

# 2008 ASDP Water Quality Monitoring Report

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Submitted to

  
**ConocoPhillips**

Submitted by

**Baker**

**Michael Baker, Jr., Inc.**  
1400 West Benson Blvd., Suite 200  
Anchorage, Alaska 99503

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## 1.0 Introduction

During the 1998/1999 winter season, ConocoPhillips Alaska, Inc. (CPAI) initiated construction of the Alpine Facility (CD1 and CD2) in the Colville River Delta. Implementation of the Alpine Satellites Development Plan (ASDP) during the 2004/2005 winter season expanded Alpine operations. Construction included placement of gravel facilities for two new satellite drill sites: CD3 and CD4. The CD3 pad development includes an airstrip and its access road, apron, and taxiway. The CD4 pad development includes an access road that runs parallel to the existing Alpine sales pipeline, which connects to the CD2 access road.

During the summer of 2007, a water quality monitoring program was conducted to satisfy North Slope Borough zoning stipulations. The program targeted waterbodies adjacent to the CD3 and CD4 gravel facilities. Three sampling lakes were identified: M9313 near CD3, and L9323 and L9324 located north and south of CD4, respectively. In 2008, the monitoring program was repeated. An overview of the three study lakes relative to Alpine facilities is presented in Figure 1-1.

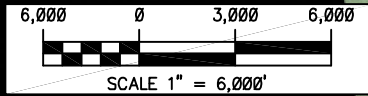
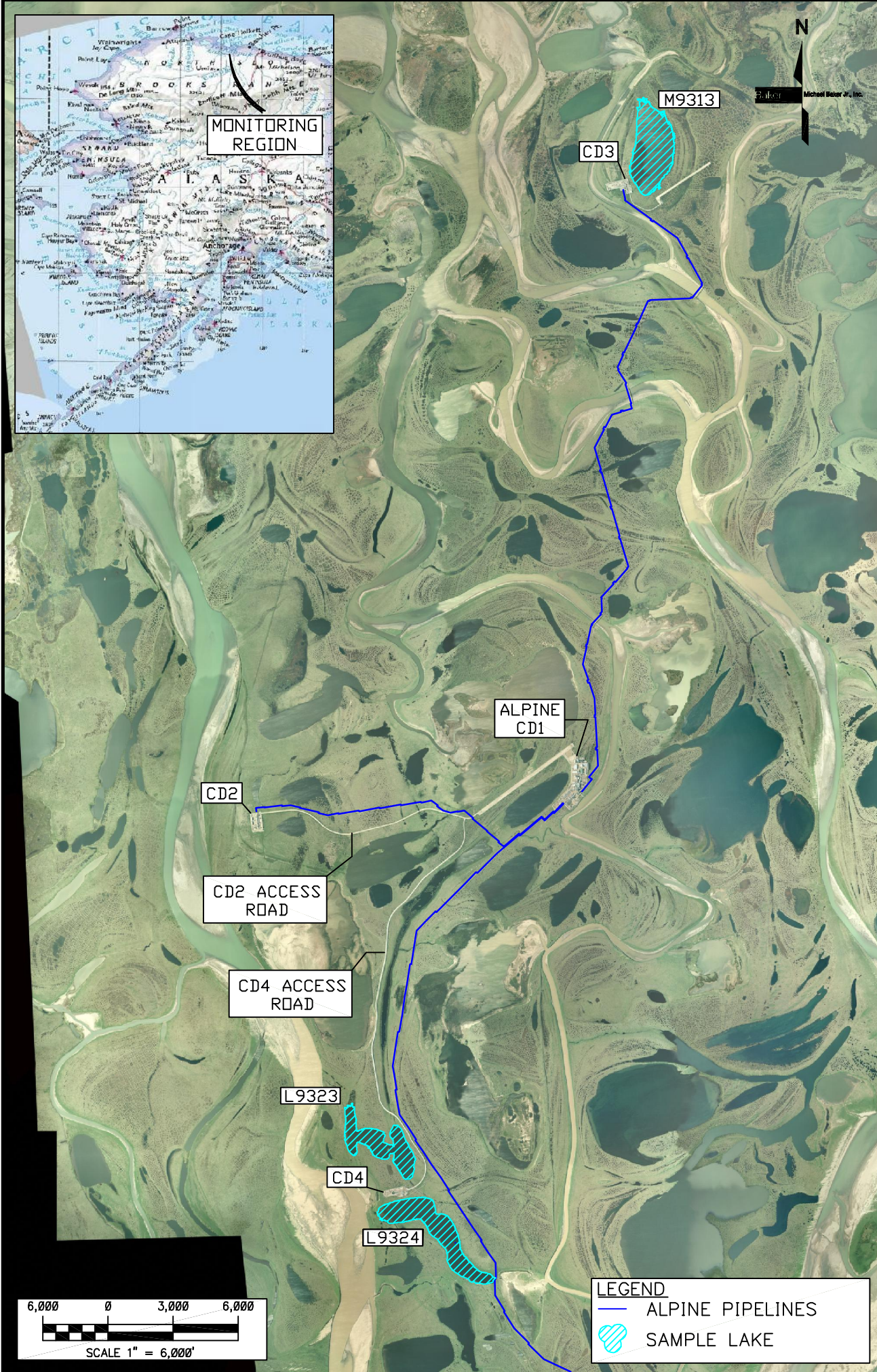
The water quality monitoring program included in situ sampling of temperature, dissolved oxygen (DO), salinity, and specific conductance. Turbidity was measured ex situ from collected water samples. Additional water samples were collected for laboratory analysis of dissolved hydrocarbons and metals. The ex situ laboratory testing regime was reduced in 2008 based on a lack of observable contaminants in 2007. A single sampling event was performed in August.

This 2008 ASDP Water Quality Monitoring Report presents the field investigation procedures, sampling and analytical methods used, and resulting water quality data and analyses. Laboratory analyses identified targeted constituent concentrations well below state and national recommended water quality criteria and standards.





**MONITORING REGION**



LEGEND	
	ALPINE PIPELINES
	SAMPLE LAKE

OVERVIEW  
 CD3 & CD4 WATER QUALITY  
 SAMPLE LAKES  
 FIGURE 1-1  
 (SHEET 1 OF 1)

**Michael Baker Jr., Inc.**  
 A Unit of Michael Baker Corporation  
 1400 West Benson Blvd., Suite 200  
 Anchorage, Alaska 99503  
 Phone: (907) 273-1600  
 Fax: (907) 273-1699



**ConocoPhillips**  
 Alaska, Inc.

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## 2.0 Methods

Field investigations were conducted at each lake on August 27, 2008. Lakes L9323 and L9324 were accessed via the CD4 access road and pad. Maritime Helicopters provided access to Lake M9313. Each predefined sampling location was identified and confirmed using a hand-held global positioning system (GPS) unit referenced to the North American Datum of 1983 (NAD83).

In situ water quality data and analytical sample collection was performed by a two person team, each in an inflatable kayak, with an attached support raft for transport of the sampling equipment. In situ water quality instruments were provided by TTT Environmental. Analytical sample bottles and storage coolers were provided by Analytica International, Inc. (Analytica). Field surveys were also conducted to identify possible inflow and outflow sources.

All safety precautions, as outlined in the North Slope Water Resources 2008 Health, Safety and Environmental Safety Plan (Baker 2008), were followed. A travel plan was submitted to Alpine Security in advance of each sampling event. Personnel were equipped with personal flotation devices and a CPAI-provided radio. Measures were taken to avoid animal interaction during all field activities.

Field sampling methods were based on USGS (2006), Ward and Harr (1990), and U.S. Army Corps of Engineers (1987) methods. Assumptions used in this study were that each lake was hydraulically isolated with no overland inflow or outflow, and that lakes were well-mixed lacking significant stratification. Hydraulic isolation was confirmed with aerial and ground observations of lakes. Well-mixed conditions were confirmed with in situ measurements prior to analytic sample collection. Methods pertaining to sample collection, storage, and transport for laboratory analysis were supplemented with instructions provided by Analytica.

### 2.1 Sample Location Selection

The sampling locations for Lake M9313 (Figure 2-1) and Lakes L9323 and L9324 (Figure 2-2) are identified in the referenced figures. Lake bathymetry was used to select a single sampling location at each lake. Site selection was based on maximum depth and relative proximity to gravel facilities. Specific locations were confirmed with depth soundings.

The major assumption of this water quality study is that data collected at specific stations are representative of conditions throughout the water body. Past in situ monitoring of North Slope lakes indicates that hydraulically isolated lakes are well-mixed during open water conditions. The likelihood of homogeneous conditions, which can be verified with in situ measurements, supports the use of single point sampling.

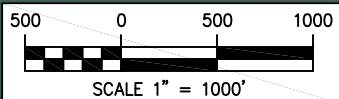




M9313

N70°25'19.7"  
W150°53'57.7"

CD3



 WATER QUALITY SAMPLING POINT

LAKE M9313  
CD3 & CD4 WATER QUALITY  
SAMPLING LOCATIONS  
FIGURE 2-1  
(SHEET 1 OF 1)

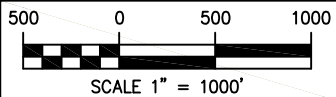
Michael Baker Jr., Inc.  
A Unit of Michael Baker Corporation  
1400 West Benson Blvd., Suite 200  
Anchorage, Alaska 99503  
Phone: (907) 273-1600  
Fax: (907) 273-1699



 **ConocoPhillips**  
Alaska, Inc.

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**X** WATER QUALITY SAMPLING POINT

LAKES L9323 & L9324  
 CD3 & CD4 WATER QUALITY  
 SAMPLING LOCATIONS  
 FIGURE 2-2  
 (SHEET 1 OF 1)

Michael Baker Jr., Inc.  
 A Unit of Michael Baker Corporation  
 1400 West Benson Blvd., Suite 200  
 Anchorage, Alaska 99503  
 Phone: (907) 273-1600  
 Fax: (907) 273-1699



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 Alaska, Inc.



## 2.2 On Site Water Quality Parameters

In situ water quality was measured at three-foot intervals throughout the water column. Turbidity of three replicate water samples from each lake was measured ex situ. A tabulation of equipment (meters) and associated parameters is presented in Table 2-1.

**Table 2-1 On Site Water Quality Parameters**

Meter	Parameter	In/ex situ	Units
YSI 30	Temperature	In situ	°C
	Conductivity		μS/cm
	Specific Conductance (SC)		μS/cm
	Salinity		ppt
Hach HQ-40d LDO	Dissolved Oxygen (DO)		mg/L
			%
Hach 2100P Turbidometer	Turbidity	Ex situ	NTU

### 2.2.1 Instrument Calibration

All meters were calibrated according to the manufacturer's specifications. A summary of calibration procedures is presented below.

**Daily:** Prior to sampling, a calibration check was performed on the Turbidometer and the YSI 30 using calibration solutions provided by the manufacturer. Meters were recalibrated as per manufacturers' instructions if readings were incorrect. The calibration check was again performed at the end of the day. According to the Hach representative (TTT Environmental), daily calibration of the HQ-40d LDO meter is not required.

**Prior To and Following Each Sampling Event:** Meters were returned to the manufacturers' representative for complete maintenance servicing according to the manufacturers' specifications.

## 2.3 Laboratory Sample Collection and Analytical Analysis

### 2.3.1 Sample Collection

Prior to analytic sample collection, in situ sampling was performed to confirm well-mixed water quality constituents within the water column at the sample location. Because no oxycline or thermocline was apparent (Table 3-1) a single point sample was collected. In the event of lake stratification, multiple samples would have been collected throughout the water column and combined for laboratory analysis. Samples were collected from mid-depth of the water column using a 500mL stainless steel bomb sampler. The bomb sampler was given a thorough native-water rinse at each lake prior to sampling to minimize cross contamination of samples.

Sample vials provided by Analytica were stored in the provided cooler before, during, and after sample collection to maintain adequate storage temperatures. Field samples were transported to Analytica within two days of collection. The procedures for transport and transfer are described in Appendix A as part of the Analytica analysis report.

### 2.3.2 Analytical Analysis

#### *ADEC AK102 – Diesel Range Organics (DRO)*

This method, developed by ADEC, is based on a solvent extraction, gas chromatography (GC) procedure for the detection of semi-volatile petroleum products such as diesels. Other nonpetroleum compounds of similar characteristics may be detected with this method. Samples spiked with a surrogate (o-Terphenyl) are extracted with methylene chloride. The GC is temperature programmed to facilitate separation of organic compounds detected by a flame ionization detector (FID). Quantification is based on FID response compared to a diesel calibration standard.

#### *ADEC AK103 – Residual Range Organics (RRO)*

This method, developed by ADEC, was originally designed to measure lubricating or motor oils and other heavy petroleum products in soils. The *ADEC Underground Storage Tanks Procedures Manual* (ADEC 2002) identifies the method as adequate for determining such compounds in solution. The method is an extension of ADEC AK102, employing solvent



extractions and gas chromatographs (GC) to identify heavier residual range organics (RRO). Quantification is based on FID response compared to a residuals calibration standard.

***SW6010B-ICP-RCRA – Trace Metals***

This method, developed by the EPA Office of Solid Waste, employs inductively coupled plasma-atomic emission spectroscopy (ICP-AES) to determine trace elements, including metals, in solution. The Resource Conservation Recovery Act (RCRA) mandates metals testing in public water via the SW6010B method. Elements tested include arsenic, cadmium, chromium and lead. Quantities are determined from intensities of dispersed element-specific emission spectra lines.

***SW7470A – Mercury in Liquid Waste***

This EPA method employs a cold-vapor atomic adsorption procedure approved for determining mercury concentration in liquid wastes. The basis of this method is the radiation adsorption characteristics of vaporized mercury. Any mercury within the sample is reduced to the elemental state and aerated from solution. Adsorption is measured as a function of mercury concentration.

## 3.0 Results

### 3.1 Field Conditions

On August 27, mean daily temperature and wind velocities were approximately 42 °F and 3 miles per hour (mph), gusting to 9 mph. Light precipitation was encountered throughout the day. No surface sheen was observed on any lake during either of the sampling events.

### 3.2 On Site Water Quality Results

Measured water quality results from the August sampling event are tabulated in Table 3-1. Measured water quality results for the 2007 sampling events are presented in Appendix B. A summary and comparison of the resulting values are described below.

#### 3.2.1 Specific Conductance

Conductivity is a measure of water's ionic activity and content. Measured values of a given water body change substantially with changes in water temperature as resistance, used to measure conductivity, drops with increasing temperature. To adequately compare multiple water sources, conductivity is corrected to a standard temperature of 25 °C using the measured water temperature and a standard temperature correction coefficient. Because conductivity was directly measured, resulting values are tabulated here (Table 3-1); however, to provide a direct comparison of the three lakes, the calculated specific conductance is used as the basis of discussion.

Specific conductance values varied little within the water column, but were notably different between lakes. The average specific conductance in M9313 was 805  $\mu\text{S}/\text{cm}$ , 116  $\mu\text{S}/\text{cm}$  in L9323, and 78  $\mu\text{S}/\text{cm}$  in L9324. Values were relatively consistent with those observed in August of 2007. Lakes M9313 and L9323 increased only 7% from 757  $\mu\text{S}/\text{cm}$  and 108  $\mu\text{S}/\text{cm}$  in 2007, respectively. Conversely, Lake L9324 decreased 11% from 87  $\mu\text{S}/\text{cm}$  in 2007.

#### 3.2.2 Dissolved Oxygen and Water Temperature

Overall, DO values varied little between lakes and between sampling years. In 2008, the average DO was measured at 11.79 milligrams per liter [mg/L] in Lake M9313, 11.93 mg/L in L9323,



and 20.07 mg/L in Lake L9324. The %-saturation at each lake was 99.82%, 102.64%, and 103.67%, respectively. A 100% saturation level is based on standard temperature and pressure conditions. Variation from standard values can result in DO concentrations greater than 100%. No significant oxycline or thermocline was apparent within the sampled water columns. Temperatures ranged from 7.7 °C in M9313 to 8.4 °C in L9324.

### 3.2.3 Salinity

Salinity remained consistent with depth and between sampling years. The greatest values occurred in Lake M9313 at 0.4 parts per thousand (ppt). Lakes L9323 and L9324 had no notable salinity.

**Table 3-1 On Site Water Quality Results**

Location Time	Depth (ft)	Turbidity NTU	Depth (ft)	Temp (°C)	Conductivity (µS/cm)	Specific Conductance (µS/cm)	DO (mg/L)	DO (Percent Saturation)	Salinity (ppt)
<b>M9313</b> 11:10 a.m.	26.0	0.65	Surface	7.7	540	807	-	-	0.4
			2.0	7.7	540	806	11.87	100.4	0.4
			4.0	7.7	540	806	11.85	100.3	0.4
			6.0	7.7	540	806	11.84	100.3	0.4
			8.0	7.7	540	806	11.84	100.2	0.4
			10.0	7.7	540	806	11.83	100.1	0.4
			12.0	7.7	540	806	11.81	100.0	0.4
			14.0	7.7	540	806	11.81	100.0	0.4
			16.0	7.7	540	806	11.77	99.7	0.4
			18.0	7.7	540	806	11.75	99.5	0.4
			20.0	7.7	540	806	11.74	99.4	0.4
			22.0	7.7	540	806	11.71	99.2	0.4
24.0	7.7	539	805	11.65	98.7	0.4			
26.0	7.7	533	797	-	-	0.4			
<b>L9323</b> 3:50 p.m.	19.8	1.96	Surface	8.4	79.3	116.2	12.01	103.3	0.1
			2.0	8.4	79.3	116.2	12.00	103.2	0.1
			4.0	8.4	79.3	116.2	11.98	103.1	0.1
			6.0	8.3	79.3	116.2	11.99	103.1	0.1
			8.0	8.3	79.3	116.2	11.96	102.9	0.1
			10.0	8.3	79.3	116.2	11.95	102.8	0.1
			12.0	8.3	79.3	116.2	11.94	102.7	0.1
			14.0	8.3	79.3	116.2	11.92	102.5	0.1
			16.0	8.3	79.1	115.8	11.88	102.3	0.1
			18.0	8.3	78.4	115.0	11.79	101.6	0.1
19.0	8.3	78.3	114.8	11.78	101.5	0.1			
<b>L9324</b> 4:50 p.m.	9.7	3.40	Surface	8.4	53.1	77.8	12.09	103.9	0.0
			2.0	8.4	53.1	77.8	12.09	103.9	0.0
			4.0	8.4	53.1	77.8	12.08	103.8	0.0
			6.0	8.4	53.1	77.8	12.07	103.7	0.0
			8.0	8.4	53.1	77.8	12.04	103.4	0.0
			9.0	8.4	53.1	77.8	12.03	103.3	0.0

Notes:  
 (1) Sample depth is measured from the water surface.  
 (2) Turbidity was measured using a Hach-2100P Turbidometer  
 (3) Salinity, conductivity, specific conductance, and temperature were measured using a YSI-30 meter  
 (4) Dissolved oxygen measurements were obtained using a Hach HQ40d LDO meter

### 3.2.4 Turbidity

Turbidity was variable between lakes and monitoring years. Reported values increased 73% in L9323 and 25% in L9324 and dropped 35% in M9313 between 2007 and 2008.

### 3.3 Laboratory Findings

Water quality results from ex situ laboratory analyses are tabulated in Table 3-2 through Table 3-4. Analytical results provided by Analytica are presented in Appendix A. Laboratory analyses results for the 2007 sampling events are presented in Appendix B. A summary and comparison of the resulting values are described below.

All of the targeted compounds and metals were non-detectable (ND) in all lakes except for low levels of barium. Barium was detected in all lakes. The greatest measured concentration was 0.23 mg/L; well below the water quality standard of 2 mg/L identified by the EPA (EPA 2006) and adopted in the Alaska Water Quality Standards (ADEC 2006). Barium concentrations decreased in all lakes between August 2007 and 2008; 0.25 to 0.23 mg/L in M9313, 0.053 to 0.050 mg/L in L9323, and 0.058 to 0.047 mg/L in L9324. Chromium, detected in Lake L9324 in August 2007, was not detected in 2008.

**Table 3-2 Lake M9313 Laboratory Analysis Results**

Lab Sample Number	Test Method	Analysis	Concentration	Units	PQL	MDL	SS Recovery (%)	LCL	UCL
A0809003-03C	SW6010B-ICP-RCRA	Mercury	ND	mg/L	0.00020	0.000050	-	-	-
A0809003-03B	ADEC AK103-RRO	Residual Range Organics <i>Squalane</i>	ND 0.054	mg/L mg/L	0.52 0.0052	0.21 0.0021	- 104	- 50	- 150
A0809003-03A	ADEC AK102-DRO	Diesel Range Organics <i>o-Terphenyl</i>	ND 0.04	mg/L mg/L	0.10 0.00069	0.0062 0.0038	- 76.2	- 50	- 120
A0809003-03C	SW6010B-ICP-RCRA	Arsenic	ND	mg/L	0.10	0.015	-	-	-
		Barium	0.23	mg/L	0.010	0.00016	-	-	-
		Cadmium	ND	mg/L	0.0060	0.00051	-	-	-
		Chromium	ND	mg/L	0.010	0.0018	-	-	-
		Lead	ND	mg/L	0.050	0.011	-	-	-
		Selenium	ND	mg/L	0.10	0.026	-	-	-
		Silver	ND	mg/L	0.015	0.00066	-	-	-

Notes:  
1. PQL: Practical Quantification Limit  
2. MDL: Method Detection Limit  
3. SS Recovery: Spiked Sample Recovery (% of original)  
4. LCL: Lower Confidence Limit  
5. UCL: Upper Confidence Limit  
6. *Surrogates* are italicized



Table 3-3 Lake L9323 Laboratory Analysis Results

Lab Sample Number	Test Method	Analysis	Concentration	Units	PQL	MDL	SS Recovery (%)	LCL	UCL
A0809003-01C	SW6010B-ICP-RCRA	Mercury	ND	mg/L	0.00020	0.00050	-	-	-
A0809003-01B	ADEC AK103-RRO	Residual Range Organics <i>Squalane</i>	ND 0.051	mg/L mg/L	0.52 0.0052	0.21 0.0021	- 98.7	- 50	- 150
A0809003-01A	ADEC AK102-DRO	Diesel Range Organics <i>o-Terphenyl</i>	ND 0.040	mg/L mg/L	0.10 0.00069	0.0062 0.0038	- 77.0	- 50	- 120
A0809003-01C	SW6010B-ICP-RCRA	Arsenic	ND	mg/L	0.10	0.015	-	-	-
		Barium	0.050	mg/L	0.010	0.00016	-	-	-
		Cadmium	ND	mg/L	0.0060	0.00051	-	-	-
		Chromium	ND	mg/L	0.010	0.0018	-	-	-
		Lead	ND	mg/L	0.050	0.011	-	-	-
		Selenium	ND	mg/L	0.10	0.026	-	-	-
		Silver	ND	mg/L	0.015	0.00066	-	-	-
Notes:									
1. PQL: Practical Quantification Limit									
2. MDL: Method Detection Limit									
3. SS Recovery: Spiked Sample Recovery (% of original)									
4. LCL: Lower Confidence Limit									
5. UCL: Upper Confidence Limit									
6. <i>Surrogates</i> are italicized									

Table 3-4 Lake L9324 Laboratory Analysis Results

Lab Sample Number	Test Method	Analysis	Concentration	Units	PQL	MDL	SS Recovery (%)	LCL	UCL
A0809003-02C	SW6010B-ICP-RCRA	Mercury	ND	mg/L	0.00020	0.000050	-	-	-
A0809003-02B	ADEC AK103-RRO	Residual Range Organics <i>Squalane</i>	ND 0.054	mg/L mg/L	0.52 0.0052	0.21 0.0021	- 103	- 50	- 150
A0809003-02A	ADEC AK102-DRO	Diesel Range Organics <i>o-Terphenyl</i>	ND 0.043	mg/L mg/L	0.10 0.00069	0.0062 0.0038	- 81.7	- 50	- 120
A0809003-02C	SW6010B-ICP-RCRA	Arsenic	ND	mg/L	0.10	0.015	-	-	-
		Barium	0.047	mg/L	0.010	0.00016	-	-	-
		Cadmium	ND	mg/L	0.0060	0.00051	-	-	-
		Chromium	ND	mg/L	0.010	0.0018	-	-	-
		Lead	ND	mg/L	0.050	0.011	-	-	-
		Selenium	ND	mg/L	0.10	0.026	-	-	-
		Silver	ND	mg/L	0.015	0.00066	-	-	-
Notes:									
1. PQL: Practical Quantification Limit									
2. MDL: Method Detection Limit									
3. SS Recovery: Spiked Sample Recovery (% of original)									
4. LCL: Lower Confidence Limit									
5. UCL: Upper Confidence Limit									
6. <i>Surrogates</i> are italicized									

## 4.0 Discussion

In situ water quality parameters varied little, both with depth and between the two monitoring years, in the three sampled lakes. Turbidity was variable between lakes and monitoring years. Aquatic organisms are generally not affected by turbidity below 10 NTU. The maximum turbidity observed in 2008 was 3.4 NTU. Turbidity is a measure of the concentration of total suspended solids (TSS) in a water body. The greatest source of turbidity in the open water zone of most lakes is typically phytoplankton or algae. Algal turbidity varies seasonally and with depth in a complex manner in response to physical, chemical, and biological changes in the lake and cannot be directly linked to drilling activities at Alpine facilities.

Analytica reported no issues or concerns regarding the state or quality of samples received. Laboratory analysis of lake water samples yielded no evidence of targeted contaminants at any lake, except for barium. Barium was identified in all three of the sample lakes at concentrations below federal and state water quality standards. Concentrations decreased in all lakes from August 2007 to 2008: 8% in Lake M9313, 6% in L9323, and 19% in L9323. Barium is not uncommon in arctic waters at concentrations similar to those presented here (Guay and Falkner 1998).

The results of these analyses suggest the gravel access roads and pads for CD3 and CD4 have no measureable impact to the water quality of adjacent lakes.

## 5.0 References

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## **Appendix A     August 27, 2008 Laboratory Water Quality Analysis Results**



SP-Analytica, Inc.-Anchorage  
4307 Arctic Blvd.  
Anchorage, AK 99503  
Phone: 907-258-2155  
Fax: 907-258-6634

9/12/2008

Michael Baker Jr Inc  
1400 W. Benson Blvd. Ste 200  
STE 200  
Anchorage, AK 99503  
Attn: Ozzy Orwick

Work Order #: A0809003  
Date: 9/12/2008  
Work ID: Lake Sampling  
Date Received: 8/28/2008  
Proj #: Lake Sampling

### Sample Identification

Lab Sample Number	Client Description	Lab Sample Number	Client Description
A0809003-01	Lake L9323	A0809003-02	Lake L9324
A0809003-03	Lake M9313		

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,

Kristen Stone  
Project Manager

*"The Science of Analysis, The Art of Service"*

## Case Narrative

*Analytica Alaska Inc.*  
*Work Order: A0809003*

Samples were prepared and analyzed according to EPA or equivalent methods outlined in the following references:

Test Methods for Evaluating Solid Waste, USEPA SW-846, Third Edition, Revision 4, December 1996.

Method AK102 For the Determination of Diesel Range Organics, Revision 3.0, 01/31/96.

Method AK103 For the Determination of Residual Range Organics, Revision 2.0, 01/31/96.

### SAMPLE RECEIPT:

Three (3) samples were received on 8/28/2008 9:45:00 AM at a temperature of 3.5°C at Analytica-Anchorage. The samples were received in good condition and in order per chain of custody.

### Comments:

The samples were transferred for analysis at Analytica Environmental Laboratories (AEL); 12189 Pennsylvania St. Thornton, CO 80241 where they were received at a temperature of 5.7°C 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.

All analytical results contained in this report have been reviewed under Analytica's internal quality assurance and quality control program. Any deviations in quality control parameters for specific analyses are noted in the following text. A complete quality assurance report, including laboratory control, matrix spike, and sample duplicate recoveries is kept on file in our office and is available upon request.

All method specifications were met for the following tests:

Test Method: ADEC AK102 - DRO - Aqueous

Test Method: ADEC AK103 - RRO - Aqueous

Test Method: SW6010B - ICP - RCRA - Aqueous

Test Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg - Aqueous



# Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0809003

**Project:** Lake Sampling  
**Client:** Michael Baker Jr Inc

**Client Project Number:** Lake Sampling

## Report Section: Client Sample Report

**Client Sample Name:** Lake L9323

Matrix: Aqueous Collection Date: 8/27/2008 4:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-01B Analysis Date: 9/9/2008 4:20:50AM  
Prep Date: 9/3/2008 Instrument: GC\_E  
Analytical Method ID: ADEC AK103 - RRO File Name: 08090821.D  
Prep Method ID: 3510C Dilution Factor: 1  
Prep Batch Number: T080903015  
Report Basis: As Received Analyst Initials: R.S  
Sample prep wt./vol: 970.00 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>run #:</u>			
Residual Range Organics	n/a	ND		mg/L	0.52	0.21		1			
<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>run #:</u>
Squalane	111-01-3	0.051		mg/L	0.0052	0.0021	0.052	98.7	50	150	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-01A Analysis Date: 9/8/2008 9:02:21PM  
Prep Date: 9/8/2008 Instrument: GC\_E  
Analytical Method ID: ADEC AK102 - DRO File Name: 08090812.D  
Prep Method ID: 3510C Dilution Factor: 1  
Prep Batch Number: T080903014  
Report Basis: As Received Analyst Initials: R.S  
Sample prep wt./vol: 970.00 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>run #:</u>			
Diesel Range Organics	n/a	ND		mg/L	0.10	0.0062		1			
<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>run #:</u>
o-Terphenyl	84-15-1	0.040		mg/L	0.00069	0.0038	0.052	77.0	50	120	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-01C Analysis Date: 9/10/2008 12:15:00PM  
Prep Date: 9/8/2008 Instrument: ICP\_2  
Analytical Method ID: SW6010B - ICP - RCRA File Name: E09108A  
Prep Method ID: 3010A Dilution Factor: 1  
Prep Batch Number: T080908012  
Report Basis: As Received Analyst Initials: rm  
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>		<u>run #:</u>
Arsenic	7440-38-2	ND		mg/L	0.10	0.015		1
Barium	7440-39-3	0.050		mg/L	0.010	0.00016		
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051		
Chromium	7440-47-3	ND		mg/L	0.010	0.0018		
Lead	7439-92-1	ND		mg/L	0.050	0.011		
Selenium	7784-49-2	ND		mg/L	0.10	0.026		
Silver	7440-22-4	ND		mg/L	0.015	0.00066		

# Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0809003

**Project:** Lake Sampling  
**Client:** Michael Baker Jr Inc

**Client Project Number:** Lake Sampling

## Report Section: Client Sample Report

**Client Sample Name:** Lake L9323

Matrix: Aqueous Collection Date: 8/27/2008 4:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-01C Analysis Date: 9/11/2008 2:16:36PM  
Prep Date: 9/9/2008 Instrument: CVAA\_1  
Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg File Name: B090908W.W  
Prep Method ID: 7470A Dilution Factor: 1  
Prep Batch Number: T080909006 Analyst Initials: DL  
Report Basis: As Received Prep Extract Vol: 30.00 ml  
Sample prep wt./vol: 30.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

# Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0809003

**Project:** Lake Sampling  
**Client:** Michael Baker Jr Inc

**Client Project Number:** Lake Sampling

## Report Section: Client Sample Report

**Client Sample Name:** Lake L9324

Matrix: Aqueous Collection Date: 8/27/2008 5:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-02B Analysis Date: 9/9/2008 5:09:27AM  
Prep Date: 9/3/2008 Instrument: GC\_E  
Analytical Method ID: ADEC AK103 - RRO File Name: 08090822.D  
Prep Method ID: 3510C Dilution Factor: 1  
Prep Batch Number: T080903015  
Report Basis: As Received Analyst Initials: R.S  
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>run #:</u>			
Residual Range Organics	n/a	ND		mg/L	0.52	0.21		1			
<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>run #:</u>
Squalane	111-01-3	0.054		mg/L	0.0052	0.0021	0.052	103	50	150	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-02A Analysis Date: 9/8/2008 9:51:04PM  
Prep Date: 9/8/2008 Instrument: GC\_E  
Analytical Method ID: ADEC AK102 - DRO File Name: 08090813.D  
Prep Method ID: 3510C Dilution Factor: 1  
Prep Batch Number: T080903014  
Report Basis: As Received Analyst Initials: R.S  
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>run #:</u>			
Diesel Range Organics	n/a	ND		mg/L	0.10	0.0062		1			
<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>run #:</u>
o-Terphenyl	84-15-1	0.043		mg/L	0.00069	0.0038	0.052	81.7	50	120	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-02C Analysis Date: 9/10/2008 12:45:00PM  
Prep Date: 9/8/2008 Instrument: ICP\_2  
Analytical Method ID: SW6010B - ICP - RCRA File Name: E09108A  
Prep Method ID: 3010A Dilution Factor: 1  
Prep Batch Number: T080908012  
Report Basis: As Received Analyst Initials: rm  
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>		<u>run #:</u>
Arsenic	7440-38-2	ND		mg/L	0.10	0.015		1
Barium	7440-39-3	0.047		mg/L	0.010	0.00016		
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051		
Chromium	7440-47-3	ND		mg/L	0.010	0.0018		
Lead	7439-92-1	ND		mg/L	0.050	0.011		
Selenium	7784-49-2	ND		mg/L	0.10	0.026		
Silver	7440-22-4	ND		mg/L	0.015	0.00066		



# Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0809003

Project: Lake Sampling

Client: Michael Baker Jr Inc

Client Project Number: Lake Sampling

## Report Section: Client Sample Report

Client Sample Name: Lake L9324

Matrix: Aqueous

Collection Date: 8/27/2008 5:00:00PM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-02C

Analysis Date: 9/11/2008 2:18:50PM

Prep Date: 9/9/2008

Instrument: CVAA\_1

Analytical Method ID: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

File Name: B090908W.W

Prep Method ID: 7470A

Dilution Factor: 1

Prep Batch Number: T080909006

Report Basis: As Received

Analyst Initials: DL

Sample prep wt./vol: 30.00 ml

Prep Extract Vol: 30.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

# Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0809003

**Project:** Lake Sampling  
**Client:** Michael Baker Jr Inc

**Client Project Number:** Lake Sampling

## Report Section: Client Sample Report

**Client Sample Name:** Lake M9313

Matrix: Aqueous Collection Date: 8/27/2008 11:45:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-03B Analysis Date: 9/9/2008 5:58:14AM  
Prep Date: 9/3/2008 Instrument: GC\_E  
Analytical Method ID: ADEC AK103 - RRO File Name: 08090823.D  
Prep Method ID: 3510C Dilution Factor: 1  
Prep Batch Number: T080903015  
Report Basis: As Received Analyst Initials: R.S  
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>run #:</u>	
Residual Range Organics	n/a	ND		mg/L	0.52	0.21				1	
<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>run #:</u>
Squalane	111-01-3	0.054		mg/L	0.0052	0.0021	0.052	104	50	150	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-03A Analysis Date: 9/8/2008 10:39:34PM  
Prep Date: 9/8/2008 Instrument: GC\_E  
Analytical Method ID: ADEC AK102 - DRO File Name: 08090814.D  
Prep Method ID: 3510C Dilution Factor: 1  
Prep Batch Number: T080903014  
Report Basis: As Received Analyst Initials: R.S  
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>run #:</u>	
Diesel Range Organics	n/a	ND		mg/L	0.10	0.0062				1	
<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>run #:</u>
o-Terphenyl	84-15-1	0.040		mg/L	0.00069	0.0038	0.052	76.2	50	120	1

The following test was conducted by: Analytica - Thornton

Lab Sample Number: A0809003-03C Analysis Date: 9/10/2008 12:50:00PM  
Prep Date: 9/8/2008 Instrument: ICP\_2  
Analytical Method ID: SW6010B - ICP - RCRA File Name: E09108A  
Prep Method ID: 3010A Dilution Factor: 1  
Prep Batch Number: T080908012  
Report Basis: As Received Analyst Initials: rm  
Sample prep wt./vol: 50.00 ml Prep Extract Vol: 50.00 ml

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>				<u>run #:</u>
Arsenic	7440-38-2	ND		mg/L	0.10	0.015				1
Barium	7440-39-3	0.23		mg/L	0.010	0.00016				
Cadmium	7440-43-9	ND		mg/L	0.0060	0.00051				
Chromium	7440-47-3	ND		mg/L	0.010	0.0018				
Lead	7439-92-1	ND		mg/L	0.050	0.011				
Selenium	7784-49-2	ND		mg/L	0.10	0.026				
Silver	7440-22-4	ND		mg/L	0.015	0.00066				

# Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0809003

Project: Lake Sampling

Client: Michael Baker Jr Inc

Client Project Number: Lake Sampling

## Report Section: Client Sample Report

Client Sample Name: **Lake M9313**

Matrix: Aqueous Collection Date: 8/27/2008 11:45:00AM

The following test was conducted by: Analytica - Thornton

Lab Sample Number:	A0809003-03C	Analysis Date:	9/11/2008 2:21:10PM
Prep Date:	9/9/2008	Instrument:	CVAA_1
Analytical Method ID:	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	File Name:	B090908W.W
Prep Method ID:	7470A	Dilution Factor:	1
Prep Batch Number:	T080909006	Analyst Initials:	DL
Report Basis:	As Received	Prep Extract Vol:	30.00 ml
Sample prep wt./vol:	30.00 ml		

<u>Analyte</u>	<u>CASNo</u>	<u>Result</u>	<u>Flags</u>	<u>Units</u>	<u>PQL</u>	<u>MDL</u>	<u>run #:</u>
Mercury	7439-97-6	ND		mg/L	0.00020	0.000050	1

# Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0809003  
Project: Lake Sampling  
Client: Michael Baker Jr Inc  
Client Project Number: Lake Sampling

## QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 91,767 Lab Project Number: A0809003

Prep Date: 9/8/2008

Lab Method Blank Id: T080903014-MB  
Prep Batch ID: T080903014  
Method: ADEC AK102 - DRO

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>
T080903014-LCS	LCS	08090809.D	9/8/2008 6:35:45PM
T080903014-LCSD	LCSD	08090810.D	9/8/2008 7:24:46PM
A0809003-01A	Lake L9323	08090812.D	9/8/2008 9:02:21PM
A0809003-02A	Lake L9324	08090813.D	9/8/2008 9:51:04PM
A0809003-03A	Lake M9313	08090814.D	9/8/2008 10:39:34PM

Prep Date: 9/3/2008

Lab Method Blank Id: T080903015-MB  
Prep Batch ID: T080903015  
Method: ADEC AK103 - 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>
T080903015-LCS	LCS	08090819.D	9/9/2008 2:43:12AM
T080903015-LCSD	LCSD	08090820.D	9/9/2008 3:31:56AM
A0809003-01B	Lake L9323	08090821.D	9/9/2008 4:20:50AM
A0809003-02B	Lake L9324	08090822.D	9/9/2008 5:09:27AM
A0809003-03B	Lake M9313	08090823.D	9/9/2008 5:58:14AM

Prep Date: 9/8/2008

Lab Method Blank Id: T080908012-MB  
Prep Batch ID: T080908012  
Method: SW6010B - ICP - RCRA

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>
A0809003-01C	Lake L9323	E09108A	9/10/2008 12:15:00PM
A0809003-02C	Lake L9324	E09108A	9/10/2008 12:45:00PM
A0809003-03C	Lake M9313	E09108A	9/10/2008 12:50:00PM
T080908012-LCS	LCS	E09108A	9/10/2008 12:05:00PM
T080908012-LCSD	LCSD	E09108A	9/10/2008 12:10:00PM
A0809003-01C-DUP	DUP	E09108A	9/10/2008 12:20:00PM
A0809003-01C-MS	MS	E09108A	9/10/2008 12:25:00PM
A0809003-01C-MSD	MSD	E09108A	9/10/2008 12:30:00PM
A0809003-01C-PDS	PDS	E09108A	9/10/2008 12:35:00PM

# Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0809003

Project: Lake Sampling

Client: Michael Baker Jr Inc

Client Project Number: Lake Sampling

## QC BATCH ASSOCIATIONS - BY METHOD BLANK

Lab Project ID: 91,767 Lab Project Number: A0809003

Prep Date: 9/9/2008

Lab Method Blank Id: T080909006-MB

Prep Batch ID: T080909006

Method: SW7470A - Mercury in Liquid Waste by CVAA - Total Hg

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>
A0809003-01C	Lake L9323	B090908W.WKS	9/11/2008 2:16:36PM
A0809003-02C	Lake L9324	B090908W.WKS	9/11/2008 2:18:50PM
A0809003-03C	Lake M9313	B090908W.WKS	9/11/2008 2:21:10PM
B0808203-02D	Batch QC	B090908W.WKS	9/11/2008 2:23:25PM
J0809022-01F	Batch QC	B090908W.WKS	9/11/2008 3:14:00PM
T080909006-LCS	LCS	B090908W.WKS	9/11/2008 2:07:39PM
T080909006-LCSD	LCSD	B090908W.WKS	9/11/2008 2:09:42PM
B0808203-02D-DUP	DUP	B090908W.WKS	9/11/2008 2:25:29PM
J0809022-01F-DUP	DUP	B090908W.WKS	9/11/2008 3:16:18PM
B0808203-02D-MS	MS	B090908W.WKS	9/11/2008 2:42:59PM
J0809022-01F-MS	MS	B090908W.WKS	9/11/2008 3:18:32PM
B0808203-02D-MSD	MSD	B090908W.WKS	9/11/2008 2:45:05PM
J0809022-01F-MSD	MSD	B090908W.WKS	9/11/2008 3:20:46PM
B0808203-02D-PDS	PDS	B090908W.WKS	9/11/2008 2:47:10PM
J0809022-01F-PDS	PDS	B090908W.WKS	9/11/2008 3:22:53PM



# Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0809003

**Project:** Lake Sampling

**Client:** Michael Baker Jr Inc

**Client Project Number:** Lake Sampling

## 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)

Several ways of defining the limit of detection and quantitation are prevalent in the laboratory industry and may appear in Analytica reports. These include the following:

MRL = "minimum reporting level", from the EPA Safe Drinking Water program (SDW)

PQL = "practical quantitation limit", from SW-846

EQL = "estimated quantitation limit", from SW-846

LOQ = "limit of quantitation", from a number of authoritative sources

In Analytica's work, all of these terms have the same meaning, equivalent to the EPA definition of the MRL. This reporting level is supported by a satisfactory calibration data point which is at that level or lower, and also is supported by a method detection limit (MDL) determined by the procedure in 40CFR. The MDL is lower than the MRL and represents an estimate of the level where positive detections have a 99% probability of being real, but where quantitation accuracy is unknown.

The MRL as defined by Analytica is the lowest demonstrated point of known quantitation accuracy.

The MRL should not be confused with the MCL, which is the EPA-defined "maximum contaminant level" allowed for certain regulated targets under specific regulations, such as the National Primary Drinking Water Regulations. Normally, the MRL is set at a level which is much lower than the MCL in order to ensure that levels are well below those limits. Not all target analytes have MCL levels established.

Other Flags may be applied. See Case Narrative for Description

# Detailed Analytical Report

Analytica Alaska Inc.

Workorder (SDG): A0809003

**Project:** Lake Sampling

**Client:** Michael Baker Jr Inc

**Client Project Number:** Lake Sampling

## REPORTING CONVENTIONS FOR THIS REPORT

A0809003

<u>TestPkgName</u>	<u>Basis</u>	<u># Sig Figs</u>	<u>Reporting Limit</u>
6010B/3010A (Aqueous) - RCRA	As Received	2	Report to PQL
7470A/7470A (Aqueous) - Total Hg	As Received	2	Report to PQL
AK102/3510C (Aqueous) - DRO	As Received	2	Report to PQL
AK103/3510C (Aqueous) - RRO	As Received	2	Report to PQL



ANALYTICA  
group

# Analytica Chain of Custody Form

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

4307 Arctic Boulevard  
Anchorage, AK 99503  
(907) 258-2155  
(907) 258-6634 fax

475 Hall St.  
Fairbanks, AK 99701  
(907) 456-3116  
(907) 458-3125 Fax

5438 Shauna Drive  
Juneau, AK 99801  
(907) 780-6688  
(907) 780-6670 fax

Chain of Custody No: **65832**

Client Name & Address:

MILNER BAKER JR., INC  
1400 W BERING BLVD #210  
ANCHORAGE AK 99503  
273-1600

Public Water System (PWS) ID#:

Project Name:

Turnaround Time for Results (TAT)

Standard

Expedited (< 10 days, prior authorization required)  
(please specify due date below; add'l charges may apply)

Phone No: 273-1607

Fax No: 273-1699

E-mail: [DOFW@akreg.com](mailto:DOFW@akreg.com)

Requested Due Date for Results:

Special Instructions/Comments:

Please ~~send~~ list all metals wanted!

REEA 8

P.O. or Contract No:

114916

Section To Be Completed by Analytica

Quote ID:

Account #:

Cash

Credit Card

Field Preserved

Field Filtered

MS/MSD ?

Invoice to Name & Address:

Quote ID:

Account #:

Cash

Credit Card

Field Preserved

Field Filtered

MS/MSD ?

Kit Prep/Shipping Charge: \$

Client Sample Identification / Location

Client Sample Identification / Location	Date Sampled	Time Sampled	Matrix (S-DW-WW-Other)	No. of Containers
LAKE 49323	8/27	1600		1
LAKE 49324	8/27	1700		1
LAKE <del>493</del> M9313	8/27	1145		1

Requested Analysis/Method	Lot # Pres:	Lot # Pres:	Lot # Pres:	Lot # Pres:	Lot # Pres:	Field Preserved	Field Filtered	MS/MSD ?
DRO/REO	✓							
6010	✓							

Relinquished by:

*[Signature]*

Date

8/29/08

Time

9:45

Received by:

Date

8/28/08

Time

9:45

Relinquished by:

*[Signature]*

Date

9/2

Time

12pm

Received by:

Date

Time

Relinquished by:

*[Signature]*

Date

Time

Received by:

Date

Time

Name of Sampler: (printed)

Condition of Custody Seal?:

Temp/Loc:

Thermo ID#:

Shipped Via:

THO

ANC

JNU

FBKS

THO

ANC

JNU

FBKS

THO

ANC

JNU

FBKS

THO

ANC

JNU

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## **Appendix B      2007 Field and Laboratory Water Quality Result Summaries**

## July 16, 2007 On Site Water Quality Results

Location Time	Depth (ft)	Turbidity NTU	Depth (ft)	Temp (°C)	Conductivity (µS/cm)	Specific Conductance (µS/cm)	DO (mg/L)	DO (Percent Saturation)	Salinity (ppt)
<b>M9313</b> 10:25 a.m.	24.0	1.66	Surface	11.8	536	717	10.15	94.2	0.4
			3.0	11.8	536	717	10.13	94.2	0.4
			6.0	11.8	536	717	10.12	94.1	0.4
			9.0	11.8	536	717	10.11	94.0	0.4
			12.0	11.8	536	717	10.09	93.7	0.4
			15.0	11.8	536	717	10.06	93.5	0.4
			18.0	11.8	536	717	10.01	93.0	0.4
			21.0	11.8	536	717	9.92	92.1	0.4
			24.0	11.7	535	717	0.17	1.6	0.4
<b>L9323</b> 4:05 p.m.	19.1	1.58	Surface	14.0	75.6	95.9	9.97	97.0	0.0
			4.0	13.9	75.7	96.0	9.95	96.9	0.0
			7.0	13.9	75.7	96.0	9.94	96.8	0.0
			10.0	13.9	75.7	96.0	9.92	96.5	0.0
			13.0	13.8	75.6	96.1	9.83	95.5	0.0
			16.0	13.7	75.3	96.1	9.73	94.3	0.0
			19.0	13.2	91.0	117.4	0.13	1.3	0.1
<b>L9324</b> 5:40 p.m.	10.2	8.64	Surface	14.6	57.0	71.1	9.74	96.1	0.0
			4.0	14.5	56.8	71.1	9.72	95.6	0.0
			7.0	14.2	56.7	71.4	9.64	94.5	0.0
			10.0	14.0	56.6	71.6	9.49	92.8	0.0

Notes:  
(1) Sample depth is measured from the water surface.  
(2) Turbidity was measured using a Hach-2100P Turbidometer  
(3) Salinity, conductivity, specific conductance, and temperature were measured using a YSI-30 meter  
(4) Dissolved oxygen measurements were obtained using a Hach HQ40d LDO meter



## August 8, 2007 On Site Water Quality Results

Location Time	Depth (ft)	Turbidity NTU	Depth (ft)	Temp (°C)	Conductivity (µS/cm)	Specific Conductance (µS/cm)	DO (mg/L)	DO (Percent Saturation)	Salinity (ppt)
<b>M9313</b> 2:00 p.m.	24.3	1.00	Surface	8.9	524	757	10.90	98.7	0.4
			3.0	8.9	524	757	10.90	98.7	0.4
			6.0	8.9	524	756	10.88	98.5	0.4
			9.0	8.9	523	756	10.87	98.4	0.4
			12.0	8.9	523	757	10.87	98.4	0.4
			15.0	8.8	523	757	10.87	98.3	0.4
			18.0	8.8	522	757	10.87	98.2	0.4
			21.0	8.7	521	757	10.85	97.8	0.4
			24.0	8.6	520	757	10.83	97.5	0.4
<b>L9323</b> 6:00 p.m.	20.1	1.13	Surface	10.2	72.3	100.7	10.92	102.3	0.0
			3.0	10.2	72.3	100.7	10.89	102.0	0.0
			6.0	10.2	72.3	100.7	10.86	101.8	0.0
			9.0	10.2	72.3	100.7	10.81	101.3	0.0
			12.0	10.2	72.3	100.8	10.76	100.8	0.0
			15.0	10.2	72.2	100.7	10.70	100.2	0.0
			18.0	10.2	72.2	100.7	10.49	98.3	0.0
			20.0	10.0	78.2	109.6	0.13	1.2	0.1
<b>L9324</b> 7:30 p.m.	9.8	2.71	Surface	10.0	61.2	85.7	11.27	104.7	0.0
			3.0	10.0	61.2	85.6	11.27	104.7	0.0
			6.0	9.9	61.0	85.6	11.28	104.5	0.0
			9.0	9.5	60.2	85.6	11.26	103.4	0.0

Notes:  
(1) Sample depth is measured from the water surface.  
(2) Turbidity was measured using a Hach-2100P Turbidometer  
(3) Salinity, conductivity, specific conductance, and temperature were measured using a YSI-30 meter  
(4) Dissolved oxygen measurements were obtained using a Hach HQ40d LDO meter

Lake M9313 July 16, 2007 Laboratory Analysis Results

Lab Sample Number	Test Method	Analysis	Concentration	Units	PQL	MDL	SS Recovery (%)	LCL	UCL
A0707191-03A	ADEC AK103-RRO	Residual Range Organics <i>Squalane</i>	ND 0.023	mg/L mg/L	0.51 0.0051	0.21 0.0021	- 45	- 50	- 150
A0707191-03A	ADEC AK102-DRO	Diesel Range Organics <i>o-Terphenyl</i>	ND 0.026	mg/L mg/L	0.10 0.00068	0.0061 0.0038	- 50.2	- 50	- 120
A0707191-03E	625-Base-Neutrals and Acids by GC/MS - PAH	Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Phenanthrene Pyrene <i>2-Fluorobiphenyl</i> <i>D14-Terphenyl</i> <i>D5-Nitrobenzene</i>	ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND 84 99 83	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 10 5.2 5.2 5.2 5.2 5.2 8.4 9.9 8.3	0.47 0.53 0.45 0.35 0.27 0.30 0.40 0.39 0.21 0.35 0.53 0.49 0.23 0.64 0.45 0.41 0.29 0.12 0.21	- - - - - - - - - - - - - - - - 80.7 94.8 79.3	- - - - - - - - - - - - - - - - 43 33 35	- - - - - - - - - - - - - - - - 116 141 114
A0707191-03D	SW6010B-ICP-RCRA	Arsenic Barium Cadmium Chromium Lead Selenium Silver	ND 0.19 ND ND ND ND ND	mg/L mg/L mg/L mg/L mg/L mg/L mg/L	0.10 0.01 0.006 0.01 0.05 0.10 0.015	0.015 0.00016 0.00051 0.0018 0.011 0.026 0.00066	- - - - - - -	- - - - - - -	- - - - - - -
A0707191-03D	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	Mercury	ND	mg/L	0.0002	0.00005	-	-	-
A0707191-03B	1664 Hexane Extractable Materials - TPH w/SGT	Hexane-Extractable Material	ND	mg/L	5.2	1.5	-	-	-
A0707191-03C	602 - Purgeable Aromatics by GC/PID - BTEX & Chlorobenzene	1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzene Chlorobenzene Ethylbenzene Toluene Xylenes, Total <i>p-Bromofluorobenzene</i>	ND ND ND ND ND ND ND ND 26	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	1.0 1.0 1.0 1.0 1.0 1.0 1.0 2.0 0.5	0.22 0.17 0.21 0.074 0.19 0.088 0.078 0.20 0.12	- - - - - - - - 97.6	- - - - - - - - 80	- - - - - - - - 120
A0707191-03C	ADEC AK101-GRO	Gasoline Range Organics <i>p-Bromofluorobenzene</i>	ND 25	ug/L ug/L	100 1.5	21 0.5	- 92.8	- 50	- 150
Trip Blank	Aromatic VOCs by GC/PID via method 8021B-BTEX	Benzene Ethylbenzene Toluene Xylenes, Total <i>p-Bromofluorobenzene</i>	ND ND ND ND 26	ug/L ug/L ug/L ug/L ug/L	1.0 1.0 1.0 2.0 0.5	0.074 0.088 0.078 0.200 0.120	- - - - 94.9	- - - - 80	- - - - 120
Notes: (1) PQL: Practical Quantification Limit (2) MDL: Method Detection Limit (3) SS Recovery: Spiked Sample Recovery (% of original) (4) LCL: Lower Confidence Limit (5) UCL: Upper Confidence Limit (6) <i>Surrogates</i> are italicized									

## Lake L9323 July 16, 2007 Laboratory Analysis Results

Lab Sample Number	Test Method	Analysis	Concentration	Units	PQL	MDL	SS Recovery (%)	LCL	UCL
A0707191-01A	ADEC AK103-RRO	Residual Range Organics <i>Squalane</i>	ND 0.038	mg/L mg/L	0.51 0.0051	0.21 0.0021	- 74	- 50	- 150
A0707191-01A	ADEC AK102-DRO	Diesel Range Organics <i>o-Terphenyl</i>	ND 0.034	mg/L mg/L	0.10 0.00068	0.0061 0.0038	- 67.1	- 50	- 120
A0707191-01E	625-Base-Neutrals and Acids by GC/MS - PAH	Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Phenanthrene Pyrene <i>2-Fluorobiphenyl</i> <i>D14-Terphenyl</i> <i>D5-Nitrobenzene</i>	ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND 69 70 70	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 10 5.2 5.2 5.2 5.2 5.2 5.2	0.47 0.53 0.45 0.35 0.27 0.30 0.40 0.39 0.21 0.35 0.53 0.49 0.23 0.64 0.45 0.41 0.29 0.12 0.21	- - - - - - - - - - - - - - - - 66.7 67.7 67.6	- - - - - - - - - - - - - - - - - 43 33 35	- - - - - - - - - - - - - - - - - 116 141 114
A0707191-01D	SW6010B-ICP-RCRA	Arsenic Barium Cadmium Chromium Lead Selenium Silver	ND 0.051 ND ND ND ND ND	mg/L mg/L mg/L mg/L mg/L mg/L mg/L	0.10 0.01 0.006 0.01 0.05 0.10 0.015	0.015 0.00016 0.00051 0.0018 0.011 0.026 0.00066	- - - - - - -	- - - - - - -	- - - - - - -
A0707191-01D	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	Mercury	ND	mg/L	0.0002	0.00005	-	-	-
A0707191-01B	1664 Hexane Extractable Materials - TPH w/SGT	Hexane-Extractable Material	ND	mg/L	5.1	1.5	-	-	-
A0707191-01C	602 - Purgeable Aromatics by GC/PID - BTEX & Chlorobenzene	1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzene Chlorobenzene Ethylbenzene Toluene Xylenes, Total <i>p-Bromofluorobenzene</i>	ND ND ND ND ND ND ND ND 26	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	1.0 1.0 1.0 1.0 1.0 1.0 2.0 2.0 0.5	0.22 0.17 0.21 0.074 0.19 0.088 0.078 0.20 0.12	- - - - - - - - 97.4	- - - - - - - - 80	- - - - - - - - 120
A0707191-01C	ADEC AK101-GRO	Gasoline Range Organics <i>p-Bromofluorobenzene</i>	ND 26	ug/L ug/L	100 1.5	21 0.5	- 94.7	- 50	- 150
Trip Blank	Aromatic VOCs by GC/PID via method 8021B-BTEX	Benzene Ethylbenzene Toluene Xylenes, Total <i>p-Bromofluorobenzene</i>	ND ND ND ND 26	ug/L ug/L ug/L ug/L ug/L	1.0 1.0 1.0 2.0 0.5	0.074 0.088 0.078 0.200 0.120	- - - - 94.9	- - - - 80	- - - - 120

Notes:  
(1) PQL: Practical Quantification Limit  
(2) MDL: Method Detection Limit  
(3) SS Recovery: Spiked Sample Recovery (% of original)  
(4) LCL: Lower Confidence Limit  
(5) UCL: Upper Confidence Limit  
(6) *Surrogates* are italicized

## Lake L9324 July 16, 2007 Laboratory Analysis Results

Lab Sample Number	Test Method	Analysis	Concentration	Units	PQL	MDL	SS Recovery (%)	LCL	UCL
A0707191-02A	ADEC AK103-RRO	Residual Range Organics <i>Squalane</i>	ND 0.023	mg/L mg/L	0.52 0.0052	0.21 0.0021	- 44.9	- 50	- 150
A0707191-02A	ADEC AK102-DRO	Diesel Range Organics <i>o-Terphenyl</i>	1.2 0.033	mg/L mg/L	0.10 0.00069	0.0062 0.0038	- 65	- 50	- 120
A0707191-02E	625-Base-Neutrals and Acids by GC/MS - PAH	Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Phenanthrene Pyrene <i>2-Fluorobiphenyl</i> <i>D14-Terphenyl</i> <i>D5-Nitrobenzene</i>	ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND 95 63 92	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	5.3 5.3 5.3 5.3 5.3 5.3 5.3 5.3 5.3 5.3 5.3 5.3 5.3 11 5.3 5.3 5.3 5.3 5.3 5.3	0.48 0.54 0.46 0.36 0.28 0.31 0.41 0.4 0.21 0.36 0.54 0.51 0.24 0.66 0.46 0.42 0.3 0.13 0.22	- - - - - - - - - - - - - - - - 89.3 58.8 86.3	- - - - - - - - - - - - - - - - 43 33 35	- - - - - - - - - - - - - - - - 116 141 114
A0707191-02D	SW6010B-ICP-RCRA	Arsenic Barium Cadmium Chromium Lead Selenium Silver	ND 0.054 ND ND ND ND ND	mg/L mg/L mg/L mg/L mg/L mg/L mg/L	0.10 0.01 0.006 0.01 0.05 0.10 0.015	0.015 0.00016 0.00051 0.0018 0.011 0.026 0.00066	- - - - - - -	- - - - - - -	- - - - - - -
A0707191-02D	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	Mercury	ND	mg/L	0.0002	0.00005	-	-	-
A0707191-02B	1664 Hexane Extractable Materials - TPH w/SGT	Hexane-Extractable Material	ND	mg/L	5.1	1.5	-	-	-
A0707191-02C	602 - Purgeable Aromatics by GC/PID - BTEX & Chlorobenzene	1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzene Chlorobenzene Ethylbenzene Toluene Xylenes, Total <i>p-Bromofluorobenzene</i>	ND ND ND ND ND ND ND ND 26	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	1.0 1.0 1.0 1.0 1.0 1.0 1.0 2.0 0.5	0.22 0.17 0.21 0.074 0.19 0.088 0.078 0.20 0.12	- - - - - - - - 97.9	- - - - - - - - 80	- - - - - - - - 120
A0707191-02C	ADEC AK101-GRO	Gasoline Range Organics <i>p-Bromofluorobenzene</i>	ND 26	ug/L ug/L	100 1.5	21 0.5	- 95.2	- 50	- 150
Trip Blank	Aromatic VOCs by GC/PID via method 8021B-BTEX	Benzene Ethylbenzene Toluene Xylenes, Total <i>p-Bromofluorobenzene</i>	ND ND ND ND 26	ug/L ug/L ug/L ug/L ug/L	1.0 1.0 1.0 2.0 0.5	0.074 0.088 0.078 0.200 0.120	- - - - 94.9	- - - - 80	- - - - 120

Notes:  
(1) PQL: Practical Quantification Limit  
(2) MDL: Method Detection Limit  
(3) SS Recovery: Spiked Sample Recovery (% of original)  
(4) LCL: Lower Confidence Limit  
(5) UCL: Upper Confidence Limit  
(6) *Surrogates* are italicized

## Lake M9313 August 8, 2007 Laboratory Analysis Results

Lab Sample Number	Test Method	Analysis	Concentration	Units	PQL	MDL	SS Recovery (%)	LCL	UCL
A0708454-01F	ADEC AK103-RRO	Residual Range Organics	ND	mg/L	0.52	0.21	-	-	-
		<i>Squalane</i>	0.043	mg/L	0.0052	0.0021	83.2	50	150
A0708454-01E	ADEC AK102-DRO	Diesel Range Organics	ND	mg/L	0.1	0.0062	-	-	-
		<i>o-Terphenyl</i>	0.02	mg/L	0.00069	0.0038	38.6	50	120
A0708454-01A	625-Base-Neutrals and Acids by GC/MS - PAH	Acenaphthene	ND	ug/L	4.8	0.43	-	-	-
		Acenaphthylene	ND	ug/L	4.8	0.49	-	-	-
		Anthracene	ND	ug/L	4.8	0.41	-	-	-
		Benzo(a)anthracene	ND	ug/L	4.8	0.32	-	-	-
		Benzo(a)pyrene	ND	ug/L	4.8	0.25	-	-	-
		Benzo(b)fluoranthene	ND	ug/L	4.8	0.27	-	-	-
		Benzo(g,h,i)perylene	ND	ug/L	4.8	0.37	-	-	-
		Benzo(k)fluoranthene	ND	ug/L	4.8	0.36	-	-	-
		Chrysene	ND	ug/L	4.8	0.19	-	-	-
		Dibenzo(a,h)anthracene	ND	ug/L	4.8	0.32	-	-	-
		Fluoranthene	ND	ug/L	4.8	0.48	-	-	-
		Fluorene	ND	ug/L	4.8	0.45	-	-	-
		Indeno(1,2,3-cd)pyrene	ND	ug/L	4.8	0.21	-	-	-
		Naphthalene	ND	ug/L	9.5	0.59	-	-	-
		Phenanthrene	ND	ug/L	4.8	0.41	-	-	-
		Pyrene	ND	ug/L	4.8	0.38	-	-	-
		<i>2-Fluorobiphenyl</i>	55	ug/L	4.8	0.27	57.5	43	116
		<i>D14-Terphenyl</i>	42	ug/L	4.8	0.11	43.7	33	141
		<i>D5-Nitrobenzene</i>	68	ug/L	4.8	0.20	71.9	35	114
A0708454-01D	SW6010B-ICP-RCRA	Arsenic	ND	mg/L	0.100	0.01500	-	-	-
		Barium	0.25	mg/L	0.010	0.00016	-	-	-
		Cadmium	ND	mg/L	0.006	0.00051	-	-	-
		Chromium	ND	mg/L	0.010	0.00180	-	-	-
		Lead	ND	mg/L	0.050	0.01100	-	-	-
		Selenium	ND	mg/L	0.100	0.02600	-	-	-
		Silver	ND	mg/L	0.015	0.00066	-	-	-
A0708454-01D	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	Mercury	ND	mg/L	0.0002	0.00005	-	-	-
A0708454-01B	1664 Hexane Extractable Materials - TPH w/SGT	Hexane-Extractable Material	ND	mg/L	4.8	1.4	-	-	-
A0708454-01C	602 - Purgeable Aromatics by GC/PID - BTEX & Chlorobenzene	1,2-Dichlorobenzene	ND	ug/L	1.0	0.22	-	-	-
		1,3-Dichlorobenzene	ND	ug/L	1.0	0.17	-	-	-
		1,4-Dichlorobenzene	ND	ug/L	1.0	0.21	-	-	-
		Benzene	ND	ug/L	1.0	0.074	-	-	-
		Chlorobenzene	ND	ug/L	1.0	0.19	-	-	-
		Ethylbenzene	ND	ug/L	1.0	0.088	-	-	-
		Toluene	ND	ug/L	1.0	0.078	-	-	-
		Xylenes, Total	ND	ug/L	2.0	0.20	-	-	-
		<i>p-Bromofluorobenzene</i>	26	ug/L	0.50	0.12	95.1	80	120
A0708454-01C	ADEC AK101-GRO	Gasoline Range Organics	ND	ug/L	100	21	-	-	-
		<i>p-Bromofluorobenzene</i>	25	ug/L	1.5	0.5	93.6	50	150
Trip Blank	602 - Purgeable Aromatics by GC/PID - BTEX	1,2-Dichlorobenzene	ND	ug/L	1.0	0.220	-	-	-
		1,3-Dichlorobenzene	ND	ug/L	1.0	0.170	-	-	-
		1,4-Dichlorobenzene	ND	ug/L	1.0	0.210	-	-	-
		Benzene	ND	ug/L	1.0	0.074	-	-	-
		Chlorobenzene	ND	ug/L	1.0	0.190	-	-	-
		Ethylbenzene	ND	ug/L	1.0	0.088	-	-	-
		Toluene	ND	ug/L	1.0	0.078	-	-	-
		Xylenes, Total	ND	ug/L	2.0	0.200	-	-	-
		<i>p-Bromofluorobenzene</i>	ND	ug/L	0.5	0.120	91.7	80	120

Notes:  
(1) PQL: Practical Quantification Limit  
(2) MDL: Method Detection Limit  
(3) SS Recovery: Spiked Sample Recovery (% of original)  
(4) LCL: Lower Confidence Limit  
(5) UCL: Upper Confidence Limit  
(6) *Surrogates* are italicized



## Lake L9323 August 8, 2007 Laboratory Analysis Results

Lab Sample Number	Test Method	Analysis	Concentration	Units	PQL	MDL	SS Recovery (%)	LCL	UCL
A0708454-02F	ADEC AK103-RRO	Residual Range Organics	ND	mg/L	0.52	0.21	-	-	-
		<i>Squalane</i>	0.043	mg/L	0.0052	0.0021	81.8	50	150
A0708454-02E	ADEC AK102-DRO	Diesel Range Organics	ND	mg/L	0.10	0.0062	-	-	-
		<i>o-Terphenyl</i>	0.027	mg/L	0.00069	0.0038	52.1	50	120
A0708454-02A	625-Base-Neutrals and Acids by GC/MS - PAH	Acenaphthene	ND	ug/L	4.8	0.43	-	-	-
		Acenaphthylene	ND	ug/L	4.8	0.49	-	-	-
		Anthracene	ND	ug/L	4.8	0.42	-	-	-
		Benzo(a)anthracene	ND	ug/L	4.8	0.32	-	-	-
		Benzo(a)pyrene	ND	ug/L	4.8	0.25	-	-	-
		Benzo(b)fluoranthene	ND	ug/L	4.8	0.28	-	-	-
		Benzo(g,h,i)perylene	ND	ug/L	4.8	0.37	-	-	-
		Benzo(k)fluoranthene	ND	ug/L	4.8	0.37	-	-	-
		Chrysene	ND	ug/L	4.8	0.19	-	-	-
		Dibenzo(a,h)anthracene	ND	ug/L	4.8	0.32	-	-	-
		Fluoranthene	ND	ug/L	4.8	0.49	-	-	-
		Fluorene	ND	ug/L	4.8	0.46	-	-	-
		Indeno(1,2,3-cd)pyrene	ND	ug/L	4.8	0.22	-	-	-
		Naphthalene	ND	ug/L	9.7	0.60	-	-	-
		Phenanthrene	ND	ug/L	4.8	0.42	-	-	-
Pyrene	ND	ug/L	4.8	0.38	-	-	-		
		<i>2-Fluorobiphenyl</i>	49	ug/L	4.8	0.27	50.8	43	116
		<i>D14-Terphenyl</i>	31	ug/L	4.8	0.11	32.6	33	141
		<i>D5-Nitrobenzene</i>	63	ug/L	4.8	0.20	65.6	35	114
A0708454-02D	SW6010B-ICP-RCRA	Arsenic	ND	mg/L	0.10	0.015	-	-	-
		Barium	0.053	mg/L	0.01	0.00016	-	-	-
		Cadmium	ND	mg/L	0.006	0.00051	-	-	-
		Chromium	ND	mg/L	0.01	0.0018	-	-	-
		Lead	ND	mg/L	0.05	0.011	-	-	-
		Selenium	ND	mg/L	0.10	0.026	-	-	-
		Silver	ND	mg/L	0.015	0.00066	-	-	
A0708454-02D	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	Mercury	ND	mg/L	0.0002	0.00005	-	-	-
	1664 Hexane Extractable Materials - TPH w/SGT	Hexane-Extractable Material	ND	mg/L	4.9	1.4	-	-	-
A0708454-02C	602 - Purgeable Aromatics by GC/PID - BTEX & Chlorobenzene	1,2-Dichlorobenzene	ND	ug/L	1.0	0.22	-	-	-
		1,3-Dichlorobenzene	ND	ug/L	1.0	0.17	-	-	-
		1,4-Dichlorobenzene	ND	ug/L	1.0	0.21	-	-	-
		Benzene	ND	ug/L	1.0	0.074	-	-	-
		Chlorobenzene	ND	ug/L	1.0	0.19	-	-	-
		Ethylbenzene	ND	ug/L	1.0	0.088	-	-	-
		Toluene	ND	ug/L	1.0	0.078	-	-	-
		Xylenes, Total	ND	ug/L	2.0	0.20	-	-	-
		<i>p-Bromofluorobenzene</i>	27	ug/L	0.5	0.12	98.9	80	120
A0708454-02C	ADEC AK101-GRO	Gasoline Range Organics	ND	ug/L	100	21	-	-	-
		<i>p-Bromofluorobenzene</i>	25	ug/L	1.5	0.5	93.8	50	150
Trip Blank	602 - Purgeable Aromatics by GC/PID - BTEX	1,2-Dichlorobenzene	ND	ug/L	1.0	0.220	-	-	-
		1,3-Dichlorobenzene	ND	ug/L	1.0	0.170	-	-	-
		1,4-Dichlorobenzene	ND	ug/L	1.0	0.210	-	-	-
		Benzene	ND	ug/L	1.0	0.074	-	-	-
		Chlorobenzene	ND	ug/L	1.0	0.190	-	-	-
		Ethylbenzene	ND	ug/L	1.0	0.088	-	-	-
		Toluene	ND	ug/L	1.0	0.078	-	-	-
		Xylenes, Total	ND	ug/L	2.0	0.200	-	-	-
		<i>p-Bromofluorobenzene</i>	ND	ug/L	0.5	0.120	91.7	80	120

## Notes:

- (1) PQL: Practical Quantification Limit
- (2) MDL: Method Detection Limit
- (3) SS Recovery: Spiked Sample Recovery (% of original)
- (4) LCL: Lower Confidence Limit
- (5) UCL: Upper Confidence Limit
- (6) *Surrogates* are italicized

## Lake L9324 August 8, 2007 Laboratory Analysis Results

Lab Sample Number	Test Method	Analysis	Concentration	Units	PQL	MDL	SS Recovery (%)	LCL	UCL	
A0708454-03F	ADEC AK103-RRO	Residual Range Organics <i>Squalane</i>	ND 0.041	mg/L mg/L	0.52 0.0052	0.21 0.0021	- 79.2	- 50	- 150	
A0708454-03E	ADEC AK102-DRO	Diesel Range Organics <i>o-Terphenyl</i>	0.11 0.029	mg/L mg/L	0.11 0.00072	0.0064 0.0039	- 53.9	- 50	- 120	
A0708454-03A	625-Base-Neutrals and Acids by GC/MS - PAH	Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Dibenzo(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Phenanthrene Pyrene <i>2-Fluorobiphenyl</i> <i>D14-Terphenyl</i> <i>D5-Nitrobenzene</i>	ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND ND 56 33 70	ug/L ug/L	5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 10.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	0.45 0.51 0.44 0.33 0.26 0.29 0.39 0.38 0.20 0.34 0.51 0.48 0.22 0.62 0.43 0.40 0.28 0.12 0.21	0.21 0.0021 0.0064 0.0039 - - - - - - - - - - - - - 56.2 33.2 70.2	- - - - - - - - - - - - - - - - - 56.2 33.2 70.2	- - - - - - - - - - - - - - - - - 43 33 35	- - - - - - - - - - - - - - - - - 116 141 114
A0708454-03D	SW6010B-ICP-RCRA	Arsenic Barium Cadmium Chromium Lead Selenium Silver	ND 0.058 ND 0.013 ND ND ND	mg/L mg/L mg/L mg/L mg/L mg/L mg/L	0.10 0.01 0.006 0.01 0.05 0.10 0.015	0.015 0.00016 0.00051 0.0018 0.011 0.026 0.00066	- - - - - - -	- - - - - - -	- - - - - - -	
A0708454-03D	SW7470A - Mercury in Liquid Waste by CVAA - Total Hg	Mercury	ND	mg/L	0.0002	0.00005	-	-	-	
A0708454-03B	1664 Hexane Extractable Materials - TPH w/SGT	Hexane-Extractable Material	ND	mg/L	4.8	1.4	-	-	-	
A0708454-03C	602 - Purgeable Aromatics by GC/PID - BTEX & Chlorobenzene	1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzene Chlorobenzene Ethylbenzene Toluene Xylenes, Total <i>p-Bromofluorobenzene</i>	ND ND ND ND ND ND ND ND 27	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	1.0 1.0 1.0 1.0 1.0 1.0 2.0 2.0 0.5	0.22 0.17 0.21 0.074 0.19 0.088 0.078 0.20 0.12	- - - - - - - - 99	- - - - - - - - 80	- - - - - - - - 120	
A0708454-03C	ADEC AK101-GRO	Gasoline Range Organics <i>p-Bromofluorobenzene</i>	ND 25	ug/L ug/L	100 1.5	21 0.5	- 93.1	- 50	- 150	
Trip Blank	602 - Purgeable Aromatics by GC/PID - BTEX	1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzene Chlorobenzene Ethylbenzene Toluene Xylenes, Total <i>p-Bromofluorobenzene</i>	ND ND ND ND ND ND ND ND ND	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	1.0 1.0 1.0 1.0 1.0 1.0 2.0 2.0 0.5	0.220 0.170 0.210 0.074 0.190 0.088 0.078 0.200 0.120	- - - - - - - - 91.7	- - - - - - - - 80	- - - - - - - - 120	

Notes:  
(1) PQL: Practical Quantification Limit  
(2) MDL: Method Detection Limit  
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