

July 28, 2004

Jim Frechione
Environmental Conservation Manager
Alaska Department of Environmental Conservation
555 Cordova Street
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RESTORATION
Science & Engineering

911 W. 8TH AVENUE, SUITE 100
ANCHORAGE, AK 99501
VOICE : 907-278-1023
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EMAIL: NYMO@ALASKA.NET

Re: Kuskokwim Inn/ Long House Bethel Inn Groundwater Monitoring Event 062604

Dear Mr. Frechione:

Restoration Science & Engineering (RSE) is pleased provide the following groundwater sample results and well decommissioning for the sites within Lot 5, Block 15, U.S. Survey 3230B, Townsite of Bethel. The street address is 751 Third Avenue, Bethel, Alaska (Figure 1).

Groundwater sample results and well decommissioning are being submitted at the request of the Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Program as per a March 29, 2002 Record of Decision (ROD) for the aforementioned site.

The ROD requires semi-annual sampling of the drinking water well and monitoring wells MW-1, MW-2 and MW-5. Groundwater samples were collected by a qualified person and analyzed for DRO/RRO using AK methods 102/103 and for benzene, toluene, ethylbenzene and total xylenes (collectively referred to as BTEX) using EPA method 8021.

Additionally the ROD requires that any well installed that is unusable or impractical to use should be decommissioned. ADEC has determined that monitoring wells MW-3 and MW-4 are no longer needed for monitoring purposes and may be unusable or impractical to use.

On June 25, 2004 RSE met with ADEC staff Robert Carlson at the State of Alaska Bethel District Recording Office and discussed the site assessment and sampling efforts to be conducted by RSE.

Monitoring Well Sample Results

Groundwater samples were collected on June 26, 2004 from monitoring wells MW-1, MW-2, and MW-5 (Figure 2). RSE field staff resurveyed the well measuring points and collected water elevations. Prior to sampling RSE purged the wells until three water column volumes were removed or until water quality parameters were measured within 10-percent of the prior reading. Groundwater samples were collected using a peristaltic pump and clean environmental grade tubing, and placed into laboratory and method-specified containers. The sample containers were placed in a cooler chilled to between two and six degrees Celsius and transported under chain-of-custody (COC) to Analytica International, Inc. (Analytica), ADEC approved laboratory in Anchorage for analyses.

Groundwater samples were measured below ADEC Table C groundwater cleanup levels for DRO/RRO and BTEX from groundwater monitoring wells MW-1 and MW-2. Groundwater

samples MW-5 and its duplicate (MW-5DUP) both had DRO concentrations of 13 mg/L; above the ADEC Table C groundwater cleanup level of 1.5 mg/L. Likewise groundwater samples MW-5 and MW-5DUP both had benzene concentrations of 7.5 µg/L and 7.1 µg/L, respectively; again above the ADEC Table C groundwater cleanup level of 5 µg/L. Sample results are provided Table 1.

Drinking Water Well Sample Results

On June 26, 2004 a water sample was collected from the drinking water well (sample ID "Water Well"). The water sample was collected from a sampling point before the water conditioner or pressure tank in the public water system using a clean disposable bailer, and placed into laboratory and method-specified containers. Water sample "Water Well" was transported under COC in the aforementioned manner.

Water sample "Water Well" had concentrations of DRO/RRO above the practical quantitation limit (PQL) and was measured with DRO at 0.13 mg/L and RRO at 0.3 mg/L. These results are below ADEC Table C groundwater cleanup levels. Prior sampling of this well on March 24, 2001 (sample ID KIDWW-052401) was measured at non-detect albeit with higher method PQLs for DRO/RRO which were 0.500 mg/L and 1.00 mg/L, respectively. Additionally, water sample "Water Well" were non-detect and below ADEC Table C groundwater cleanup levels for BTEX. Sample results are provided in Table 2.

As the purpose of the DRO/RRO analyses is to support a lack of connection between the upper perched groundwater and the deep sub-permafrost aquifer, the detection of DRO and RRO in the drinking water well could be interpreted to indicate that a connection exists or that a breach in the upper well casing has occurred. To further evaluate this potential, RSE requested the laboratory provide chromatograms for the drinking water well and the monitoring well DRO and RRO results. RSE's review of these chromatograms indicates that the pattern at MW-5 is consistent with a fuel source and that the pattern for the drinking water well is substantially different and consistent with naturally occurring organics. The Bethel area sub-permafrost aquifer is known to contain high levels of iron as well as a modest to small amount of natural organics. Review of historic area logs identifies wood and other natural debris at well completion depths which provide a source for these organics. This conclusion is further supported by the lack of the presence of soluble BTEX constituents that are present in the perched aquifer and their absence in the drinking water well sample. Should ADEC have any concern regarding this finding RSE suggests Longhouse and ADEC discuss additional sampling or investigative approaches which can provide more certainty regarding this conclusion.

Quality Assurance and Data Validation

All samples were collected and analyzed in accordance with 18 AAC 75 and in accordance with RSE's Quality Assurance Project Plan (QAPP). All field documentation was reviewed for completeness, accuracy and the presence of unexpected results. All water sample analyses were conducted by Analytica, in accordance with 18 AAC 75. Data deliverable packages show acceptable method and laboratory instrument performance. Recommended extraction and analytical holding times were met for all samples. All site data is considered valid and acceptable for its intended use of comparing groundwater pollutant concentrations with ADEC Table C groundwater cleanup levels. A copy of the laboratory analytical results is provided as an attachment. RSE or the contract laboratory maintains a complete set of data deliverables, which are assembled to meet the criteria established in 18 AAC 75.

Well Decommissioning

On June 25, 2004 RSE field staff located and decommissioned groundwater monitoring wells MW-3 and MW-4. Both MW-3 and MW-4 were exposed 1.5 feet below ground surface (bgs) and filled with 3/8-inch bentonite chips. The bentonite chips were saturated with water from a nearby potable water source. The excavated area around the monitoring wells was backfilled with bentonite chips and similarly saturated with water. Native fill was used to bring the excavation area back to grade. Photos of the monitoring well decommissioning have been provided.

Conclusions and Recommendations

The following summarizes the primary inferences and conclusions obtained from the site data:

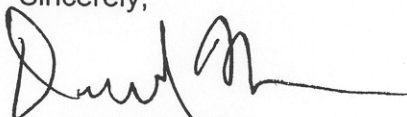
- ✓ Groundwater samples MW-1 and MW-2 measured below ADEC Table C groundwater cleanup levels for DRO/RRO and BTEX
- ✓ Water sample "Water Well" measured below ADEC Table C groundwater cleanup levels for DRO/RRO and BTEX
- ✓ Groundwater samples MW-5 and MW-5DUP both had concentrations of DRO and benzene above ADEC Table C groundwater cleanup levels
- ✓ Monitoring wells MW-3 and MW-4 were decommissioned as per the ADEC's March 29, 2002 ROD

Study Limitations

This report was prepared for the exclusive use of our client Long House Bethel Inn and their representatives in the evaluation of this site. The conclusions and statements of site conditions are based upon information provided from observations during RSE's field investigations, limited records review, and personnel interviews. The conditions observed in the subsurface investigation are assumed representative of conditions throughout the site and are considered valid at the time of the site assessment.

Please review the above groundwater sample results and well decommissioning prepared by RSE. It is understood that an additional monitoring event is required as per the ROD and that then the ADEC will evaluate the results to interpret if a concentration trend is increasing, decreasing, or stable, and that the monitoring program shall continue until the ADEC makes a determination that there is a stable or decreasing trend in contaminant concentrations. Please feel free to contact Lucas Gamble or David Nyman, PE with any questions.

Sincerely,



David Nyman, P.E.

Attachments: Figure 1: Project Location

 Figure 2: Site Map

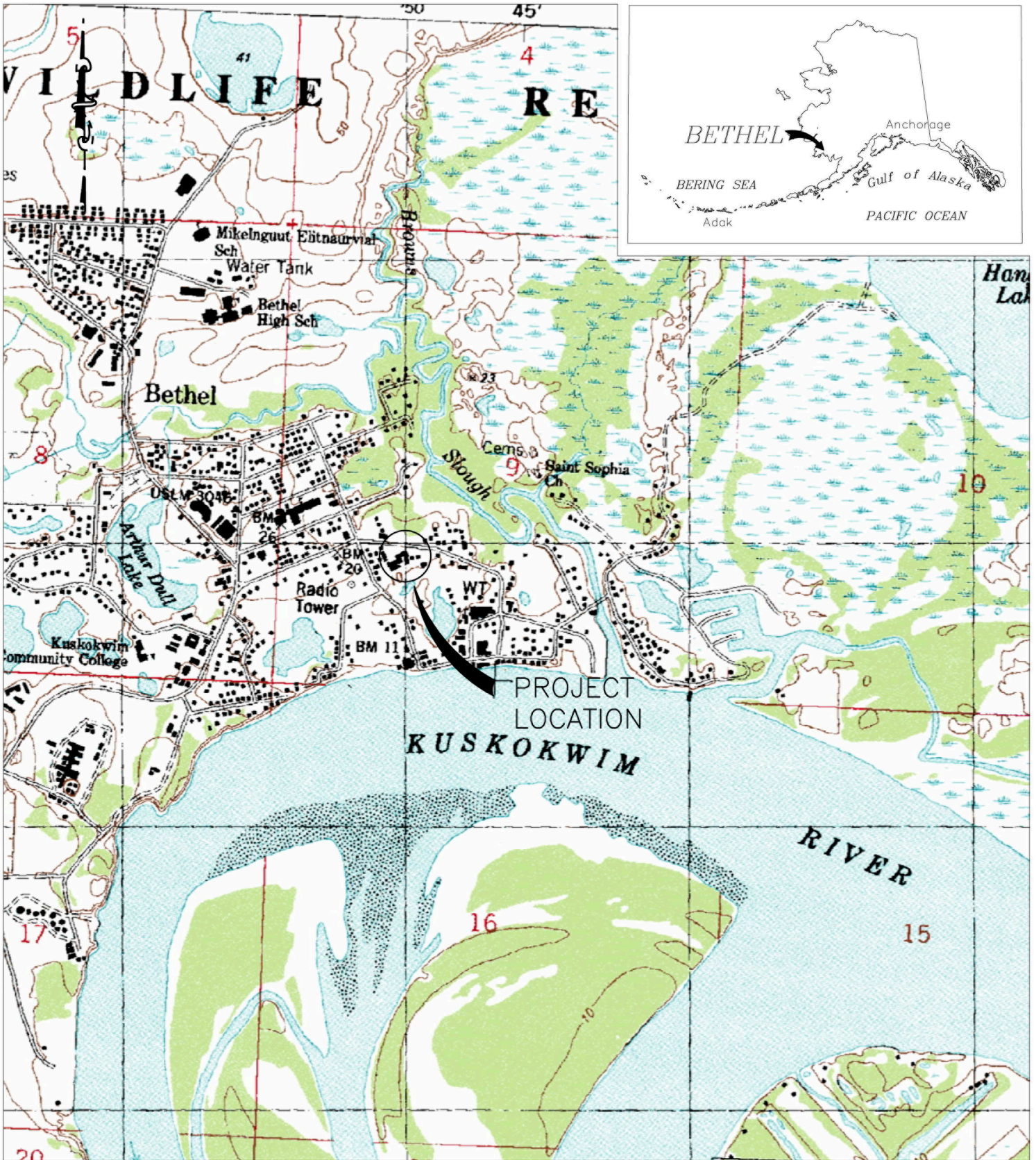
 Table 1: Monitoring Well Sample Results

 Table 2: Drinking Water Well Sample Results

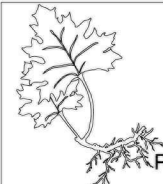
 Selected Site Photographs of Well Decommissioning

 Analytica, Inc. - Laboratory Analytical Results and

 Analytica, Inc. – Chromatograms for MW-5, MW-5 DUP and Water Well



REFERENCE: USGS BETHEL, ALASKA EXPERIMENTAL EDITION 1:25,000 1985



RESTORATION

SCIENCE & ENGINEERING
911 West 8th Avenue, Suite 100
Anchorage, Alaska 99501

PH (907) 278-1023 FAX (907) 277-5718

REVISIONS

NO.	DATE	DESCRIPTION

DESIGNED BY: _____ CHECKED BY: _____

FIGURE 1 SITE LOCATION MAP

LONG HOUSE INN (FORMER KUSKOKWIM INN)
BETHEL, ALASKA

**TABLE 1
LONGHOUSE BETHEL INN
WATER HYDROCARBON ANALYSES
JUNE 2004**

HYDROCARBON CONCENTRATIONS IN WATER										
SAMPLE ID	DEPTH TO WATER	WATER ELEVATION	DATE	DIESEL RANGE ORGANICS	RESIDUAL RANGE ORGANICS	GASOLINE RANGE ORGANICS	BENZENE	TOLUENE	ETHYL-BENZENE	TOTAL XYLENES
	(ft)	(ft)		(mg/L)	(mg/L)	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
MW-1-082000	8.01	--	08/20/00	0.500	0.500U	0.0900U	0.500U	2.00U	2.00U	2.00U
MW-2-082000	6.35	--	08/20/00	0.319U	0.532U	0.0900U	0.500U	2.00U	2.00U	2.00U
MW-5-082000	5.79	--	08/20/00	18.6	0.936	0.719	17.4	4.51	69.4	170.7
MW-5A-082000	5.79	--	08/20/00	16.3	0.895	0.712	8.75	2.00U	34.7	84.4
MW-2-052401	9.20	--	05/24/01	0.538U	1.08U	0.0900U	0.500U	2.00U	2.00U	2.00U
MW-5-052401	8.74	--	05/24/01	17.2	1.3	0.655	6.790	2.00U	38.6	79.5
MW-5A-052401	8.74	--	05/24/01	16.8	1.4	0.625	5.63	2.00U	30.6	63.1
MW-1-080901	--	--	08/09/01	0.495U	0.990U	0.040U	1.0U	1.0U	1.0U	2.0U
MW-2-0809019	6.23	--	08/09/01	0.500U	1.00U	0.040U	1.0U	1.0U	1.0U	2.0U
MW-5-080901	5.70	--	08/09/01	16.0	0.990U	0.68	7.1	1.0U	36	100
MW-5A-080901	5.70	--	08/09/01	18.5	1.2	0.69	5.1	1.0U	37	66
MW-1	9.84	90.440	06/26/04	0.10U	0.25	--	1.0U	1.0U	1.0U	3.0U
MW-2	7.99	90.470	06/26/04	0.10U	0.21U	--	1.0U	1.0U	1.0U	3.0U
MW-5	7.59	90.435	06/26/04	13	0.59	--	7.5	1.5	30	58
MW-5DUP	7.59	--	06/26/04	13	0.82	--	7.1	1.5	31	60
Trip Blank	--	--	--	--	--	--	1.0U	1.0U	1.0U	3.0U
18 AAC 75 Table C Groundwater Cleanup Levels				1.5	1.1	1.3	5	1000	700	10000

NOTES:

- 1) Diesel Range Organics (DRO) by Method AK 102 . Modification of EPA Method 8100 to measure DRO in the C10 to the start of the C25 hydrocarbon range using a solvent extraction (methylene chloride) and gas chromatography (GC) analysis with flame ionization detector (FID).
- 2) Residual Range Organics (RRO) by AK 103 Method. Modification of EPA Method 8100 to measure RRO in the C25 to the start of the C36 hydrocarbon range using a solvent extraction (methylene chloride) and gas chromatography (GC) analysis with flame ionization detector.
- 3) Gasoline Range Organics (GRO)/Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) by AK101 modification of Method 8015 to measure GRO in the C6 to the start of C10 hydrocarbon range using a purge and trap extraction and GC analysis with PID/FID.
- 4) The maximum total xylene contaminant level is 10000 µg/L based on Table C groundwater cleanup levels. Total xylenes refers to the summation of p&m-xylene and o-xylene concentrations.
- 5) U qualifier indicates the analyte was undetected at the detection limits noted; i.e. 13U indicates the analyte was undetected at a practical quantitation limit of 26.6 µg/L.
- 6) - symbol indicates the constituent was not analyzed or non applicable.
- 7) Most recent groundwater survey data shows relatively flat groundwater gradient.

**TABLE 2
LONGHOUSE BETHEL INN
WATER HYDROCARBON ANALYSES
JUNE 2004**

HYDROCARBON CONCENTRATIONS IN WATER								
SAMPLE ID	DATE	DIESEL	RESIDUAL	GASOLINE	BENZENE	TOLUENE	ETHYL- BENZENE	TOTAL XYLENES
		RANGE ORGANICS (mg/L)	RANGE ORGANICS (mg/L)	RANGE ORGANICS (mg/L)				
KIDWW-052401	05/24/01	0.500U	1.00U	0.0900U	0.500U	2.00U	2.00U	2.00U
Water Well	06/26/04	0.13	0.30	--	1.0U	1.0U	1.0U	3.0U
18 AAC 75 Table C Groundwater Cleanup Levels		1.5	1.1	1.3	5	1000	700	10000

NOTES:

- 1) Diesel Range Organics (DRO) by Method AK 102 . Modification of EPA Method 8100 to measure DRO in the C10 to the start of the C25 hydrocarbon range using a solvent extraction (methylene chloride) and gas chromatography (GC) analysis with flame ionization detector (FID).
- 2) Residual Range Organics (RRO) by AK 103 Method. Modification of EPA Method 8100 to measure RRO in the C25 to the start of the C36 hydrocarbon range using a solvent extraction (methylene chloride) and gas chromatography (GC) analysis with flame ionization detector.
- 3) Gasoline Range Organics (GRO)/Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) by AK101 modification of Method 8015 to measure GRO in the C6 to the start of C10 hydrocarbon range using a purge and trap extraction and GC analysis with PID/FID.
- 4) The maximum total xylene contaminant level is 10000 µg/L based on Table C groundwater cleanup levels. Total xylenes refers to the summation of p&m-xylene and o-xylene concentrations.
- 5) U qualifier indicates the analyte was undetected at the detection limits noted; i.e. 13U indicates the analyte was undetected at a practical quantitation limit of 26.6 µg/L.
- 6) - symbol indicates the constituent was not analyzed or non applicable.



Excavated Area Backfilled with 3/8-inch Bentonite Chips (MW-4)



MW-3 Being Filled with 3/8-inch Bentonite Chips and Saturated with Water



Analytica International, Inc.
5761 Silverado Way, Unit N
Anchorage, AK 99518
Phone: 907-258-2155
Fax: 907-258-6634

7/21/2004

Restoration Science & Engineering
911 W. 8th Ave.
Suite 100
Anchorage, AK 99501
Attn: David Nyman

Work Order #: A0406379
Date: 7/21/2004
Work ID: Bethel Longhouse Hotel
Date Received: 6/30/2004

Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
A0406379-01	MW-1	A0406379-02	MW-2
A0406379-03	MW-5	A0406379-04	MW-5 DUP
A0406379-05	Water Well	A0406379-06	Trip Blank

Enclosed are the analytical results for the submitted sample(s). Please review the CASE NARRATIVE for a discussion of any data and/or quality control issues. Listings of data qualifiers, analytical codes, key dates, and QC relationships are provided at the end of the report.

Sincerely,

Jason Gray
Project Manager

"The Science of Analysis, The Art of Service"

Case Narrative

Analytica Alaska Inc.

Work Order: A0406379

Samples were prepared and analyzed by methods in the following references:

ADEC Method AK102/103 For the Determination of Diesel/Residual Range Organics.
Test Methods for Evaluating Solid Waste, USEPA SW-846, Third Edition, Rev. 4, Dec. 1996.

SAMPLE RECEIPT:

Samples for Bethel Roadhouse project were received at Analytica-Anchorage (ADEC Laboratory Approval Number: UST-014) on 6/30/2004 in one cooler at a temperature of 1.1°C. Samples were received in good condition and in order per chain of custody.

REVIEW FOR COMPLIANCE WITH ANALYTICA QA PLAN

A summary of our review is shown below, organized by test:

Test Method: BTEX by 8021B

HOLDING TIMES:

Holding times were met for this Test.

INSTRUMENT CALIBRATIONS:

Initial calibration and CCV samples met method criteria.

SURROGATE RECOVERIES:

There were no surrogate outliers.

METHOD BLANK OUTLIERS:

There were no MB outliers.

LCS/LCSD OUTLIERS:

There are no LCS/LCSD outliers.

Test Method: ADEC AK102/103 (DRO/RRO)

HOLDING TIMES:

Holding times were met for this Test.

INSTRUMENT CALIBRATIONS:

Initial calibration and CCV samples met method criteria.

SURROGATE RECOVERIES:

There were no surrogate recovery outliers.

METHOD BLANK OUTLIERS:

There were no MB outliers.

LCS/LCSD OUTLIERS:

There are no LCS/LCSD outliers.

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering

Client Project Number: None

Report Section: Client Sample Report

Client Sample Name: MW-1

Matrix: Aqueous Collection Date: 6/26/2004 12:21:00PM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-01A Analysis Date: 7/9/2004 2:12:00PM
Prep Date: 7/8/2004 Instrument: Woof
Analytical Method ID: ADEC AK102/103 - (DRO & RRO) File Name: W4070957.D
Prep Method ID: 3510 Dilution Factor: 1
Prep Batch Number: A040708002
Report Basis: As Received Analyst Initials: SG
Sample prep wt./vol: 1,000.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>Rerun #:</u>	
Diesel Range Organics	n/a	ND		mg/L	0.10	0.020				1	
Residual Range Organics	n/a	0.25		mg/L	0.20	0.031					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
o-Terphenyl	84-15-1	0.046		mg/L	0.0050	0.00064	0.050	91.2	50	150	1
Squalane	111-01-3	0.053		mg/L	0.0050	0.00096	0.050	106	50	150	

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-01B Analysis Date: 7/6/2004 8:41:00PM
Prep Date: 7/6/2004 Instrument: Natasha
Analytical Method ID: Aromatic VOCs by GC/FID via method 8021B - BTEX File Name: N4070629.D
Prep Method ID: 5030 Dilution Factor: 1
Prep Batch Number: A040706001
Report Basis: As Received Analyst Initials: SG
Sample prep wt./vol: 5.00 ml Prep Extract Vol: 5.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>					<u>Rerun #:</u>
Benzene	71-43-2	ND		ug/L	1.0	0.15					1
Ethylbenzene	100-41-4	ND		ug/L	1.0	0.18					
Toluene	108-88-3	ND		ug/L	1.0	0.24					
Xylenes, Total	1330-20-7	ND		ug/L	3.0	0.63					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
Bromofluorobenzene(PID)	1072-85-1	110		ug/L	1.0	0.10	100	113	50	150	1
Difluorobenzene(PID)	540-36-3	50		ug/L	1.0	0.10	50	101	50	150	

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering

Client Project Number: None

Report Section: Client Sample Report

Client Sample Name: MW-2

Matrix: Aqueous Collection Date: 6/26/2004 9:50:00PM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-02A Analysis Date: 7/9/2004 2:41:00PM
Prep Date: 7/8/2004 Instrument: Woof
Analytical Method ID: ADEC AK102/103 - (DRO & RRO) File Name: W4070958.D
Prep Method ID: 3510 Dilution Factor: 1
Prep Batch Number: A040708002
Report Basis: As Received Analyst Initials: SG
Sample prep wt./vol: 960.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>Rerun #:</u>	
Diesel Range Organics	n/a	ND		mg/L	0.10	0.021				1	
Residual Range Organics	n/a	ND		mg/L	0.21	0.032					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
o-Terphenyl	84-15-1	0.045		mg/L	0.0052	0.00067	0.052	86.9	50	150	1
Squalane	111-01-3	0.054		mg/L	0.0052	0.0010	0.052	104	50	150	

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-02B Analysis Date: 7/6/2004 9:10:00PM
Prep Date: 7/6/2004 Instrument: Natasha
Analytical Method ID: Aromatic VOCs by GC/FID via method 8021B - BTEX File Name: N4070630.D
Prep Method ID: 5030 Dilution Factor: 1
Prep Batch Number: A040706001
Report Basis: As Received Analyst Initials: SG
Sample prep wt./vol: 5.00 ml Prep Extract Vol: 5.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>Rerun #:</u>	
Benzene	71-43-2	ND		ug/L	1.0	0.15				1	
Ethylbenzene	100-41-4	ND		ug/L	1.0	0.18					
Toluene	108-88-3	ND		ug/L	1.0	0.24					
Xylenes, Total	1330-20-7	ND		ug/L	3.0	0.63					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
Bromofluorobenzene(PID)	1072-85-1	100		ug/L	1.0	0.10	100	103	50	150	1
Difluorobenzene(PID)	540-36-3	47		ug/L	1.0	0.10	50	94.4	50	150	

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering
Client Project Number: None
Report Section: Client Sample Report

Client Sample Name: MW-5

Matrix: Aqueous Collection Date: 6/26/2004 1:20:00PM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-03A Analysis Date: 7/9/2004 3:11:00PM
Prep Date: 7/8/2004 Instrument: Woof
Analytical Method ID: ADEC AK102/103 - (DRO & RRO) File Name: W4070959.D
Prep Method ID: 3510 Dilution Factor: 1
Prep Batch Number: A040708002
Report Basis: As Received Analyst Initials: SG
Sample prep wt./vol: 1,020.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>Rerun #:</u>	
Diesel Range Organics	n/a	13		mg/L	0.098	0.020				1	
Residual Range Organics	n/a	0.59		mg/L	0.20	0.030					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
o-Terphenyl	84-15-1	0.051		mg/L	0.0049	0.00063	0.049	104	50	150	1
Squalane	111-01-3	0.054		mg/L	0.0049	0.00094	0.049	110	50	150	

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-03B Analysis Date: 7/6/2004 9:39:00PM
Prep Date: 7/6/2004 Instrument: Natasha
Analytical Method ID: Aromatic VOCs by GC/FID via method 8021B - BTEX File Name: N4070631.D
Prep Method ID: 5030 Dilution Factor: 1
Prep Batch Number: A040706001
Report Basis: As Received Analyst Initials: SG
Sample prep wt./vol: 5.00 ml Prep Extract Vol: 5.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>					<u>Rerun #:</u>
Benzene	71-43-2	7.5		ug/L	1.0	0.15					1
Ethylbenzene	100-41-4	30		ug/L	1.0	0.18					
Toluene	108-88-3	1.5		ug/L	1.0	0.24					
Xylenes, Total	1330-20-7	58		ug/L	3.0	0.63					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
Bromofluorobenzene(PID)	1072-85-1	100		ug/L	1.0	0.10	100	101	50	150	1
Difluorobenzene(PID)	540-36-3	46		ug/L	1.0	0.10	50	92.1	50	150	

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering
Client Project Number: None
Report Section: Client Sample Report

Client Sample Name: MW-5 DUP

Matrix: Aqueous Collection Date: 6/26/2004 1:20:00PM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-04A	Analysis Date: 7/9/2004 3:40:00PM
Prep Date: 7/8/2004	Instrument: Woof
Analytical Method ID: ADEC AK102/103 - (DRO & RRO)	File Name: W4070960.D
Prep Method ID: 3510	Dilution Factor: 1
Prep Batch Number: A040708002	Analyst Initials: SG
Report Basis: As Received	Prep Extract Vol: 1.00 ml
Sample prep wt./vol: 1,030.00 ml	

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>Rerun #:</u>	
Diesel Range Organics	n/a	13		mg/L	0.097	0.019				1	
Residual Range Organics	n/a	0.82		mg/L	0.19	0.030					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
o-Terphenyl	84-15-1	0.053		mg/L	0.0049	0.00062	0.049	109	50	150	1
Squalane	111-01-3	0.053		mg/L	0.0049	0.00093	0.049	110	50	150	

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-04B	Analysis Date: 7/6/2004 10:08:00PM
Prep Date: 7/6/2004	Instrument: Natasha
Analytical Method ID: Aromatic VOCs by GC/FID via method 8021B - BTEX	File Name: N4070632.D
Prep Method ID: 5030	Dilution Factor: 1
Prep Batch Number: A040706001	Analyst Initials: SG
Report Basis: As Received	Prep Extract Vol: 5.00 ml
Sample prep wt./vol: 5.00 ml	

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>Rerun #:</u>	
Benzene	71-43-2	7.1		ug/L	1.0	0.15				1	
Ethylbenzene	100-41-4	31		ug/L	1.0	0.18					
Toluene	108-88-3	1.5		ug/L	1.0	0.24					
Xylenes, Total	1330-20-7	60		ug/L	3.0	0.63					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
Bromofluorobenzene(PID)	1072-85-1	100		ug/L	1.0	0.10	100	101	50	150	1
Difluorobenzene(PID)	540-36-3	45		ug/L	1.0	0.10	50	89.9	50	150	

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering

Client Project Number: None

Report Section: Client Sample Report

Client Sample Name: **Water Well**

Matrix: Aqueous Collection Date: 6/26/2004 11:43:00PM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-05A Analysis Date: 7/9/2004 4:10:00PM
Prep Date: 7/8/2004 Instrument: Woof
Analytical Method ID: ADEC AK102/103 - (DRO & RRO) File Name: W4070961.D
Prep Method ID: 3510 Dilution Factor: 1
Prep Batch Number: A040708002
Report Basis: As Received Analyst Initials: SG
Sample prep wt./vol: 1,050.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>Rerun #:</u>	
Diesel Range Organics	n/a	0.13		mg/L	0.095	0.019				1	
Residual Range Organics	n/a	0.30		mg/L	0.19	0.029					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
o-Terphenyl	84-15-1	0.048		mg/L	0.0048	0.00061	0.048	99.9	50	150	1
Squalane	111-01-3	0.054		mg/L	0.0048	0.00091	0.048	112	50	150	

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-05B Analysis Date: 7/6/2004 11:34:00PM
Prep Date: 7/6/2004 Instrument: Natasha
Analytical Method ID: Aromatic VOCs by GC/FID via method 8021B - BTEX File Name: N4070635.D
Prep Method ID: 5030 Dilution Factor: 1
Prep Batch Number: A040706001
Report Basis: As Received Analyst Initials: SG
Sample prep wt./vol: 5.00 ml Prep Extract Vol: 5.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>					<u>Rerun #:</u>
Benzene	71-43-2	ND		ug/L	1.0	0.15					1
Ethylbenzene	100-41-4	ND		ug/L	1.0	0.18					
Toluene	108-88-3	ND		ug/L	1.0	0.24					
Xylenes, Total	1330-20-7	ND		ug/L	3.0	0.63					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
Bromofluorobenzene(PID)	1072-85-1	110		ug/L	1.0	0.10	100	113	50	150	1
Difluorobenzene(PID)	540-36-3	49		ug/L	1.0	0.10	50	98.8	50	150	

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering

Client Project Number: None

Report Section: Client Sample Report

Client Sample Name: Trip Blank

Matrix: Aqueous Collection Date: 6/14/2004 9:00:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A0406379-06A Analysis Date: 7/7/2004 12:04:00AM
Prep Date: 7/6/2004 Instrument: Natasha
Analytical Method ID: Aromatic VOCs by GC/FID via method 8021B - BTEX File Name: N4070636.D
Prep Method ID: 5030 Dilution Factor: 1
Prep Batch Number: A040706001
Report Basis: As Received Analyst Initials: SG
Sample prep wt./vol: 5.00 ml Prep Extract Vol: 5.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>Rerun #:</u>	
Benzene	71-43-2	ND		ug/L	1.0	0.15				1	
Ethylbenzene	100-41-4	ND		ug/L	1.0	0.18					
Toluene	108-88-3	ND		ug/L	1.0	0.24					
Xylenes, Total	1330-20-7	ND		ug/L	3.0	0.63					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
Bromofluorobenzene(PID)	1072-85-1	99		ug/L	1.0	0.10	100	98.5	50	150	1
Difluorobenzene(PID)	540-36-3	47		ug/L	1.0	0.10	50	93.2	50	150	

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering
Client Project Number: None
Report Section: Method Blank Report

Client Sample Name:

MB

Matrix: Aqueous

Collection Date: 7/8/2004 12:00:00AM

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A040708002-MB Analysis Date: 7/9/2004 12:25:00PM
Prep Date: 7/8/2004 Instrument: Woof
Analytical Method ID: ADEC AK102/103 - (DRO & RRO) File Name: W4070954.D
Prep Method ID: 3510 Dilution Factor: 1
Prep Batch Number: A040708002
Report Basis: Dry Weight Basis Analyst Initials: SG
Sample prep wt./vol: 1,000.00 ml Prep Extract Vol: 1.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>Rerun #:</u>	
Diesel Range Organics	n/a	ND		mg/L	0.10	0.020				1	
Residual Range Organics	n/a	ND		mg/L	0.20	0.031					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
o-Terphenyl	84-15-1	0.041		mg/L	0.0050	0.00064	0.050	81.9	50	150	1
Squalane	111-01-3	0.038		mg/L	0.0050	0.00096	0.050	76.9	50	150	

The following test was conducted by: Analytica - Anchorage

Lab Sample Number: A040706001-MB Analysis Date: 7/6/2004 4:18:00PM
Prep Date: 7/6/2004 Instrument: Natasha
Analytical Method ID: Aromatic VOCs by GC/FID via method 8021B - BTEX File Name: N4070620.D
Prep Method ID: 5030 Dilution Factor: 1
Prep Batch Number: A040706001
Report Basis: Dry Weight Basis Analyst Initials: SG
Sample prep wt./vol: 5.00 ml Prep Extract Vol: 5.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>Rerun #:</u>	
Benzene	71-43-2	ND		ug/L	1.0	0.15				1	
Ethylbenzene	100-41-4	ND		ug/L	1.0	0.18					
Toluene	108-88-3	ND		ug/L	1.0	0.24					
Xylenes, Total	1330-20-7	ND		ug/L	3.0	0.63					
<u>Surrogate</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>Spike</u>	<u>% Recov</u>	<u>LCL</u>	<u>UCL</u>	<u>Rerun #:</u>
Bromofluorobenzene(PID)	1072-85-1	100		ug/L	1.0	0.10	100	104	50	150	1
Difluorobenzene(PID)	540-36-3	49		ug/L	1.0	0.10	50	97.6	50	150	

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel

Client: Restoration Science & Engineering

Client Project Number: None

Tests Run at: Analytica Environmental Laboratories - Anchorage, Alaska

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel

Project Number:

QUALITY CONTROL REPORT

Prep Batch: A040708002

LCS/LCSD REPORT

Analysis: ADEC AK102/103 - (DRO & RRO)

MB: A040708002-MB

Prep Date: 7/8/2004

MB Anal. Date: 7/9/2004 12:25:00PM

Units: mg/L

LCS Anal. Date: 7/9/2004 12:55:00PM

Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLev	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Diesel Range Organics	ND	1.73	1.87	2.00	2.00	86.5	93.5	7.8	60 - 120	20	
Residual Range Organics	ND	2.12	2.24	2.00	2.00	106.0	112.0	5.5	60 - 120	20	

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel

Client: Restoration Science & Engineering

Client Project Number: None

Tests Run at: Analytica Environmental Laboratories - Anchorage, Alaska

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel

Project Number:

QUALITY CONTROL REPORT

Prep Batch: A040706001

LCS/LCSD REPORT

Analysis: Aromatic VOCs by GC/FID via method 8021B - BTEX MB: A040706001-MB

Prep Date: 7/6/2004

MB Anal. Date: 7/6/2004 4:18:00PM

Units: ug/L

LCS Anal. Date: 7/6/2004 4:48:00PM LCSD Anal. Date: 7/6/2004 5:17:00PM Matrix: Aqueous

Analyte Name	SampResult	LCSRes.	SDRes.	SPLev	SPDLv	Recov.	SD Recov	RPD	Recov Lim	RPDLim	Flag
Benzene	ND	51.1	50.4	50.0	50.0	102.2	100.8	1.4	60 - 120	20	
Toluene	ND	53.8	54.0	50.0	50.0	107.6	108.0	0.4	60 - 120	20	
Ethylbenzene	ND	52.7	52.8	50.0	50.0	105.4	105.6	0.2	60 - 120	20	
Xylenes, Total	ND	166	166	150	150	110.7	110.7	0.0	60 - 120	20	

FOOTNOTES TO QC REPORT

Note 1: Results are shown to three significant figures to avoid rounding errors in calculations.

Note 2: If the sample concentration is greater than 4 times the spike level, a recovery is not meaningful, and the result should be used as a replicate. In such cases the spike is not as high as expected random measurement variability of the sample result itself.

Note 3: For sample duplicates, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample and duplicate results are not five times the PQL or greater, then the RPD is not expected to fall within the window shown and the comparison should be made on the basis of the absolute difference. Analytica uses the criterion that the absolute difference should be less than the PQL for water or less than 2XPQL for other matrices.

Note 4: For serial dilutions, if the result is less than the PQL, the duplicate RPD is not applicable. If the sample result is not 50 times the MDL or greater, then the fact that the RPD does not meet the 10% criterion has little significance. Otherwise it indicates that a matrix bias may exist at the analytical step.

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel

Client: Restoration Science & Engineering

Client Project Number: None

SURROGATE RECOVERY SUMMARY REPORT

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering

Client Project Number: None

Test Method: ADEC AK102/103 - (DRO & RRO)

Lab Sample #:	A0406379-01A	Dilution:	1		
Analysis Date:	7/9/2004 2:12:00PM	Client Sample:	<u>MW-1</u>		
Batch Number:	A040708002	Data File:	W4070957.D		
<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
o-Terphenyl	91	50	150		Complete
Squalane	106	50	150		Complete

Lab Sample #:	A0406379-02A	Dilution:	1		
Analysis Date:	7/9/2004 2:41:00PM	Client Sample:	<u>MW-2</u>		
Batch Number:	A040708002	Data File:	W4070958.D		
<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
o-Terphenyl	87	50	150		Complete
Squalane	104	50	150		Complete

Lab Sample #:	A0406379-03A	Dilution:	1		
Analysis Date:	7/9/2004 3:11:00PM	Client Sample:	<u>MW-5</u>		
Batch Number:	A040708002	Data File:	W4070959.D		
<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
o-Terphenyl	104	50	150		Complete
Squalane	110	50	150		Complete

Lab Sample #:	A0406379-04A	Dilution:	1		
Analysis Date:	7/9/2004 3:40:00PM	Client Sample:	<u>MW-5 DUP</u>		
Batch Number:	A040708002	Data File:	W4070960.D		
<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
o-Terphenyl	109	50	150		Complete
Squalane	110	50	150		Complete

Lab Sample #:	A0406379-05A	Dilution:	1		
Analysis Date:	7/9/2004 4:10:00PM	Client Sample:	<u>Water Well</u>		
Batch Number:	A040708002	Data File:	W4070961.D		
<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
o-Terphenyl	100	50	150		Complete
Squalane	112	50	150		Complete

Lab Sample #:	A040708002-MB	Dilution:	1		
Analysis Date:	7/9/2004 12:25:00PM	Client Sample:	<u>MB</u>		
Batch Number:	A040708002	Data File:	W4070954.D		
<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
o-Terphenyl	82	60	120		Complete
Squalane	77	60	120		Complete

Lab Sample #:	A040708002-LCS	Dilution:	1		
Analysis Date:	7/9/2004 12:55:00PM	Client Sample:	<u>LCS</u>		
Batch Number:	A040708002	Data File:	W4070955.D		
<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
o-Terphenyl	96	60	120		Complete
Squalane	104	60	120		Complete

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering
Client Project Number: None

Test Method: ADEC AK102/103 - (DRO & RRO)

Lab Sample #: A040708002-LCSD Dilution: 1
Analysis Date: 7/9/2004 1:43:00PM Client Sample: **LCSD**
Batch Number: A040708002 Data File: W4070956.D

<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
o-Terphenyl	94	60	120		Complete
Squalane	111	60	120		Complete

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering
Client Project Number: None

Test Method: Aromatic VOCs by GC/FID via method 8021B - BTEX

Lab Sample #: A0406379-01B Dilution: 1
Analysis Date: 7/6/2004 8:41:00PM Client Sample: **MW-1**
Batch Number: A040706001 Data File: N4070629.D

<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
Bromofluorobenzene(PID)	113	50	150		Complete
Difluorobenzene(PID)	101	50	150		Complete

Lab Sample #: A0406379-02B Dilution: 1
Analysis Date: 7/6/2004 9:10:00PM Client Sample: **MW-2**
Batch Number: A040706001 Data File: N4070630.D

<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
Bromofluorobenzene(PID)	103	50	150		Complete
Difluorobenzene(PID)	94	50	150		Complete

Lab Sample #: A0406379-03B Dilution: 1
Analysis Date: 7/6/2004 9:39:00PM Client Sample: **MW-5**
Batch Number: A040706001 Data File: N4070631.D

<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
Bromofluorobenzene(PID)	101	50	150		Complete
Difluorobenzene(PID)	92	50	150		Complete

Lab Sample #: A0406379-04B Dilution: 1
Analysis Date: 7/6/2004 10:08:00PM Client Sample: **MW-5 DUP**
Batch Number: A040706001 Data File: N4070632.D

<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
Bromofluorobenzene(PID)	101	50	150		Complete
Difluorobenzene(PID)	90	50	150		Complete

Lab Sample #: A0406379-05B Dilution: 1
Analysis Date: 7/6/2004 11:34:00PM Client Sample: **Water Well**
Batch Number: A040706001 Data File: N4070635.D

<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
Bromofluorobenzene(PID)	113	50	150		Complete
Difluorobenzene(PID)	99	50	150		Complete

Lab Sample #: A0406379-06A Dilution: 1
Analysis Date: 7/7/2004 12:04:00AM Client Sample: **Trip Blank**
Batch Number: A040706001 Data File: N4070636.D

<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
Bromofluorobenzene(PID)	99	50	150		Complete
Difluorobenzene(PID)	93	50	150		Complete

Lab Sample #: A040706001-MB Dilution: 1
Analysis Date: 7/6/2004 4:18:00PM Client Sample: **MB**
Batch Number: A040706001 Data File: N4070620.D

<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
Bromofluorobenzene(PID)	104	60	120		Complete
Difluorobenzene(PID)	98	60	120		Complete

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering
Client Project Number: None

Test Method: Aromatic VOCs by GC/FID via method 8021B - BTEX

Lab Sample #: A040706001-LCS Dilution: 1
Analysis Date: 7/6/2004 4:48:00PM Client Sample: LCS
Batch Number: A040706001 Data File: N4070621.D

<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
Bromofluorobenzene(PID)	103	60	120		Complete
Difluorobenzene(PID)	105	60	120		Complete

Lab Sample #: A040706001-LCSD Dilution: 1
Analysis Date: 7/6/2004 5:17:00PM Client Sample: LCSD
Batch Number: A040706001 Data File: N4070622.D

<u>AnalyteName</u>	<u>SSRecov</u>	<u>LCL</u>	<u>UCL</u>	<u>SSFlag</u>	<u>Result Status</u>
Bromofluorobenzene(PID)	102	60	120		Complete
Difluorobenzene(PID)	102	60	120		Complete

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering
Client Project Number: None

QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 30,701 **Lab Project Number:** A0406379

Prep Date: 7/6/2004

Lab Method Blank Id: A040706001-MB
Prep Batch ID: A040706001
Method: Aromatic VOCs by GC/FID via method 8021B - BTEX

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
A040706001-LCS	LCS	N4070621.D	7/6/2004 4:48:00PM
A040706001-LCSD	LCSD	N4070622.D	7/6/2004 5:17:00PM
A0406379-01B	MW-1	N4070629.D	7/6/2004 8:41:00PM
A0406379-02B	MW-2	N4070630.D	7/6/2004 9:10:00PM
A0406379-03B	MW-5	N4070631.D	7/6/2004 9:39:00PM
A0406379-04B	MW-5 DUP	N4070632.D	7/6/2004 10:08:00PM
A0406379-05B	Water Well	N4070635.D	7/6/2004 11:34:00PM
A0406379-06A	Trip Blank	N4070636.D	7/7/2004 12:04:00AM

Prep Date: 7/8/2004

Lab Method Blank Id: A040708002-MB
Prep Batch ID: A040708002
Method: ADEC AK102/103 - (DRO & RRO)

This Method blank and sample preparation batch are associated with the following samples, spikes, and duplicates:

<u>SampleNum</u>	<u>ClientSampleName</u>	<u>DataFile</u>	<u>AnalysisDate</u>
A040708002-LCS	LCS	W4070955.D	7/9/2004 12:55:00PM
A040708002-LCSD	LCSD	W4070956.D	7/9/2004 1:43:00PM
A0406379-01A	MW-1	W4070957.D	7/9/2004 2:12:00PM
A0406379-02A	MW-2	W4070958.D	7/9/2004 2:41:00PM
A0406379-03A	MW-5	W4070959.D	7/9/2004 3:11:00PM
A0406379-04A	MW-5 DUP	W4070960.D	7/9/2004 3:40:00PM
A0406379-05A	Water Well	W4070961.D	7/9/2004 4:10:00PM

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel
Client: Restoration Science & Engineering
Client Project Number: None

DATA FLAGS AND DEFINITIONS

The PQL is the Method Quantitation Limit as defined by USACE.

Reporting Limit: Limit below which results are shown as "ND". This may be the PQL, MDL, or a value between. See the report conventions below.

Result Field:

ND = Not Detected at or above the Reporting Limit
NA = Analyte not applicable (see Case Narrative for discussion)

Qualifier Fields:

LOW = Recovery is below Lower Control Limit
HIGH = Recovery, RPD, or other parameter is above Upper Control Limit
E = Reported concentration is above the instrument calibration upper range

Organic Analysis Flags:

B = Analyte was detected in the laboratory method blank
J = Analyte was detected above MDL or Reporting Limit but below the Quant Limit (PQL)

Inorganic Analysis Flags:

J = Analyte was detected above the Reporting Limit but below the Quant Limit (PQL)
W = Post digestion spike did not meet criteria
S = Reported value determined by the Method of Standard Additions (MSA)

Other Flags may be applied. See Case Narrative for Description

Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0406379

Project: Bethel Longhouse Hotel

Client: Restoration Science & Engineering

Client Project Number: None

REPORTING CONVENTIONS FOR THIS REPORT

A0406379

<u>TestPkgName</u>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
8021/5030 (Aqueous) - BTEX	As Received	2	Report to PQL
AK102/103/3510 (Aqueous) - (DRO & RRO)	As Received	2	Report to PQL



Analytica Chain of Custody Form

12189 Pennsylvania St.
Thornton, CO 80241
(303) 469-8868
(303) 469-5254 fax

5438 Shaune Drive
Juneau, AK 99801
(907) 780-6668
(907) 780-6670 fax

5761 Silverado Way # N
Anchorage, AK 99518
(907) 258-2155
(907) 258-6634 fax

3330 Industrial Ave.
Fairbanks, AK 99701
(907) 456-3116
(907) 456-3125 fax

Pouch 34043
Prudhoe Bay, AK 99734
(907) 659-2145
(907) 659-2146 fax

Chain of Custody No: 35667

Client Name & Address: RESTORATION SCIENCE & ENGINEERING 911 W. 8TH AVENUE SUITE 100 ANCHORAGE, AK 99501		Project Name: BETHEL LONGHOUSE HOTEL		To be Completed by Analytica	
Contact Person: DAVID NYMAN		Public Water System ID#: NA		Quote ID No: _____ LGN: <u>A0406379</u>	
Phone No: 278-1023		Results to STATE: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		Report to: RSE	
Fax No: 277-5718		Data Deliverables: Level I <input type="checkbox"/> Level II <input type="checkbox"/> Level III <input type="checkbox"/> Level IV <input type="checkbox"/>		Invoice to: RSE	
E-mail: nymo@alaska.net		EDD: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> Type of EDD: _____		P.O. or Contract No:	
Special Instructions:		Requested TAT: <u>10 days</u> RUSH (lab authorization required)			
		Results Due Date:			

Lab Bottle Order No:	Sample Description	Date Sampled	Time Sampled	Matrix (S-DW-WW-Other)	No. of Containers	Requested Analysis/Method										MS/MSD ?	Comments			
						1	2	3	4	5	6	7	8	9	10			11	12	
	MW-1	6/26/04	1221	WW	4	✓	✓													
	MW-2		0950	WW	4	✓	✓													TB added gy
	MW-5		1320	WW	4	✓	✓													
	MW-SDUP		1320	WW	4	✓	✓													
	WATER WELL	6/26/04	1143	WW	4	✓	✓													
	TB				1		✓													

Collected/Relinquished by: WCS/llh		Date: 6/26/04	Time: 1345	Received by: E. Scott		Date: 6/30/04	Time: 10:15	To be Completed by Analytica			
Relinquished by:		Date:	Time:	Received by:		Date:	Time:	Chain-of-Custody Seal: Intact <input type="checkbox"/> Broken <input checked="" type="checkbox"/> <u>Absent</u>			
Relinquished by:		Date:	Time:	Received by:		Date:	Time:	Location Rcvd/Temp on Arrival: THO ___ C JUN ___ C ANC <u>1,1</u> C FAI ___ C PB ___ C			
Name of Sampler: (printed)								Thermometer ID # <u>4</u> Measurement Method: Temp. Blank Other			
								Shipping Method/Tracking Number: <u>haed</u>			



Cooler Receipt Form

Client: Restoration Science & Engine Client Code: 017120
Project: Longhouse Bethel Hotel

Order #: A0406379

Cooler ID: 1

A. Preliminary Examination Phase:

Date cooler opened: 6/30/2004
Cooler opened by: gy

Signature: 

- 1. Was airbill Attached? No
- 2. Custody Seals? No
- 3. Seals intact? Yes
- 4. Screened for radiation? N/A
- 5. COC Attached? Yes
- 6. Project Identification from custody paper: Bethel Longhouse Hotel
- 7. Preservative: BlueGel

Airbill #:

Carrier Name: Other

How many? 0

Location:

Seal Name:

Properly Completed? Yes

Signed by AEL employee? Yes

Bethel Longhouse Hotel

Temperature: 1.1

Designated person initial here to acknowledge receipt:

gy Date: 6/30/04

COMMENTS:

B. Log-In Phase: Samples Log-in Date: 6/30/2004 Log-in By: gy

- 1. Packing Type: Bubblewrap
- 2. Were samples in separate bags? Yes
- 3. Were containers intact? Yes Labels agree with COC? Yes
- 4. Number of bottles received: 21 Number of samples received: 6
- 5. Correct containers used? Yes Correct preservatives added? Yes
- 6. Sufficient sample volume? Yes
- 7. Bubbles in VOA samples? No
- 8. Was Project manager called and status discussed? No
- 9. Was anyone called? No Who was called? _____ By whom? _____ Date: _____

COMMENTS:

Data File : D:\WOOF\DATA\070904.SEC\W4070959.D Vial: 58
 Acq On : 9 Jul 2004 3:11 pm Operator: SG
 Sample : A0406379-03A~SC~1~1 Inst : Woof
 Misc : A040708002 Multiplr: 1.00
 IntFile : AUTOINT1.E
 Quant Time: Jul 12 11:00 2004 Quant Results File: W040224R.RES

Quant Method : C:\HPCHEM\2...\W040224R.M (Chemstation Integrator)
 Title : drrros
 Last Update : Tue Jul 06 09:20:15 2004
 Response via : Initial Calibration
 DataAcq Meth : WOOFAl2R.M

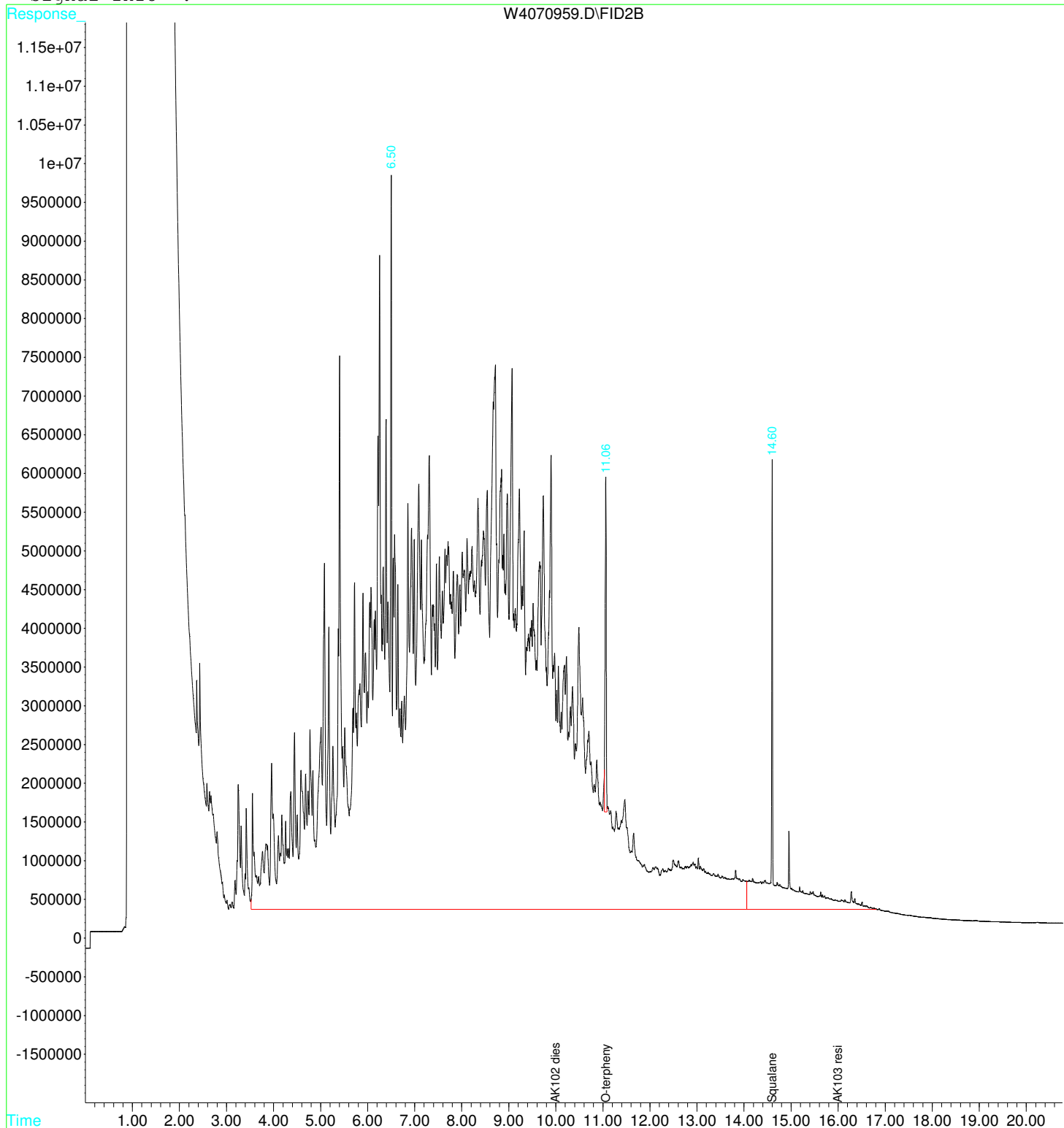
Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
1) s O-terphenyl	11.06	73233585	52.230 mg/l m
2) s Squalane	14.60	59800761	55.252 mg/l
Target Compounds			
3) h AK102 diesel range c10-c25	10.00	14633606441	12794.536 mg/l
4) h AK103 residual range c25-c	16.00	338913107	605.918 mg/l

Data File : D:\WOOF\DATA\070904.SEC\W4070959.D Vial: 58
 Acq On : 9 Jul 2004 3:11 pm Operator: SG
 Sample : A0406379-03A~SC~1~1 Inst : Woof
 Misc : A040708002 Multiplr: 1.00
 IntFile : AUTOINT1.E
 Quant Time: Jul 12 11:00 2004 Quant Results File: W040224R.RES

Quant Method : C:\HPCHEM\2...\W040224R.M (Chemstation Integrator)
 Title : drrros
 Last Update : Tue Jul 06 09:20:15 2004
 Response via : Multiple Level Calibration
 DataAcq Meth : WOOFAl2R.M

Volume Inj. :
 Signal Phase :
 Signal Info :



Data File : D:\WOOF\DATA\070904.SEC\W4070960.D Vial: 59
 Acq On : 9 Jul 2004 3:40 pm Operator: SG
 Sample : A0406379-04A~SC~1~1 Inst : Woof
 Misc : A040708002 Multiplr: 1.00
 IntFile : AUTOINT1.E
 Quant Time: Jul 12 11:02 2004 Quant Results File: W040224R.RES

Quant Method : C:\HPCHEM\2...\W040224R.M (Chemstation Integrator)
 Title : drrros
 Last Update : Tue Jul 06 09:20:15 2004
 Response via : Initial Calibration
 DataAcq Meth : WOOFAl2R.M

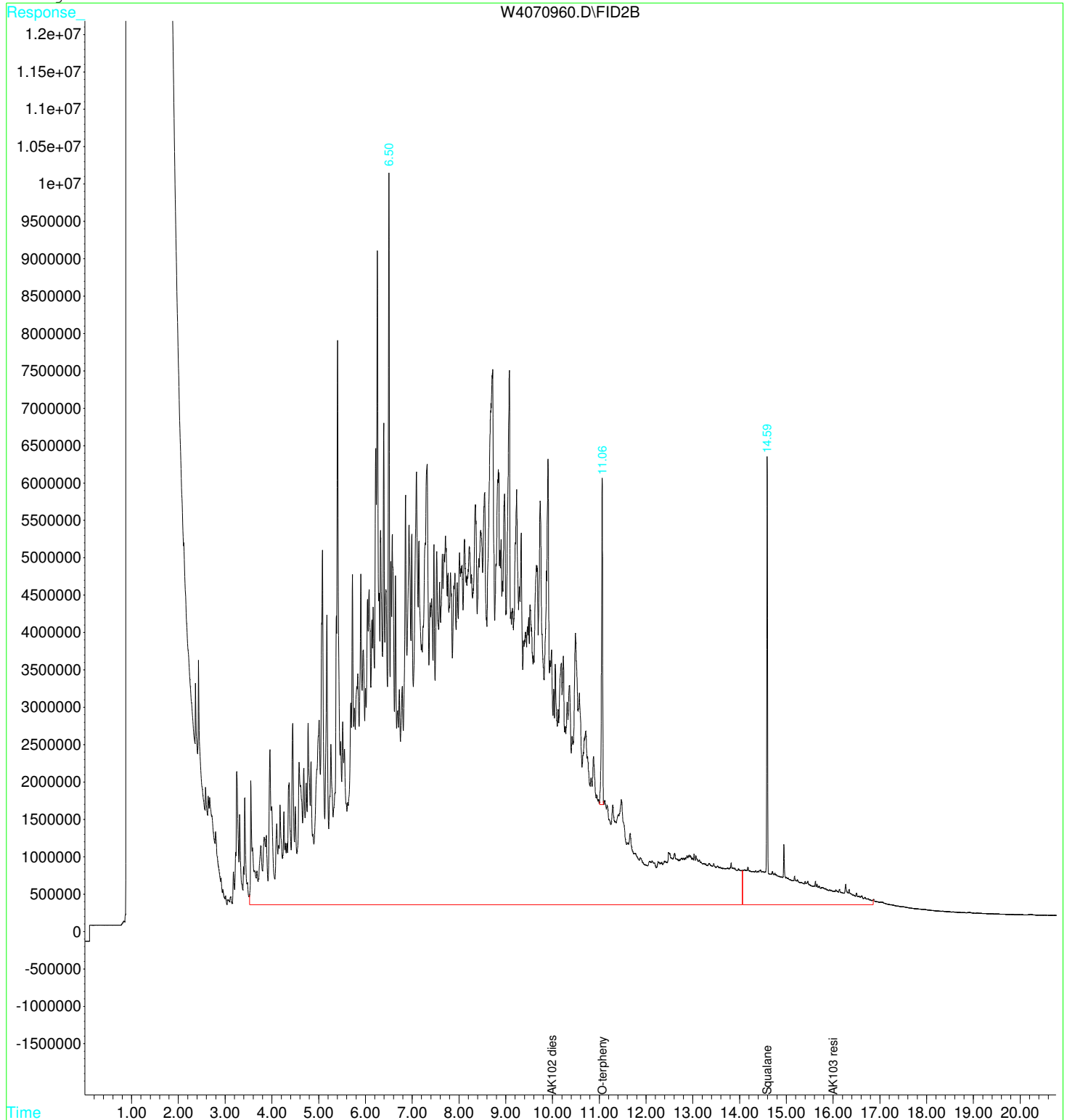
Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
1) s O-terphenyl	11.06	76146214	54.307 mg/l m
2) s Squalane	14.59	59465821	54.943 mg/l
Target Compounds			
3) h AK102 diesel range c10-c25	10.00	15236418840	13321.590 mg/l
4) h AK103 residual range c25-c	16.00	470454591	841.091 mg/l

Data File : D:\WOOF\DATA\070904.SEC\W4070960.D Vial: 59
 Acq On : 9 Jul 2004 3:40 pm Operator: SG
 Sample : A0406379-04A~SC~1~1 Inst : Woof
 Misc : A040708002 Multiplr: 1.00
 IntFile : AUTOINT1.E
 Quant Time: Jul 12 11:02 2004 Quant Results File: W040224R.RES

Quant Method : C:\HPCHEM\2...\W040224R.M (Chemstation Integrator)
 Title : drrros
 Last Update : Tue Jul 06 09:20:15 2004
 Response via : Multiple Level Calibration
 DataAcq Meth : WOOFAl2R.M

Volume Inj. :
 Signal Phase :
 Signal Info :



Data File : D:\WOOF\DATA\070904.SEC\W4070961.D Vial: 60
 Acq On : 9 Jul 2004 4:10 pm Operator: SG
 Sample : A0406379-05A~SC~1~1 Inst : Woof
 Misc : A040708002 Multiplr: 1.00
 IntFile : AUTOINT1.E
 Quant Time: Jul 12 11:04 2004 Quant Results File: W040224R.RES

Quant Method : C:\HPCHEM\2...\W040224R.M (Chemstation Integrator)
 Title : drrros
 Last Update : Tue Jul 06 09:20:15 2004
 Response via : Initial Calibration
 DataAcq Meth : WOOFAl2R.M

Volume Inj. :
 Signal Phase :
 Signal Info :

Compound	R.T.	Response	Conc Units
System Monitoring Compounds			
1) s O-terphenyl	11.04	70003160	49.926 mg/l
2) s Squalane	14.58	60841111	56.213 mg/l
Target Compounds			
3) h AK102 diesel range c10-c25	10.00	156485309	136.819 mg/l
4) h AK103 residual range c25-c	16.00	176401534	315.375 mg/l

Data File : D:\WOOF\DATA\070904.SEC\W4070961.D Vial: 60
 Acq On : 9 Jul 2004 4:10 pm Operator: SG
 Sample : A0406379-05A~SC~1~1 Inst : Woof
 Misc : A040708002 Multiplr: 1.00
 IntFile : AUTOINT1.E
 Quant Time: Jul 12 11:04 2004 Quant Results File: W040224R.RES

Quant Method : C:\HPCHEM\2...\W040224R.M (Chemstation Integrator)
 Title : drrros
 Last Update : Tue Jul 06 09:20:15 2004
 Response via : Multiple Level Calibration
 DataAcq Meth : WOOFAl2R.M

Volume Inj. :
 Signal Phase :
 Signal Info :

