓	0910	↓	↓	G	X	X								
(3) ↓	CLSW12-08	↓	0935	↓	↓	G	X	X								
(4)																

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:	Date	Time
[signature]	8/18/08	1120	Opened by	TSA	
Relinquished By: (2)	Date	Time	Received By:	Date	Time
Relinquished By: (3)	Date	Time	Received By:	Date	Time
Relinquished By: (4)	Date	Time	Received By:	Date	Time
			[signature]	8/18/08	1120

(4)

Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? (Circle) YES NO
Temperature °C: 6.9D TB= 0.5 C= 1.7
Special Deliverable Requirements:
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
Special Instructions:
Requested Turnaround Time:
☐ RUSH _____ Date Needed ☐ STD

White - Retained by Lab
Yellow - Returned with Report
Pink - Retained by Sampler

SGS

1084326

SAMPLE RECEIPT FORM

SGS WO#:

Yes	No	NA	
✓	4	2	Are samples **RUSH**, priority or *w/in 72 hrs* of hold time?
✓			If yes, have you done *e-mail ALERT notification?*
	✓		Are samples *within 24 hrs.* of **hold time** or **due date**?
		✓	If yes, have you also *spoken with* supervisor?
		✓	Archiving bottles (if req'd): Are they properly marked?
	✓		Are there any **problems**? PM Notified?
		✓	Were samples preserved correctly and pH verified?
		✓	If this is for PWS, provide **PWSID.**
	✓		Will courier charges apply?
			Method of payment?
✓			Data package required? (Level: 1 / 2 / 3 / 4)
			Notes:
	✓		Is this a DoD project? (USACE, Navy, AFCEE)

TAT (circle one): Standard -or- Rush

Received Date: 8/18/08

Received Time: 1120

Is **date/time conversion** necessary? NO

# of hours to AK Local Time:

Thermometer ID: 690

Cooler ID	Temp Blank	Cooler Temp
1	0.5 °C	1.7 °C
	°C	°C
	°C	°C
	°C	°C
	°C	°C

Note: Temperature readings include thermometer correction factors

Delivery method (circle all that apply): Client

Alert Courier / UPS / FedEx / USPS / DHL / AA Goldstreak / NAC / ERA / PenAir / Carlile/ Lynden / SGS / Other:

Airbill #

Additional Sample Remarks: (√ *if applicable*)

- ____ Extra Sample Volume?
- ____ Limited Sample Volume?
- ____ MeOH field preserved for volatiles?
- ____ Field-filtered for dissolved ____
- ____ Lab-filtered for dissolved ____
- ____ Ref Lab required? ____
- ____ Foreign Soil?

This section must be filled out for DoD projects (USACE, Navy, AFCEE)

Yes	No	
	✓	Is received temperature 4 ± 2°C? Exceptions: temp were out of range — Samples/Analyses Affected:
✓	✓	If temperature(s) <0 °C, were containers ice-free? N/A. *Notify PM immediately of any ice in samples.*
	✓	Was there an airbill? *(Note # above in the right hand column)*
	✓	Was cooler sealed with custody seals? # / where:
	NA	Were seal(s) intact upon arrival?
✓		Was there a COC with cooler?
	✓	Was COC sealed in plastic bag & taped inside lid of cooler?
✓		Was the COC filled out properly?
	✓	Did the COC indicate USACE / Navy / AFCEE project?
✓		Did the COC and samples correspond?
✓		Were all sample packed to prevent breakage? Packing material: Bubble wrap
✓		Were all samples unbroken and clearly labeled?
	✓	Were all samples sealed in separate plastic bags?
✓		Were all VOCs free of headspace and/or MeOH preserved?
✓		Were correct container / sample sizes submitted?
✓		Is sample condition good?
✓		Was copy of CoC, SRF, and custody seals given to PM to fax?

This section must be filled if problems are found.

Yes	No	
		Was client notified of problems?

Individual contacted:

Via: Phone / Fax / Email (*circle one*)

Date/Time:

Reason for contact:

Change Order Required?

SGS Contact:

Notes:

Completed by (sign): Joe Rud **(print):** Joe Rud

Login proof (check one): waived ____ required ____ performed by:

Form # F004r17 revised 04/11/08

SGS

1084326

SAMPLE RECEIPT FORM (page 2)

SGS WO#

						Container Volume									Container Type								Preservative							
#	Container ID	Matrix	Test	QC	TB	1 L	500 mL	250 mL	125 mL	60 mL	40 mL	8oz (250 mL)	4oz (125 mL)	Other	AG	CG	HDPE	Nalgene	Cubic	Coli	Septa	Other	None	HCl	HNO_3	H_2SO_4	MeOH	$Na_2S_2O_3$	NaOH	Other
1-3	A-C	1	Btex								9				✓						✓			✓						
	D,E	1	PAH			6									✓								✓							
4	A-C	1	Btex		✓						3				✓						✓			✓						
Bottle Totals						6					12																			

Completed by: Jax Rd Date: 8/18/08

Form # F004r16 revised 03/10/08

Appendix C

Data Quality Assessment
and
ADEC Laboratory Data Review Checklist

1 LAB ANALYSIS, DATA VALIDATION, AND REPORTING

The Camp Lonely sampling effort was completed on August 13, 2008. Aqueous samples were taken according to the specifications in Table 1-1, below. SGS Environmental Services, Anchorage, Alaska, an ADEC-approved laboratory, provided the analytical support for this project. Documentation pertaining to chain-of-custody and sample condition was filed in field and laboratory records.

Table 1-1 Summary of Sample Containers and Preservatives

Parameter (Method)	Media	Container Volume	Container Material	Preservative	Hold time (days)	Trip Blank[1]
BTEX (SW8021B)	Water	3 X 40 mL	Amber Glass	HCL to pH < 2, 4±2°C	14	Required
PAH SIM (SW8270D)	Water	2 X 1 Liter	Amber Glass	4±2°C	7	NA

Note: 1 – This type of sample requires a trip blank to be included in the cooler, with the trip blank noted on the chain of custody.

The chain of custody form was completed as the samples were collected and packaged into a cooler for transport. A trip blank, temperature blank, and gel ice were added as required. The samples were placed in the cooler at the time of collection and were kept chilled until delivery to the laboratory. A trip blank was present, but not noted on the chain of custody form. Table 1-2 provides the SGS work order number and corresponding receipt temperatures.

Table 1-2 Summary of Work Orders and Cooler Receipt Information

SGS Work Order Number	Date of Receipt	Temperature Blank	Cooler Temperature
1084326	8/18/2008	0.5°C	1.7°C

The SGS final report was presented as hard copy Level II data deliverable package and electronic deliverable compatible with Microsoft Access.

Data validation was performed in accordance with ADEC quality assurance procedures for laboratory data (ADEC 2006) to ensure that the data set met project data quality objectives and was usable for purposes of the project.

The analytic data was reviewed for consistency with the *ADEC Technical Memorandum of 2006, Environmental Laboratory Data and Quality Assurance* (ADEC 2006) requirements. An ADEC Laboratory Data Review Checklist was completed and was included in this report. Any anomalies to the requirements for precision, accuracy, representativeness, comparability, completeness and sensitivity (PARCCS) are discussed below and the data were flagged where appropriate.

Application of Data Flags

General data quality flagging conventions in the following table were used to indicate quality control anomalies. Data was flagged where appropriate. A data quality summary is provided below.

Table 1-3 Qualifiers

Qualifier	Description
J	The analyte was positively identified, the quantitation was an estimate. Where applicable, a "+" or "-" was appended to indicate positive or negative bias, respectively.
F	The analyte was positively identified but the result was between the PQL and the MDL; the quantitation was an estimate.
ND	The analyte was analyzed for, but not detected. The associated numerical value was at or below the MDL.

Preservation, Temperature and Hold Time
Cooler receipt temperatures are presented in Table 1-2. Temperatures were below the ADEC required 4±2°C. Because there was no evidence of freezing, data was not flagged and all data was considered usable.

Samples were initially extracted within the method required 7 day hold time for SW8270D PAH SIM. Due to low surrogate, low LCS, and low MS/MSD recovery samples were re-extracted three days outside hold time. Results confirmed with passing QC. The initial results were reported. All SW8270D results were flagged J-. All results are significantly below 18 AAC 75 Table C Groundwater Cleanup Levels (June 9, 2008), therefore, all data was considered usable.

1.1 PRECISION

Precision was measured from the Field Duplicate, and the Relative Percent Difference (RPD) between the Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) or the Matrix Spike (MS) and Matrix Spike Duplicate (MSD). No laboratory duplicates were evaluated.

Field Replicates
One field duplicate was collected per method and matrix. Aqueous sample CLSW91-08 was a field duplicate of CLSW01-08. The RPD was within the recommended 30% for all analytes. RPDs were not evaluated in cases where results were less than the MDL.

Laboratory Control Sample and Duplicate (LCS/LCSD) and Matrix Spike and Duplicate (MS/MSD) RPD
Analytical batch precision was established through the extraction and analysis of an LCS/LCSD for SW8021B and an MS/MSD for SW8270D PAH SIM, one per batch of 20 samples or less. The RPD between the LCS and LCSD was within the required range for all analytes.

With the exception of Napthalene (RPD of 39%), the RPD between the MS and MSD was within the required range for all analytes. Naphthalene results were flagged as estimates without bias for all samples. Because all naphthalene results were significantly below 18 AAC 75 Table C limits, all data was considered usable.

1.2 ACCURACY

Accuracy was measured from laboratory QC sample percent recoveries to include LCS/LCSD, MS/MSD, and surrogates. Accuracy was also evaluated by determining whether any deviations to method or laboratory requirements for CCV were noted in the case narrative.

Continuing Calibration Verification (CCV)
There were no CCVs reported in the laboratory case narrative outside of quality control limits.

Surrogates
All SW8021B surrogate recoveries were within established control limits. All SW8270D PAH SIM surrogates recovered below established control limits. Samples were re-extracted three days outside hold time. Results confirmed with passing surrogate recoveries. The initial results were reported. All SW8270D results were flagged J-. All results are significantly below 18 AAC 75 Table C Groundwater Cleanup Levels (June 9, 2008), therefore, all data was considered usable. This is consistant with past data.

Laboratory Control Sample and Duplicate (LCS/LCSD) and Matrix Spike and Duplicate (MS/MSD) Recovery
One LCS/LCSD was analyzed for each batch of 20 or less for SW8021B. All LCS/LCSD recoveries were within acceptance limits. An LCS and an MS/MSD were analyzed for each batch of 20 or less for SW8270D. All LCS and MS/MSD recoveries were below acceptance limits. Refer to the "Preservation, Temperature, and Hold Time" and "Surrogates" sections for further discussion.

Internal Standards
No internal standards are noted as being outside acceptance limits in the case narrative.

1.3 REPRESENTATIVENESS

The data deliverables were consistent with the site conditions. Samples were collected from usual locations.

1.4 COMPARABILITY

Comparability between laboratories was not applicable to this investigation. Standard ADEC methods were used by SGS, an ADEC-certified laboratory.

1.5 COMPLETENESS

Completeness was measured as the number of usable results versus the total number of results. The data set was 100% complete with no omissions or rejections with respect to analysis. The information fulfilled the data quality objectives of this sampling event.

1.6 SENSITIVITY

Sensitivity was measured by evaluating whether the PQL was less than the regulatory cleanup levels or project required goals. Additionally, sensitivity was evaluated by determining whether method blank and trip blank results were less than the PQL.

Blanks (Method and Trip)
A trip blank was included in the cooler. There were no detections in the trip blank greater than the MDL.

One method blank was analyzed for every analytical batch of twenty samples or less. Benzene was detected in one method blank between the MDL and PQL. Results for all associated samples were greater than five times the concentration detected in the blank, therefore, no data was flagged. There was no impact on data quality or usability.

Reporting Limits
PQLs for all parameters and samples with results of non-detect were less than the project goals.

Laboratory Data Review Checklist

Completed by: Jen McLean

Title: Associate Scientist

Date: September 30, 2008

CS Report Name: Camp Lonely

Report Date:

Consultant Firm: Hoefler Consulting Group

Laboratory Name: SGS

Laboratory Report Number: 1084326

ADEC File Number:

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:

      Not Applicable

2. Chain of Custody (COC)

   a. COC information completed, signed, and dated (including released/received by)?

      ☒ Yes ☐ No Comments:

      Except the trip blank was not noted on the COC

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:

Cooler receipt temperatures are presented in Table 1-2. Temperatures were below the ADEC required 4±2oC.

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:

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.

Comments:

Regarding cooler receipt temperatures, because there was no evidence of freezing, data was not flagged and all data was considered usable.

4. Case Narrative

a. Present and understandable?

☒ Yes ☐ No Comments:

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

☒ Yes ☐ No Comments:

Due to low surrogate, low LCS, and low MS/MSD recovery, all samples were re-extracted for SW8270D PAH SIM, three days outside hold time.

c. Were all corrective actions documented?

☒ Yes ☐ No Comments:

Yes, samples were re-extracted.

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

Comments:

All SW8270D results were flagged "J-". Because results confirmed outside hold time with passing QC, and all results were significantly below 18 AAC 75 Table C Groundwater Cleanup Levels (June 9, 2008) which is consistant with past site data, all data was considered usable.

5. Samples Results

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

☒ Yes ☐ No Comments:

b. All applicable holding times met?

☒ Yes ☐ No Comments:

Samples were initially extracted within the method required 7 day hold time for SW8270D PAH SIM. Due to low surrogate, low LCS, and low MS/MSD recovery samples were re-extracted three days outside hold time.

c. All soils reported on a dry weight basis?

☐ Yes ☒ No Comments:

Not Applicable

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

☒ Yes ☐ No Comments:

e. Data quality or usability affected? Explain.

Comments:

SW8270D PAH SIM results confirmed with passing QC. The initial results were reported. All SW8270D results were flagged J-. Because all results are significantly below 18 AAC 75 Table C Groundwater Cleanup Levels (June 9, 2008) and results were consistant with past data, all data was considered usable.

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?

Comments:

Not Applicable

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

☐ Yes ☒ No Comments:

Benzene was detected in one method blank between the MDL and PQL. Results for all associated samples were greater than five times the concentration detected in the blank, therefore, no data was flagged.

v. Data quality or usability affected? Explain.

Comments:

There was no impact on data quality or usability.

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

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples?

☐ Yes ☒ No Comments:

One LCS/LCSD was analyzed for each batch of 20 or less for SW8021B. An LCS and an MS/MSD were analyzed for each batch of 20 or less for SW8270D.

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

☐ Yes ☒ No Comments:

Not Applicable

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:

All SW8021B LCS/LCSD recoveries were within acceptance limits.
All SW8270D PAH SIM LCS and MS/MSD recoveries were below acceptance limits. Refer to 5b and 5e for further discussion.

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

☐ Yes ☒ No Comments:

Analytical batch precision was established through the extraction and analysis of an LCS/LCSD for SW8021B and an MS/MSD for SW8270D PAH SIM, one per batch of 20 samples or less. The RPD between the LCS and LCSD was within the required range for all analytes.
With the exception of Napthalene (RPD of 39%), the RPD between the MS and MSD was within the required range for all analytes.

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

Samples CLSW01-08, CLSW91-08, CLSW12-08 were impacted.

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

☒ Yes ☐ No Comments:

Naphthalene results for samples CLSW01-08, CLSW91-08, CLSW12-08 were flagged as estimates without bias.

vii. Data quality or usability affected? Explain.
Comments:

Because all naphthalene results were significantly below 18 AAC 75 Table C limits, all data was considered usable.

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:

All SW8021B surrogate recoveries were within established control limits. All SW8270D PAH SIM surrogates recovered below established control limits. Samples were re-extracted outside hold time. Results confirmed with passing surrogate recoveries. The initial results were reported.

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

☒ Yes ☐ No Comments:

All SW8270D results were flagged J-.

iv. Data quality or usability affected? Explain.

Comments:

All results are significantly below 18 AAC 75 Table C Groundwater Cleanup Levels (June 9, 2008) and all results are consistant with past data, therefore, all data was considered usable.

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. All results less than PQL?

☒ Yes ☐ No Comments:

iii. If above PQL, what samples are affected?

Comments:

Not Applicable

iv. Data quality or usability affected? Explain.

Comments:

No Impact

e. Field Duplicate

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

☒ Yes ☐ No Comments:

Aqueous sample CLSW91-08 was a field duplicate of CLSW01-08.

ii. Submitted blind to lab?

☒ Yes ☐ No Comments:

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

RPD (%) = 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? Explain.

Comments:

No Impact

f. Decontamination or Equipment Blank (if applicable)

☐ Yes ☐ No ☒ Not Applicable

i. All results less than PQL?

☐ Yes ☒ No Comments:

Not Applicable

ii. If above PQL, what samples are affected?

Comments:

Not Applicable

iii. Data quality or usability affected? Explain.

Comments:

No Impact

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

a. Defined and appropriate?

☒ Yes ☐ No Comments: