102.38.177

2014 Groundwater Monitoring Report

K&L Distributors
Fairbanks, Alaska

March 2015

Prepared for:

K&L Distributors Inc.

Prepared by:

Alaska Resources and Environmental Services, LLC.

284 Topside Drive
Fairbanks, AK 99712

Prepared by:

Lyle Gresehover
Project Manager / Geologist

2014 Groundwater Monitoring Report
K&L Distributors
945 Elizabeth Street
March 2015

INTRODUCTION

This report was prepared on behalf of K&L Distributors Inc., who has contracted with Alaska Resources & Environmental Services (ARES) to perform the groundwater investigation associated with the petroleum release associated with the former 1,500 gallon UST. (ADEC file #102.38.177). The work was conducted as detailed in the approved Corrective Action Work Plan submitted in October 2013.

The objective of our work was to obtain groundwater sample data near the site of a former petroleum release in order to determine if groundwater contamination exists on the property and/or is migrating off-site. Monitoring wells MW-1, MW-2, and MW-3 were installed, developed and sampled in October 2013 and again in August 2014 in general accordance with ADEC Oil and Other Hazardous Substances Pollution Control Regulations (18 AAC 75 – amended October 01, 2014).

SITE BACKGROUND

Site Description

The property located at 945 Elizabeth Street (Figures 1,2) is situated in an area primarily used for commercial and light industrial purposes in the vicinity Fairbanks, Alaska. The lot consists of one commercial building on a 1.26 acre parcel. The former 1,500-gallon UST used for the storage of heating fuel oil (# 2 diesel) was located adjacent and south of the warehouse. The legal description for the site is: Tax Lot 2, Block 1 Burgess Industrial Park. The GPS coordinates for the site are N 64° 51.181', W -147° 46.035'. The elevation of the site is 447' above mean sea level.

History

A UST Closure / Site Characterization was conducted in July, 2013 at the request of Mr. Keith Rousseau, Owner of Inland Petroservice Inc., who was contracted to remove a UST at the site. The purpose of this project was to perform a limited site characterization and to investigate the subsurface conditions following the removal of a 1,500-gallon UST used for the storage of # 2 heating fuel oil for the property located at 945 Elizabeth Street.

Following the removal of the UST, the site was inspected and soil field screen samples collected. No staining of soils were observed in the area of excavation or stockpiled soils, however, a strong diesel odor was detected typical of a highly weathered diesel fuel. Soil field screen samples were collected from the sidewalls, base of excavation and stockpile to access site conditions and determine location of soil analytical sampling points. A total of twenty eight (28) soil field screen samples were collected during the 1,500-gallon UST closure / site characterization.

Based on soil field screen sample results, contaminated soils were encountered at the base of the UST excavation at approximately 7.5' bgs and extended to an unknown depth. The top of the UST was approximately 3' bgs. The highest recorded PID field screen reading recorded for samples collected from the excavation pit was Sample # 16 (7.5' bgs) at 44.4 ppm. The highest recorded PID field screen reading recorded for samples collected from the stockpiled soil was Sample # 18 at 50.1 ppm.

The total area of excavation was approximately 208 square feet in size and the maximum depth of excavation was 7.5' bgs. Additional excavation could not occur adjacent to the building due to concern of structurally undermining the building foundation. The vertical and horizontal (north and west) extent of soil contamination at the site is unknown. Groundwater was not encountered during excavation. An estimated 40-50 cubic yards (CY) of soils were stockpiled and determined to be above ADEC cleanup levels based on soil field screen samples. Disposal records indicate that 64.25 tons of contaminated soils were transported to OIT for treatment and disposal.

Based on soil analytical results, DRO contaminated soils above ADEC cleanup levels remain in place on the north and west sidewalls and at the base of the excavation (7.5' bgs). DRO contaminated soils were detected on the west sidewall (5.5' bgs) at 614 mg/kg, the north sidewall (6.0' bgs) at 376 mg/kg and DRO in the base of the excavation ranging from 301 mg/kg – 628 mg/kg. Stockpiled soils were above ADEC cleanup levels and ranged from 521 mg/kg – 1,170 mg/kg. The ADEC cleanup level for DRO in soil is 250 mg/kg.

Prior to backfilling the site, a passive aeration system was installed to increase oxygen level and provide a pathway for increased air flow to the subsurface. The system was constructed using perforated pipe placed at the length of the base of excavation and two vertical PVC pipes rising above ground level. A passive wind generated turbine was installed to conduct air flow thru the system.

Details of the sampling event were documented in the ARES report titled *K&L Distributors UST Closure / Site Characterization* dated September 2013.

Topography

The United States Geological Survey (USGS) Fairbanks Quadrangle (D-2 SE) provides topographic map coverage of the site (Figure 1). Fairbanks is located in the northern part of the Tanana Basin, which is a relatively flat floodplain of the Tanana River. The subject property is situated approximately 0.54 miles north of the Chena River and 3.95 miles north of the Tanana River.

Regional Hydrology

The Chena and Tanana rivers are the dominant influence on ground-water flow in the subject area. Two discharge peaks characterize the Chena River: spring snowmelt runoff and late summer precipitation. The stage of Chena River typically rises and falls in response to stage changes of the Tanana River. The depth to groundwater varies in response to these controlling factors. Based on interpretation of USGS data and historical

data, regional groundwater flow direction is generally to the northwest. However, the direction of flow can vary slightly depending on the stage of the Chena River and Tanana River. Depth to groundwater in the area is generally 12-14 feet bgs, though seasonal fluctuation can range between 10-16 feet bgs.

Site Hydrology

The groundwater table at the time of sampling was approximately 7.5' bgs. Well elevation measurements collected at the site confirm groundwater flow direction is to the northwest which is consistent with other data obtained in the area. The regional water table was considered normal for the time of year.

Scope of Work

To achieve the stated objectives, ARES performed the following tasks:

- Collected groundwater elevations and water quality parameter measurements to include temperature, pH, conductivity, turbidity, dissolved oxygen, and salinity;
- Collected groundwater samples and QA/QC duplicate sample. Samples were analyzed for gasoline range organics (GRO) by method AK101, diesel range organics (DRO) by method AK 102, benzene, toluene, ethylbenzene and total xylenes (BTEX) by method EPA 8260B; and
- Data review and report preparation.

GROUNDWATER SAMPLING

Sampling Method

A peristaltic pump, with new polyethylene tubing and new nitrile gloves were used during the sampling event. Before sampling, the groundwater elevation was measured to 0.010 feet using a Heron Model D-T Interface Meter. Well volume was then calculated, and at least three times the well volume was purged prior to sampling. Recharge rates were observed during purging, and water levels measurements taken following sampling. Water parameters were recorded to include temperature, pH, conductivity, turbidity, dissolved oxygen, and salinity using a Horiba Water Meter Model U-10.

Once the well was sufficiently recharged and groundwater parameters stabilized, samples were collected in order of decreasing volatility. The tubing was carefully lowered in to the well to avoid loss of volatiles and water collected from the peristaltic pump was placed directly into lab supplied sample bottles. Volatile samples were collected to avoid any headspace in the bottle. All bottles were labeled and placed in a pre-chilled cooler (at approximately 4°C) and submitted to ADEC approved laboratory following chain of custody (COC) procedures.

Purge water was placed in drums and stored on-site pending analytical results.

Groundwater samples were collected from MW-1, MW-2, and MW-3 on August 04, 2014. A blind duplicate sample was collected from monitoring well MW-1 for quality assurance/quality control purposes.

Field Observations

There was no petroleum odor or sheen detected from monitoring well water or purge water during sampling activities from MW-1, MW-2, and MW-3. The purge water from MW-1 was reddish-brown in appearance. The purge water from MW-2 was yellowish-brown in appearance and contained fine red sediment. The purge water from MW-3 was light yellow in appearance. No other odors were detected. Groundwater was approximately 7.5' below ground surface at the time of sampling.

Groundwater purge water was stored on-site in labeled 55-gallon drum pending analytical results.

Analytical Results

All three monitoring wells were sampled and analyzed for GRO by method AK101, DRO by method AK102 and BTEX by EPA method 8260B. Groundwater analytical results summary is displayed in Table 1. Complete laboratory results are included in Appendix B.

Table 1: Summary of Petroleum Analytical Results in Groundwater

Sample Location	Sample ID	Date Sampled	Matrix	EPA Method 8260B				Alaska Method AK 101	Alaska Method AK 102
				Benzene in mg/l	Toluene in mg/l	Ethyl-benzene in mg/l	Total xylenes in mg/l	GRO in mg/l	DRO in mg/l
MW-1	MW1-1013	10/23/13	Water	ND [0.0005]	0.00041 J	0.0331	0.0866	**1.33**	**2.89**
	MW1-0814	08/04/14		ND [0.0005]	ND [0.0010]	0.021	0.126	0.390	**2.4**
MW-2	MW2-1013	10/23/13	Water	ND [0.0005]	0.00023 J	ND [0.001]	0.000470	ND [0.05]	0.221 J
	MW2-0814	08/04/14		ND [0.0005]	ND [0.0010]	ND [0.0010]	ND [0.0030]	0.028 J	0.20 J
MW-3	MW3-1013	10/23/13	Water	ND [0.0005]	ND [0.001]	ND [0.001]	ND [0.0030]	ND [0.05]	0.251 J
	MW3-0814	08/04/14		ND [0.0005]	ND [0.001]	ND [0.001]	ND [0.0030]	0.019 J	0.21 J
Field Duplicate Sample to MW-1	DUP-1013	10/23/13	Water	ND [0.0005]	0.000280	0.0328	0.0844	**1.32**	**3.00**
	DUP-0814	08/04/14		ND [0.0005]	ND [0.001]	0.020	0.118	0.340	**2.5**
ADEC Cleanup Level [1]			Water	0.005	1.0	0.7	10.0	1.3	1.5

[1] Title 18 of the Alaska Administrative Code, Chapter 75, Section 341.
J=Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
ND = Not detected at the concentration shown (Method Reporting Limit).
N/A = Not Analyzed.
Results above ADEC Regulatory Limit in **Bold**.

Quality Assurance / Quality Control

Field quality control (QC) procedures for this project included the collection and analysis of a field duplicate and trip blank, which accompanied the samples in the field. One field duplicate (DUP-0814) was collected for quality control purposes. Sample ID DUP-0814 was a blind duplicate to MW1-0814. The QC samples were analyzed to assess the quality of sample collection and handling, as well as the accuracy and precision of the laboratory's analytical procedures.

Precision, expressed as the relative percent difference (RPD) between field duplicate sample results, is an indication of the consistency of sampling, sample handling, preservation, and laboratory analysis. As required by the 18AAC 78 and the UST Procedures Manual, field quality control sampling consisted of 10% field duplicates and 5% trip blanks. The RPD's for duplicates collected as part of this investigation fell within our acceptable range or were not calculable. Analysis of the trip blanks showed no analytes above the practical quantitation limit (PQL). Thus, there is no indication that cross-contamination among samples occurred.

The following blind field duplicates and associated RPD calculations are as follows:

Table 3: Relative Percent Difference Calculations

Sample ID / Duplicate ID	Matrix	Compound	Sample Concentration (mg/kg)	Duplicate Concentration (mg/kg)	RPD
MW1-1013 /DUP-1013	Water	Ethylbenzene	0.021	0.020	4.9
		Total xylenes	0.126	0.118	6.6
		GRO	0.390	0.340	13.7
		DRO	2.4	2.5	4.1

Given two sample concentrations (X and Y) the formula to determine RPD is the absolute value of the following:
[((X - Y) / (X + Y)) / 2] * 100 = RPD
Results above ADEC recommended range in **Bold**.

The recommended range for RPD for water analysis is < 30%. The RPD fell within the recommended range for all analytes.

Trip Blank Samples

Field quality control (QC) procedures for this project included the analysis of one (1) water trip blank sample which accompanied the samples in the field. The trip blank sample was analyzed to assess the quality of sample collection and handling.

In ideal conditions the analysis of a trip blank sample should not indicate the presence of any of the tested analytes in a quantity above the Limit of Quantification (LOQ). A result

above the LOQ can indicate that cross-contamination occurred between samples during sample transport or analysis, or indicate laboratory contamination.

The water trip blank sample was analyzed for BTEX by EPA 8260B and GRO by AK 101. No analytes were detected above the LOQ in the trip blank associated with the water samples from the sampling event.

The ADEC Environmental Laboratory Data Quality Assurance Requirements (ADEC March 2009) and United States Environmental Protection Agency (EPA) National Functional Guidelines for Organic Review (EPA August 2014) were followed in this site investigation. The data were reviewed to determine the data quality and to evaluate potential impact on the usability of the data. The review was performed using Level II reports that were provided by Test America, Inc. laboratory of Anchorage, AK. The analytical laboratory reports and chain-of-custody records are included in Appendix C.

A complete set of quality control parameters were reviewed as listed below.

- Holding times
- Sample handling and receiving
- Surrogate percent recovery
- Field duplicate sample comparability
- Matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD)
- Laboratory control sample (LCS)/Laboratory control sample duplicate (LCSD) percent recoveries and RPD
- Method blanks
- Trip blanks
- Method Sensitivity – reporting limits and practical quantitation limits (PQL)

Work order # 230-238-1

All reviewed quality control parameters were met for this analytical sampling event with the following exceptions:

- Method(s) AK101: The method blank for batch 894 contained Gasoline Range Organics (GRO) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of the samples was not performed. Data quality and usability are not affected.
- Method(s) AK102 & 103: The method blank for batch 896 contained Diesel Range Organics (DRO) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of the samples was not performed. Data quality and usability are unaffected.

Laboratory quality assurance included the procedures outlined in the laboratory's ADEC-approved standard operating procedures documentation. As presented in the laboratory

report's QC summary sheet, the laboratory QC parameters fell within the acceptable limits.

Conclusions and Recommendations

Groundwater analytical results from Sample ID MW1-0814 (source area well MW1), detected concentrations of DRO (2.4mg/l) that exceeded ADEC cleanup levels for DRO in groundwater. The ADEC cleanup level for DRO in groundwater is 1.5 mg/L. Analytical results from Sample ID MW1-0814 were below ADEC cleanup levels for GRO and BTEX compounds. A historical review of analytical results from MW-1, indicate that the concentrations of GRO, Ethylbenzene, and Toluene have decreased since the previous sampling event, while the concentration of total xylenes showed a slight increase since previous sampling event though concentrations were still well below ADEC cleanup levels for xylenes in groundwater.

Analytical results indicate GRO, BTEX and DRO are below ADEC cleanup levels for groundwater in down-gradient wells MW-2 and MW-3. A historical review of analytical results from MW-2 and MW-3 show a slight increase in the concentration of GRO. The laboratory method blank for GRO contained GRO above the MDL but below the RL. The increase in concentrations of GRO in both wells can be attributed to laboratory contamination and/or QC error.

Analytical results indicate groundwater has been impacted at the site and that concentrations of DRO exceed ADEC cleanup levels for DRO in groundwater at the source area well MW-1.

Analytical results do not indicate the groundwater is impacted above ADEC cleanup levels in down-gradient wells MW-2 and MW-3. Based on analytical results contaminants are not migrating off-site.

ARES recommends the following:

- The subject and surrounding properties are serviced by public utilities for potable water supply and therefore, a well receptor survey is not recommended at this time. The source has been identified and impacts to groundwater are localized (Subject Property);
- ARES recommends one (1) additional annual groundwater monitoring well sampling event to determine if the groundwater contaminant plume is in an increasing or decreasing trend or in a steady state of equilibrium. Analytical samples should be collected during period of high water table conditions and analyzed for GRO, DRO and BTEX;
- As indicated in the ARES report titled *K&L Distributors UST Closure / Site Characterization* dated September 2013, soils in the source area are above ADEC cleanup levels for DRO. Contaminated soils identified in the site assessment as remaining in-place should not be excavated or disturbed without prior approval of landowner and ADEC. Soils in the vicinity of documented contamination should

be properly characterized if disturbed in the future and segregated accordingly; and

- Institutional controls should remain in force at the site to include restricting installation of on-site water wells and using of ADEC approved POL field screening methods during excavation activities.

Limitations

This report presents the analytical results from a limited number of soil and groundwater samples and should not be construed as a comprehensive study of groundwater quality at the site. The samples were intended to evaluate the presence or absence of contaminants at the locations selected. Detectable levels of petroleum hydrocarbons may be present at other locations. It was also not the intent of our sampling and testing to detect the presence of groundwater affected by contaminants other than those for which laboratory analysis were preformed. No conclusions can be drawn on the presence or absence of other contaminants. This is not a geotechnical study.

The data presented in this report should be considered representative of the time of our site observations and sample collection. Changes in site conditions can occur with time because of natural forces or human activity. ARES reserves the right to modify or alter conclusions and recommendations should additional data become available.

This report was prepared for the exclusive use of K&L Distributors Inc., and their representatives. If it is made available to others, it should be for information on factual data only and not as a warranty of subsurface conditions.

Qualifications & Signature of Environmental Professional

Lyle Gresehover is an ADEC 'Qualified Person' and has extensive field experience as an environmental project manager and has worked on all aspects of environmental assessments, investigations, and clean-up efforts.

Lyle Gresehover
Project Manager/Geologist

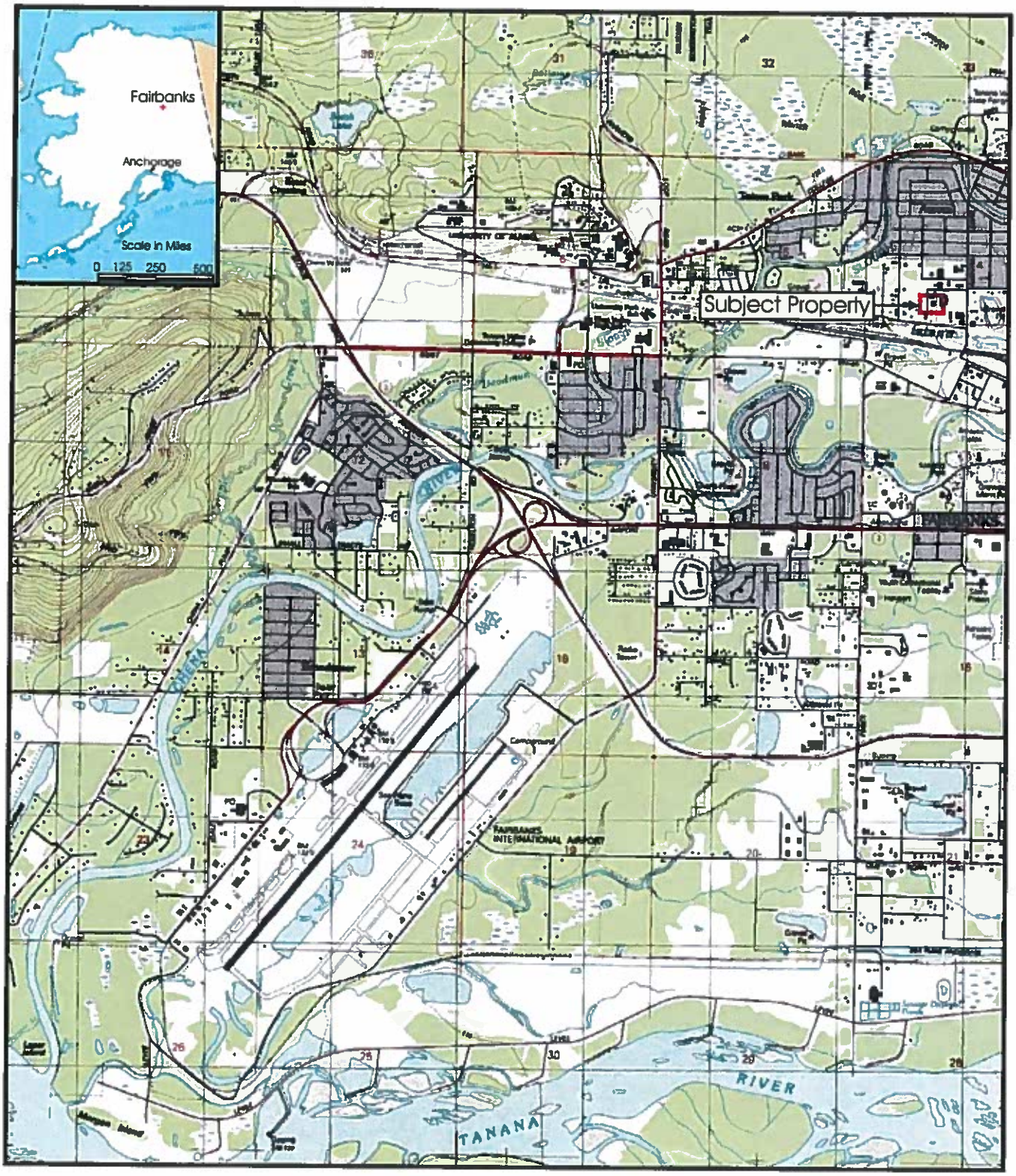
Sincerely,

Lyle Gresehover
Alaska Resources and Environmental Services, LLC

Enclosure: Appendix A – Figures
Appendix B – Test America Laboratory Results/ADEC Lab Quality Checklist

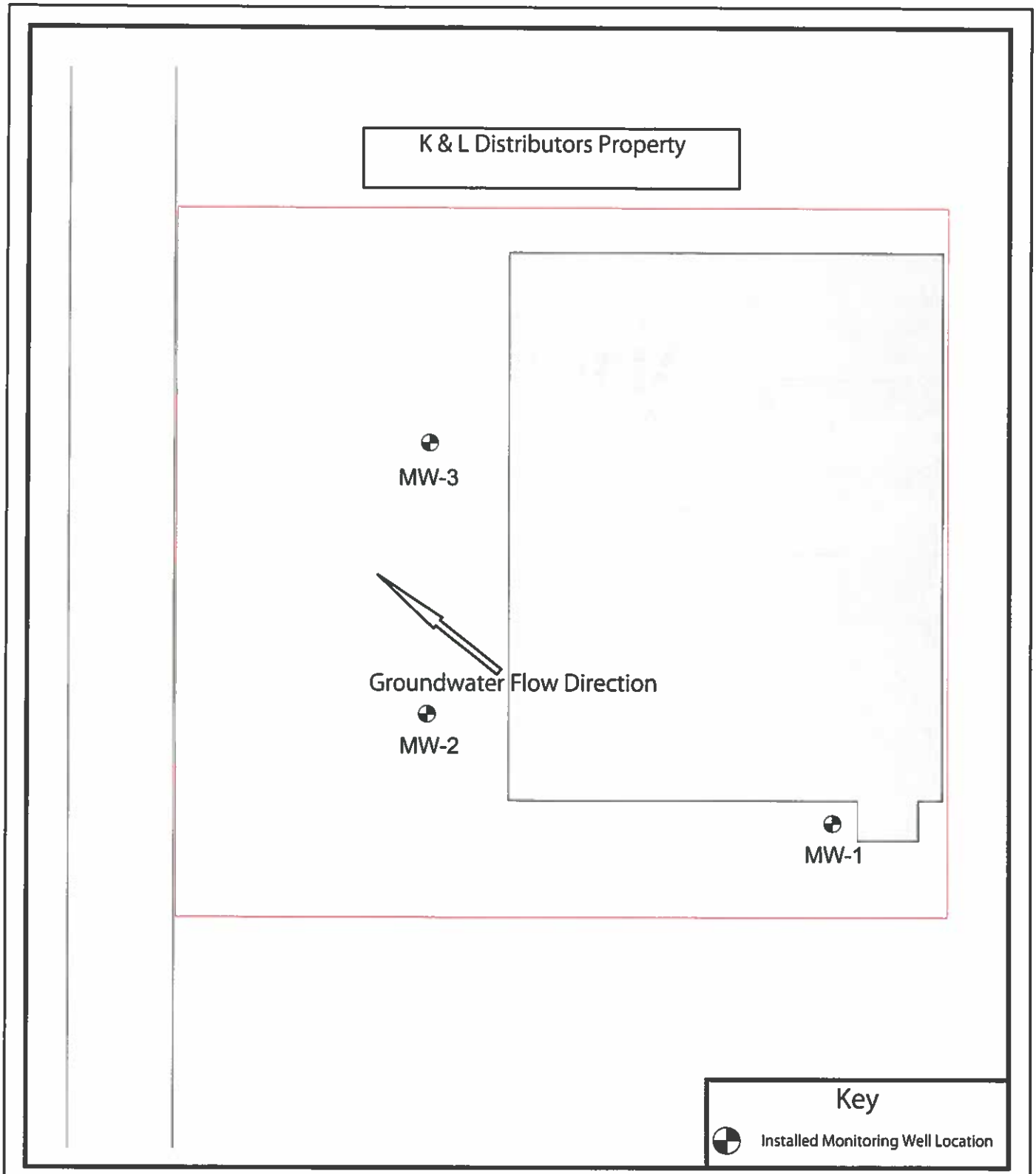
Appendix A

Figures



1992 Topographical Map Fairbanks, AK Quad D-2 SW	Date: 10/01/13 Drawn: JDG	Scale in Miles: 0 ¼ ½ ¾ 1	**Alaska Resources and Environmental Services, LLC** **284 Topside Fairbanks, AK 99701** **PH. (907) 374-3226** **FAX (907) 374-3219**	FIGURE 1
	Project: Groundwater Monitoring & Well Installation Report K & L Distributers, Fairbanks, AK	N W E S		

Aerial Photograph Fairbanks, AK	Date: 10/01/13 Drawn: JDG	Scale in Feet: 0 100 200 300 400	**Alaska Resources and Environmental Services, LLC** **284 Topside Fairbanks, AK 99701** **PH. (907) 374-3226** **FAX (907) 374-3219**	FIGURE 2
	Project: Groundwater Monitoring & Well Installation Report K & L Distributers, Fairbanks, AK	N W E S		



Aerial Photograph	Date: 10/01/13 Drawn: JDG	Scale in Feet: 0 10 20 30 40 50	**Alaska Resources and Environmental Services, LLC** 284 Topside Fairbanks, AK 99701 PH. (907) 374-3226 FAX (907) 374-3219	FIGURE 3
	Project: Groundwater Monitoring & Well Installation Report	N W E S		

Appendix B

Analytical Results

&

ADEC Lab Quality Checklist

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Anchorage
2000 West International Airport Road
Suite A10
Anchorage, AK 99502-1119
Tel: (907)563-9200

TestAmerica Job ID: 230-238-1
Client Project/Site: K&L Distributors

For:
Alaska Resources & Environment
PO BOX 83050
Fairbanks, Alaska 99708

Attn: Lyle Gresehover

Authorized for release by:
8/13/2014 4:42:23 PM
Jonathan Bousselaire, Project Management Assistant II
jonathan.bousselaire@testamericainc.com

Designee for

Johanna Dreher, Project Manager I
(907)563-9200
johanna.dreher@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 230-238-1

Laboratory: TestAmerica Anchorage

Narrative

Job Narrative
230-238-1

Comments
No additional comments.

Receipt
The samples were received on 8/6/2014 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2° C.

GC/MS VOA
Method(s) AK101: The method blank for batch 894 contained Gasoline Range Organics (GRO) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method(s) AK102 & 103: The method blank for batch 896 contained Diesel Range Organics (DRO) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Alaska Resources & Environment
Project/Site: K&L Distributors

TestAmerica Job ID: 230-238-1

Client Sample ID: MW1-0814

Lab Sample ID: 230-238-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	21		1.0	0.050	ug/L	1		8260B	Total/NA
Xylenes, Total	63		1.0	0.25	ug/L	1		8260B	Total/NA
o-Xylene	12		1.0	0.051	ug/L	1		8260B	Total/NA
m,p-Xylene	51		2.0	0.085	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO) -C6-C10	390	B	50	8.5	ug/L	1		AK101	Total/NA
Diesel Range Organics (DRO) (C10-C25)	2.4	B	0.39	0.12	mg/L	1		AK102 & 103	Total/NA

Client Sample ID: MW2-0814

Lab Sample ID: 230-238-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) -C6-C10	28	J B	50	8.5	ug/L	1		AK101	Total/NA
Diesel Range Organics (DRO) (C10-C25)	0.20	J B	0.38	0.12	mg/L	1		AK102 & 103	Total/NA

Client Sample ID: MW3-0814

Lab Sample ID: 230-238-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) -C6-C10	19	J B	50	8.5	ug/L	1		AK101	Total/NA
Diesel Range Organics (DRO) (C10-C25)	0.21	J B	0.38	0.12	mg/L	1		AK102 & 103	Total/NA

Client Sample ID: DUP-0814

Lab Sample ID: 230-238-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	20		1.0	0.050	ug/L	1		8260B	Total/NA
Xylenes, Total	59		1.0	0.25	ug/L	1		8260B	Total/NA
o-Xylene	11		1.0	0.051	ug/L	1		8260B	Total/NA
m,p-Xylene	48		2.0	0.085	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO) -C6-C10	340	B	50	8.5	ug/L	1		AK101	Total/NA
Diesel Range Organics (DRO) (C10-C25)	2.5	B	0.39	0.12	mg/L	1		AK102 & 103	Total/NA

Client Sample ID: Trip Blank

Lab Sample ID: 230-238-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Gasoline Range Organics (GRO) -C6-C10	16	J B	50	8.5	ug/L	1		AK101	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW1-0814

Lab Sample ID: 230-238-1

Date Collected: 08/04/14 13:45

Matrix: Water

Date Received: 08/06/14 08:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.064	ug/L			08/07/14 16:22	1
Ethylbenzene	**21**		1.0	0.050	ug/L			08/07/14 16:22	1
Toluene	ND		1.0	0.057	ug/L			08/07/14 16:22	1
Xylenes, Total	**63**		1.0	0.25	ug/L			08/07/14 16:22	1
o-Xylene	**12**		1.0	0.051	ug/L			08/07/14 16:22	1
m,p-Xylene	**51**		2.0	0.085	ug/L			08/07/14 16:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*57.8 - 139*		*08/07/14 16:22*	*1*
Dibromofluoromethane (Surr)	*103*		*35.8 - 145*		*08/07/14 16:22*	*1*
Toluene-d8 (Surr)	*101*		*38.6 - 147*		*08/07/14 16:22*	*1*
Trifluorotoluene (Surr)					*08/07/14 16:22*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**390**	**B**	50	8.5	ug/L			08/07/14 16:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*80 - 120*		*08/07/14 16:22*	*1*
Dibromofluoromethane (Surr)	*103*		*72.7 - 135*		*08/07/14 16:22*	*1*
Toluene-d8 (Surr)	*101*		*72.4 - 121*		*08/07/14 16:22*	*1*
Trifluorotoluene (Surr)					*08/07/14 16:22*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	**2.4**	**B**	0.39	0.12	mg/L		08/07/14 12:31	08/10/14 20:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane	*98*		*50 - 150*	*08/07/14 12:31*	*08/10/14 20:53*	*1*

Client Sample ID: MW2-0814

Lab Sample ID: 230-238-2

Date Collected: 08/04/14 13:00

Matrix: Water

Date Received: 08/06/14 08:30

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.064	ug/L			08/07/14 17:26	1
Ethylbenzene	ND		1.0	0.050	ug/L			08/07/14 17:26	1
Toluene	ND		1.0	0.057	ug/L			08/07/14 17:26	1
Xylenes, Total	ND		1.0	0.25	ug/L			08/07/14 17:26	1
o-Xylene	ND		1.0	0.051	ug/L			08/07/14 17:26	1
m,p-Xylene	ND		2.0	0.085	ug/L			08/07/14 17:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*57.8 - 139*		*08/07/14 17:26*	*1*
Dibromofluoromethane (Surr)	*103*		*35.8 - 145*		*08/07/14 17:26*	*1*
Toluene-d8 (Surr)	*99*		*38.6 - 147*		*08/07/14 17:26*	*1*
Trifluorotoluene (Surr)					*08/07/14 17:26*	*1*

Client Sample ID: MW2-0814

Date Collected: 08/04/14 13:00
Date Received: 08/06/14 08:30

Lab Sample ID: 230-238-2
Matrix: Water

Method: AK101 - Alaska - Gasoline Range Organics (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	28	J B	50	8.5	ug/L			08/07/14 17:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		80 - 120		08/07/14 17:26	1
Dibromofluoromethane (Surr)	103		72.7 - 135		08/07/14 17:26	1
Toluene-d8 (Surr)	99		72.4 - 121		08/07/14 17:26	1
Trifluorotoluene (Surr)					08/07/14 17:26	1

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	0.20	J B	0.38	0.12	mg/L		08/07/14 12:31	08/10/14 21:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	95		50 - 150	08/07/14 12:31	08/10/14 21:57	1

Client Sample ID: MW3-0814

Date Collected: 08/04/14 12:30
Date Received: 08/06/14 08:30

Lab Sample ID: 230-238-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.064	ug/L			08/07/14 17:57	1
Ethylbenzene	ND		1.0	0.050	ug/L			08/07/14 17:57	1
Toluene	ND		1.0	0.057	ug/L			08/07/14 17:57	1
Xylenes, Total	ND		1.0	0.25	ug/L			08/07/14 17:57	1
o-Xylene	ND		1.0	0.051	ug/L			08/07/14 17:57	1
m,p-Xylene	ND		2.0	0.085	ug/L			08/07/14 17:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		57.8 - 139		08/07/14 17:57	1
Dibromofluoromethane (Surr)	103		35.8 - 145		08/07/14 17:57	1
Toluene-d8 (Surr)	98		38.6 - 147		08/07/14 17:57	1
Trifluorotoluene (Surr)					08/07/14 17:57	1

Method: AK101 - Alaska - Gasoline Range Organics (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	19	J B	50	8.5	ug/L			08/07/14 17:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		08/07/14 17:57	1
Dibromofluoromethane (Surr)	103		72.7 - 135		08/07/14 17:57	1
Toluene-d8 (Surr)	98		72.4 - 121		08/07/14 17:57	1
Trifluorotoluene (Surr)					08/07/14 17:57	1

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	0.21	J B	0.38	0.12	mg/L		08/07/14 12:31	08/10/14 22:29	1

Client Sample ID: MW3-0814

Date Collected: 08/04/14 12:30
Date Received: 08/06/14 08:30

Lab Sample ID: 230-238-3
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	89		50 - 150	08/07/14 12:31	08/10/14 22:29	1

Client Sample ID: DUP-0814

Date Collected: 08/04/14 12:00
Date Received: 08/06/14 08:30

Lab Sample ID: 230-238-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.064	ug/L			08/07/14 18:29	1
Ethylbenzene	**20**		1.0	0.050	ug/L			08/07/14 18:29	1
Toluene	ND		1.0	0.057	ug/L			08/07/14 18:29	1
Xylenes, Total	**59**		1.0	0.25	ug/L			08/07/14 18:29	1
o-Xylene	**11**		1.0	0.051	ug/L			08/07/14 18:29	1
m,p-Xylene	**48**		2.0	0.085	ug/L			08/07/14 18:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		57.8 - 139		08/07/14 18:29	1
Dibromofluoromethane (Surr)	104		35.8 - 145		08/07/14 18:29	1
Toluene-d8 (Surr)	100		38.6 - 147		08/07/14 18:29	1
Trifluorotoluene (Surr)					08/07/14 18:29	1

Method: AK101 - Alaska - Gasoline Range Organics (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**340**	**B**	50	8.5	ug/L			08/07/14 18:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		80 - 120		08/07/14 18:29	1
Dibromofluoromethane (Surr)	104		72.7 - 135		08/07/14 18:29	1
Toluene-d8 (Surr)	100		72.4 - 121		08/07/14 18:29	1
Trifluorotoluene (Surr)					08/07/14 18:29	1

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	**2.5**	**B**	0.39	0.12	mg/L		08/07/14 12:31	08/10/14 23:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	85		50 - 150	08/07/14 12:31	08/10/14 23:01	1

Client Sample ID: Trip Blank

Date Collected: 08/04/14 11:00
Date Received: 08/06/14 08:30

Lab Sample ID: 230-238-5
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	0.064	ug/L			08/07/14 19:01	1
Ethylbenzene	ND		1.0	0.050	ug/L			08/07/14 19:01	1
Toluene	ND		1.0	0.057	ug/L			08/07/14 19:01	1
Xylenes, Total	ND		1.0	0.25	ug/L			08/07/14 19:01	1
o-Xylene	ND		1.0	0.051	ug/L			08/07/14 19:01	1
m,p-Xylene	ND		2.0	0.085	ug/L			08/07/14 19:01	1

Client: Alaska Resources & Environment
Project/Site: K&L Distributors

TestAmerica Job ID: 230-238-1

Client Sample ID: Trip Blank
Date Collected: 08/04/14 11:00
Date Received: 08/06/14 08:30

Lab Sample ID: 230-238-5
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		57.8 - 139		08/07/14 19:01	1
Dibromofluoromethane (Surr)	107		35.8 - 145		08/07/14 19:01	1
Toluene-d8 (Surr)	100		38.6 - 147		08/07/14 19:01	1
Trifluorotoluene (Surr)					08/07/14 19:01	1

Method: AK101 - Alaska - Gasoline Range Organics (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	16	J B	50	8.5	ug/L			08/07/14 19:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		80 - 120		08/07/14 19:01	1
Dibromofluoromethane (Surr)	107		72.7 - 135		08/07/14 19:01	1
Toluene-d8 (Surr)	100		72.4 - 121		08/07/14 19:01	1
Trifluorotoluene (Surr)					08/07/14 19:01	1

Surrogate Summary

Client: Alaska Resources & Environment
Project/Site: K&L Distributors

TestAmerica Job ID: 230-238-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	TOL	TFT
Lab Sample ID	Client Sample ID	(57.8-139)	(35.8-145)	(38.6-147)	
230-238-1	MW1-0814	107	103	101	
230-238-1 DU	MW1-0814	106	110	101	
230-238-2	MW2-0814	103	103	99	
230-238-3	MW3-0814	101	103	98	
230-238-4	DUP-0814	110	104	100	
230-238-5	Trip Blank	105	107	100	
230-239-A-1-C MS	Matrix Spike	107	104	99	94
230-239-A-1-D MSD	Matrix Spike Duplicate	106	99	98	100
LCS 230-893/2-A	Lab Control Sample	108	102	98	110
LCS 230-895/1005	Lab Control Sample	110	101	101	115
LCSD 230-893/3-A	Lab Control Sample Dup	110	102	101	110
LCSD 230-895/6	Lab Control Sample Dup	107	102	99	116
MB 230-893/1-A	Method Blank	106	105	102	120

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
TFT = Trifluorotoluene (Surr)

Method: AK101 - Alaska - Gasoline Range Organics (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	TOL	TFT
Lab Sample ID	Client Sample ID	(80-120)	(72.7-135)	(72.4-121)	
230-238-1	MW1-0814	107	103	101	
230-238-1 DU	MW1-0814	106	110	101	
230-238-2	MW2-0814	103	103	99	
230-238-3	MW3-0814	101	103	98	
230-238-4	DUP-0814	110	104	100	
230-238-5	Trip Blank	105	107	100	
LCS 230-894/1007	Lab Control Sample	103	102	97	111
LCSD 230-894/8	Lab Control Sample Dup	103	105	97	103
MB 230-894/10	Method Blank	102	107	101	

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)
TFT = Trifluorotoluene (Surr)

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		1COD
Lab Sample ID	Client Sample ID	(50-150)
230-238-1	MW1-0814	98
230-238-1 DU	MW1-0814	98

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) (Continued)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		1COD
Lab Sample ID	Client Sample ID	(50-150)
230-238-2	MW2-0814	95
230-238-3	MW3-0814	89
230-238-4	DUP-0814	85
LCS 230-896/2-A	Lab Control Sample	109
LCSD 230-896/3-A	Lab Control Sample Dup	106
MB 230-896/1-A	Method Blank	101

Surrogate Legend

1COD = 1-Chlorooctadecane

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 230-893/1-A
Matrix: Water
Analysis Batch: 895

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 893

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		17	2.1	ug/L		08/07/14 09:58	08/07/14 19:33	1
Ethylbenzene	ND		33	1.7	ug/L		08/07/14 09:58	08/07/14 19:33	1
Toluene	ND		33	1.9	ug/L		08/07/14 09:58	08/07/14 19:33	1
Xylenes, Total	ND		33	8.3	ug/L		08/07/14 09:58	08/07/14 19:33	1
o-Xylene	ND		33	1.7	ug/L		08/07/14 09:58	08/07/14 19:33	1
m,p-Xylene	ND		67	2.8	ug/L		08/07/14 09:58	08/07/14 19:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*57.8 - 139*	*08/07/14 09:58*	*08/07/14 19:33*	*1*
Dibromofluoromethane (Surr)	*105*		*35.8 - 145*	*08/07/14 09:58*	*08/07/14 19:33*	*1*
Toluene-d8 (Surr)	*102*		*38.6 - 147*	*08/07/14 09:58*	*08/07/14 19:33*	*1*
Trifluorotoluene (Surr)	*120*			*08/07/14 09:58*	*08/07/14 19:33*	*1*

Lab Sample ID: LCS 230-893/2-A
Matrix: Water
Analysis Batch: 895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 893

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	800	862		ug/L		108	73.8 - 128
Ethylbenzene	800	818		ug/L		102	78 - 130
Toluene	800	841		ug/L		105	75.6 - 124
Xylenes, Total	2400	2440		ug/L		102	70 - 130
o-Xylene	800	786		ug/L		98	75.1 - 137
m,p-Xylene	1600	1650		ug/L		103	76 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*57.8 - 139*
Dibromofluoromethane (Surr)	*102*		*35.8 - 145*
Toluene-d8 (Surr)	*98*		*38.6 - 147*
Trifluorotoluene (Surr)	*110*		

Lab Sample ID: LCSD 230-893/3-A
Matrix: Water
Analysis Batch: 895

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 893

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	800	873		ug/L		109	73.8 - 128	1	20
Ethylbenzene	800	865		ug/L		108	78 - 130	6	20
Toluene	800	894		ug/L		112	75.6 - 124	6	20
Xylenes, Total	2400	2570		ug/L		107	70 - 130	5	20
o-Xylene	800	823		ug/L		103	75.1 - 137	5	20
m,p-Xylene	1600	1750		ug/L		109	76 - 137	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*57.8 - 139*
Dibromofluoromethane (Surr)	*102*		*35.8 - 145*
Toluene-d8 (Surr)	*101*		*38.6 - 147*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 230-893/3-A
Matrix: Water
Analysis Batch: 895

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 893

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	110		

Lab Sample ID: 230-239-A-1-C MS
Matrix: Water
Analysis Batch: 895

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 893

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		202	229		ug/L		113	73.8 - 128
Ethylbenzene	3.6	J	202	226		ug/L		110	78 - 130
Toluene	4.9	J	202	231		ug/L		112	75.6 - 124
Xylenes, Total	11		607	673		ug/L		109	70 - 130
o-Xylene	ND		202	217		ug/L		107	75.1 - 137
m,p-Xylene	11	J	404	456		ug/L		110	76 - 137

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		57.8 - 139
Dibromofluoromethane (Surr)	104		35.8 - 145
Toluene-d8 (Surr)	99		38.6 - 147
Trifluorotoluene (Surr)	94		

Lab Sample ID: 230-239-A-1-D MSD
Matrix: Water
Analysis Batch: 895

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 893

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		202	241		ug/L		119	73.8 - 128	5	25
Ethylbenzene	3.6	J	202	237		ug/L		115	78 - 130	5	25
Toluene	4.9	J	202	244		ug/L		118	75.6 - 124	5	25
Xylenes, Total	11		607	704		ug/L		114	70 - 130	5	25
o-Xylene	ND		202	226		ug/L		112	75.1 - 137	4	25
m,p-Xylene	11	J	404	478		ug/L		115	76 - 137	5	25

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		57.8 - 139
Dibromofluoromethane (Surr)	99		35.8 - 145
Toluene-d8 (Surr)	98		38.6 - 147
Trifluorotoluene (Surr)	100		

Lab Sample ID: LCS 230-895/1005
Matrix: Water
Analysis Batch: 895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	21.8		ug/L		109	73.8 - 128
Ethylbenzene	20.0	22.1		ug/L		111	78 - 130
Toluene	20.0	22.7		ug/L		114	75.6 - 124
Xylenes, Total	60.0	65.3		ug/L		109	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 230-895/1005
Matrix: Water
Analysis Batch: 895

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	20.0	20.8		ug/L		104	75.1 - 137
m,p-Xylene	40.0	44.5		ug/L		111	76 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*57.8 - 139*
Dibromofluoromethane (Surr)	*101*		*35.8 - 145*
Toluene-d8 (Surr)	*101*		*38.6 - 147*
Trifluorotoluene (Surr)	*115*		

Lab Sample ID: LCSD 230-895/6
Matrix: Water
Analysis Batch: 895

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	20.0	22.5		ug/L		113	73.8 - 128	3	20
Ethylbenzene	20.0	21.9		ug/L		109	78 - 130	1	20
Toluene	20.0	22.6		ug/L		113	75.6 - 124	1	20
Xylenes, Total	60.0	64.7		ug/L		108	70 - 130	1	20
o-Xylene	20.0	20.7		ug/L		104	75.1 - 137	0	20
m,p-Xylene	40.0	44.0		ug/L		110	76 - 137	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*57.8 - 139*
Dibromofluoromethane (Surr)	*102*		*35.8 - 145*
Toluene-d8 (Surr)	*99*		*38.6 - 147*
Trifluorotoluene (Surr)	*116*		

Lab Sample ID: 230-238-1 DU
Matrix: Water
Analysis Batch: 895

Client Sample ID: MW1-0814
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Benzene	ND		ND		ug/L		NC	20
Ethylbenzene	21		17.8		ug/L		15	20
Toluene	ND		ND		ug/L		NC	20
Xylenes, Total	63		54.7		ug/L		14	20
o-Xylene	12		10.4		ug/L		14	20
m,p-Xylene	51		44.3		ug/L		15	20

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*57.8 - 139*
Dibromofluoromethane (Surr)	*110*		*35.8 - 145*
Toluene-d8 (Surr)	*101*		*38.6 - 147*
Trifluorotoluene (Surr)			

Method: AK101 - Alaska - Gasoline Range Organics (GC/MS)

Lab Sample ID: MB 230-894/10
Matrix: Water
Analysis Batch: 894

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	27.5	J	50	8.5	ug/L			08/07/14 15:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*08/07/14 15:18*	*1*
Dibromofluoromethane (Surr)	*107*		*72.7 - 135*		*08/07/14 15:18*	*1*
Toluene-d8 (Surr)	*101*		*72.4 - 121*		*08/07/14 15:18*	*1*
Trifluorotoluene (Surr)					*08/07/14 15:18*	*1*

Lab Sample ID: LCS 230-894/1007
Matrix: Water
Analysis Batch: 894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	500	564		ug/L		113	60 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*72.7 - 135*
Toluene-d8 (Surr)	*97*		*72.4 - 121*
Trifluorotoluene (Surr)	*111*		

Lab Sample ID: LCSD 230-894/8
Matrix: Water
Analysis Batch: 894

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	500	488		ug/L		98	60 - 120	14	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*72.7 - 135*
Toluene-d8 (Surr)	*97*		*72.4 - 121*
Trifluorotoluene (Surr)	*103*		

Lab Sample ID: 230-238-1 DU
Matrix: Water
Analysis Batch: 894

Client Sample ID: MW1-0814
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	390	B	408		ug/L		4	

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*
Dibromofluoromethane (Surr)	*110*		*72.7 - 135*

Method: AK101 - Alaska - Gasoline Range Organics (GC/MS) (Continued)

Lab Sample ID: 230-238-1 DU
Matrix: Water
Analysis Batch: 894

Client Sample ID: MW1-0814
Prep Type: Total/NA

Surrogate	DU %Recovery	DU Qualifier	Limits
Toluene-d8 (Surr)	101		72.4 - 121
Trifluorotoluene (Surr)			

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Lab Sample ID: MB 230-896/1-A
Matrix: Water
Analysis Batch: 907

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 896

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	0.288	J	0.50	0.15	mg/L		08/07/14 12:31	08/10/14 19:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	101		50 - 150	08/07/14 12:31	08/10/14 19:17	1

Lab Sample ID: LCS 230-896/2-A
Matrix: Water
Analysis Batch: 907

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 896

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO) (C10-C25)	10.0	9.48		mg/L		95	75 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctadecane	109		50 - 150

Lab Sample ID: LCSD 230-896/3-A
Matrix: Water
Analysis Batch: 907

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 896

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)	10.0	8.65		mg/L		87	75 - 125	9	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctadecane	106		50 - 150

Lab Sample ID: 230-238-1 DU
Matrix: Water
Analysis Batch: 907

Client Sample ID: MW1-0814
Prep Type: Total/NA
Prep Batch: 896

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)	2.4	B	2.49		mg/L		3	20

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) (Continued)

Lab Sample ID: 230-238-1 DU
Matrix: Water
Analysis Batch: 907

Client Sample ID: MW1-0814
Prep Type: Total/NA
Prep Batch: 896

Surrogate	DU %Recovery	DU Qualifier	Limits
1-Chlorooctadecane	98		50 - 150

GC/MS VOA

Prep Batch: 893

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-239-A-1-C MS	Matrix Spike	Total/NA	Water	5035	
230-239-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	5035	
LCS 230-893/2-A	Lab Control Sample	Total/NA	Water	5035	
LCSD 230-893/3-A	Lab Control Sample Dup	Total/NA	Water	5035	
MB 230-893/1-A	Method Blank	Total/NA	Water	5035	

Analysis Batch: 894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-238-1	MW1-0814	Total/NA	Water	AK101	
230-238-1 DU	MW1-0814	Total/NA	Water	AK101	
230-238-2	MW2-0814	Total/NA	Water	AK101	
230-238-3	MW3-0814	Total/NA	Water	AK101	
230-238-4	DUP-0814	Total/NA	Water	AK101	
230-238-5	Trip Blank	Total/NA	Water	AK101	
LCS 230-894/1007	Lab Control Sample	Total/NA	Water	AK101	
LCSD 230-894/8	Lab Control Sample Dup	Total/NA	Water	AK101	
MB 230-894/10	Method Blank	Total/NA	Water	AK101	

Analysis Batch: 895

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-238-1	MW1-0814	Total/NA	Water	8260B	
230-238-1 DU	MW1-0814	Total/NA	Water	8260B	
230-238-2	MW2-0814	Total/NA	Water	8260B	
230-238-3	MW3-0814	Total/NA	Water	8260B	
230-238-4	DUP-0814	Total/NA	Water	8260B	
230-238-5	Trip Blank	Total/NA	Water	8260B	
230-239-A-1-C MS	Matrix Spike	Total/NA	Water	8260B	893
230-239-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	893
LCS 230-893/2-A	Lab Control Sample	Total/NA	Water	8260B	893
LCS 230-895/1005	Lab Control Sample	Total/NA	Water	8260B	
LCSD 230-893/3-A	Lab Control Sample Dup	Total/NA	Water	8260B	893
LCSD 230-895/6	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 230-893/1-A	Method Blank	Total/NA	Water	8260B	893

GC Semi VOA

Prep Batch: 896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-238-1	MW1-0814	Total/NA	Water	3510C	
230-238-1 DU	MW1-0814	Total/NA	Water	3510C	
230-238-2	MW2-0814	Total/NA	Water	3510C	
230-238-3	MW3-0814	Total/NA	Water	3510C	
230-238-4	DUP-0814	Total/NA	Water	3510C	
LCS 230-896/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 230-896/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 230-896/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-238-1	MW1-0814	Total/NA	Water	AK102 & 103	896

GC Semi VOA (Continued)

Analysis Batch: 907 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-238-1 DU	MW1-0814	Total/NA	Water	AK102 & 103	896
230-238-2	MW2-0814	Total/NA	Water	AK102 & 103	896
230-238-3	MW3-0814	Total/NA	Water	AK102 & 103	896
230-238-4	DUP-0814	Total/NA	Water	AK102 & 103	896
LCS 230-896/2-A	Lab Control Sample	Total/NA	Water	AK102 & 103	896
LCSD 230-896/3-A	Lab Control Sample Dup	Total/NA	Water	AK102 & 103	896
MB 230-896/1-A	Method Blank	Total/NA	Water	AK102 & 103	896

Lab Chronicle

Client: Alaska Resources & Environment
Project/Site: K&L Distributors

TestAmerica Job ID: 230-238-1

Client Sample ID: MW1-0814

Lab Sample ID: 230-238-1
Matrix: Water

Date Collected: 08/04/14 13:45
Date Received: 08/06/14 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	895	08/07/14 16:22	ASD	TAL ANC
Total/NA	Analysis	AK101		1	894	08/07/14 16:22	ASD	TAL ANC
Total/NA	Prep	3510C			896	08/07/14 12:31	ASD	TAL ANC
Total/NA	Analysis	AK102 & 103		1	907	08/10/14 20:53	ASD	TAL ANC

Client Sample ID: MW2-0814

Lab Sample ID: 230-238-2
Matrix: Water

Date Collected: 08/04/14 13:00
Date Received: 08/06/14 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	895	08/07/14 17:26	ASD	TAL ANC
Total/NA	Analysis	AK101		1	894	08/07/14 17:26	ASD	TAL ANC
Total/NA	Prep	3510C			896	08/07/14 12:31	ASD	TAL ANC
Total/NA	Analysis	AK102 & 103		1	907	08/10/14 21:57	ASD	TAL ANC

Client Sample ID: MW3-0814

Lab Sample ID: 230-238-3
Matrix: Water

Date Collected: 08/04/14 12:30
Date Received: 08/06/14 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	895	08/07/14 17:57	ASD	TAL ANC
Total/NA	Analysis	AK101		1	894	08/07/14 17:57	ASD	TAL ANC
Total/NA	Prep	3510C			896	08/07/14 12:31	ASD	TAL ANC
Total/NA	Analysis	AK102 & 103		1	907	08/10/14 22:29	ASD	TAL ANC

Client Sample ID: DUP-0814

Lab Sample ID: 230-238-4
Matrix: Water

Date Collected: 08/04/14 12:00
Date Received: 08/06/14 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	895	08/07/14 18:29	ASD	TAL ANC
Total/NA	Analysis	AK101		1	894	08/07/14 18:29	ASD	TAL ANC
Total/NA	Prep	3510C			896	08/07/14 12:31	ASD	TAL ANC
Total/NA	Analysis	AK102 & 103		1	907	08/10/14 23:01	ASD	TAL ANC

Client Sample ID: Trip Blank

Lab Sample ID: 230-238-5
Matrix: Water

Date Collected: 08/04/14 11:00
Date Received: 08/06/14 08:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	895	08/07/14 19:01	ASD	TAL ANC
Total/NA	Analysis	AK101		1	894	08/07/14 19:01	ASD	TAL ANC

Client: Alaska Resources & Environment
Project/Site: K&L Distributors

TestAmerica Job ID: 230-238-1

Laboratory References:

TAL ANC = TestAmerica Anchorage, 2000 West International Airport Road, Suite A10, Anchorage, AK 99502-1119, TEL (907)563-9200

Certification Summary

Client: Alaska Resources & Environment
Project/Site: K&L Distributors

TestAmerica Job ID: 230-238-1

Laboratory: TestAmerica Anchorage

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	AK00975	06-30-15
Alaska (UST)	State Program	10	UST-067	06-16-14 *

* Certification renewal pending - certification considered valid.

Method Summary

Client: Alaska Resources & Environment
Project/Site: K&L Distributors

TestAmerica Job ID: 230-238-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL ANC
AK101	Alaska - Gasoline Range Organics (GC/MS)	ADEC	TAL ANC
AK102 & 103	Alaska - Diesel Range Organics & Residual Range Organics (GC)	ADEC	TAL ANC

Protocol References:

ADEC = Alaska Department of Environmental Conservation

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL ANC = TestAmerica Anchorage, 2000 West International Airport Road, Suite A10, Anchorage, AK 99502-1119, TEL (907)563-9200

Sample Summary

Client: Alaska Resources & Environment
Project/Site: K&L Distributors

TestAmerica Job ID: 230-238-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
230-238-1	MW1-0814	Water	08/04/14 13:45	08/06/14 08:30
230-238-2	MW2-0814	Water	08/04/14 13:00	08/06/14 08:30
230-238-3	MW3-0814	Water	08/04/14 12:30	08/06/14 08:30
230-238-4	DUP-0814	Water	08/04/14 12:00	08/06/14 08:30
230-238-5	Trip Blank	Water	08/04/14 11:00	08/06/14 08:30

ALASKA RESOURCES AND ENVIRONMENTAL SERVICES

230-238 Chain of Custody

13050
Alaska 99708
7.374.3226
74.2219

230-238

Chain of Custody Report

Client: Alaska Resources and Environmental Services		Invoice To: ARES, P.O. Box 83050, Fairbanks, Alaska 99708	Laboratory Name: Test America Inc. Address: 2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119
Report To: Lyle Grasehover			
Address: ARES, P.O. Box 83050			
Email: lyle@ak-res.com		P.O. Number:	
Phone: (907) 374-3226	Fax: (907)374-3219		
Project Name: K&L Distributors			
Project Number:			
Sampled By: Dustin Stahl			

Turnaround Request In Business Days

Organic & Inorganic Analyses: 10 | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 | 4 | 3 | 2 | 1 | <1

Specify Other:

Report Tier Levels: Tier II reporting requested (results + QC)

	Sample Identification	Sampling Date/ Time		Preservative: HCL	HCL	HCL	N/A								Matrix (W,S,O)	# of Cont.	Location / Comments	Lab ID
				Requested Analyses: AK 101 GRO	EPA 8260B BTEX	AK 102 DRO	AK 103 RRO	EPA 8270C PAH										
1	MW1-0814	08/04/2014	1345	X	X	X									W	5		01
2	MW2-0814	08/04/2014	1300	X	X	X									W	5		02
3	MW3-0814	08/04/2014	1230	X	X	X									W	5		03
4	DUP-0814	08/04/2014	1200	X	X	X									W	5		04
5	Trip Blank	08/04/2014	1100	X	X										W	3		05
6																		
7																		
8																		
9																		
10																		

Released By:	Date: 08/05/2014	Received By:	Date: 8/6/14
Print Name: Dustin Stahl Firm: ARES	Time: 0900	Print Name: Andrew Foley Firm: TA-AK	Time: 8:30
Released By:	Date:	Received By:	Date:
Print Name: Firm: 8/5/14	Time 0900	Print Name: Firm:	Time:

Additional Remarks: Please report method detection limits along with the reporting limits for all samples.

Temp: 2.2

Page 1 of 1

COC REV 032008

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
461558

Custody Seal
DATE 8/6/14
SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
461958

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
461559

Custody Seal
DATE 8/5/14
SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
461959

Login Sample Receipt Checklist

Client: Alaska Resources & Environment

Job Number: 230-238-1

Login Number: 238
List Number: 1
Creator: Hirji, Ally

List Source: TestAmerica Anchorage

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Laboratory Data Review Checklist

Completed by: Dustin Stahl

Title: Environmental Scientist Date: 03/17/2015

CS Report Name: K&L Distributors 2014 Groundwater Report Date: 08/13/2014

Consultant Firm: Alaska Resources and Environmental Services

Laboratory Name: Test America Laboratory Report Number: 230-238-1

ADEC File Number: 102.38.177 ADEC RecKey Number:

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      Yes No NA (Please explain.) Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      Yes No NA (Please explain.) Comments:

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      Yes No NA (Please explain.) Comments:

   b. Correct analyses requested?
      Yes No NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      Yes No NA (Please explain.) Comments:

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
      Yes No NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
Yes No NA (Please explain.) Comments:

No adverse conditions were noted.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?
Yes No NA (Please explain.) Comments:

There were no discrepancies.

e. Data quality or usability affected? (Please explain.)
Comments:

N/A

4. Case Narrative
a. Present and understandable?
Yes No NA (Please explain.) Comments:

b. Discrepancies, errors or QC failures identified by the lab?
Yes No NA (Please explain.) Comments:

Method(s) AK101: The method blank for batch 894 contained Gasoline Range Organics (GRO) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed. Method(s) AK102 & 103: The method blank for batch 896 contained Diesel Range Organics (DRO) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

c. Were all corrective actions documented?
Yes No NA (Please explain.) Comments:

No corrective actions were required.

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

The case narrative does not discuss the effect on data quality or usability.

5. Samples Results
a. Correct analyses performed/reported as requested on COC?
Yes No NA (Please explain.) Comments:

b. All applicable holding times met?
Yes No NA (Please explain.) Comments:

c. All soils reported on a dry weight basis?
Yes No NA (Please explain.) Comments:

Water was the matrix for all samples.

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?
Yes No NA (Please explain.) Comments:

e. Data quality or usability affected?
Comments:

N/A

6. QC Samples
a. Method Blank
i. One method blank reported per matrix, analysis and 20 samples?
Yes No NA (Please explain.) Comments:

ii. All method blank results less than PQL?
Yes No NA (Please explain.) Comments:

iii. If above PQL, what samples are affected?
Comments:

N/A

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
Yes No NA (Please explain.) Comments:

All results were less than the PQL.

v. Data quality or usability affected? (Please explain.)
Comments:

N/A; see above.

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

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)
Yes No NA (Please explain.) Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
Yes No NA (Please explain.) Comments:

No metals or inorganic samples were collected or analyzed for this sampling event.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)
Yes No NA (Please explain.) Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)
Yes No NA (Please explain.) Comments:

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

N/A

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes No NA (Please explain.) Comments:

All RPD's and %R were within acceptable limits.

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

N/A; see above.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?
Yes No NA (Please explain.) Comments:

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

Yes No NA (Please explain.) Comments:

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

Yes No NA (Please explain.) Comments:

There were no failed surrogate recoveries.

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

Comments:

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

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes No NA (Please explain.) Comments:

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

Yes No NA (Please explain.) Comments:

All samples were shipped in a single cooler.

iii. All results less than PQL?

Yes No NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

N/A

v. Data quality or usability affected? (Please explain.)

Comments:

N/A

e. Field Duplicate

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

Yes No NA (Please explain.) Comments:

ii. Submitted blind to lab?

Yes No NA (Please explain.) Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes No NA (Please explain.) Comments:

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

Comments:

f. Decontamination or Equipment Blank (If not used explain why).

Yes **No** NA (Please explain.) Comments:

No equipment blank was required for this sampling event.

i. All results less than PQL?

Yes No **NA** (Please explain.) Comments:

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? (Please explain.)

Comments:

N/A

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      Yes No NA (Please explain.) Comments:
