ChemTrack Alaska, Inc.
11711 South Gambell Street
Anchorage, Alaska 99515
(907) 349-2511
Fax: (907) 522-3150
Email: info@chemtrack.net

Groundwater Treatment Maintenance and Analytical Sampling Report
Delta Western
Haines, AK

February 2015

1.0 INTRODUCTION

This report presents a summary of methods and procedures followed during the collection and analysis of groundwater samples from the groundwater treatment system at the Tesoro Station in Haines Alaska. This report includes sample results from the year of 2014.

This report was prepared in accordance with State of Alaska ADEC *18 AAC 75 Article 3 (October 2008),* and the *ADEC Draft Field Sampling Guidance) May 2010.* All field-sampling protocols were documented and data is considered scientifically valid.

2.0 SITE HISTORY

In the summer of 2012, ChemTrack installed a bioswale treatment system with a groundwater collection system at the Tesoro Station in Haines. This system allows for the surface water and groundwater to have separate migration pathways. The surface water flows into the bioswale system while the groundwater is directed into a 6-Ft diameter groundwater manhole that collects and treats the groundwater. A groundwater treatment system was installed in the groundwater manhole in the Spring of 2013. The treatment system ensures that the groundwater from the site meet the established cleanup levels prior to discharging into the sewer. Sampling of the treatment system occurs biannually as outlined in the May 2014 Sampling and Analysis Plan and a sample report is submitted annually.

3.0 PROJECT PERSONNEL

Monitoring and sampling activities were completed by Imre Manyoky, Georgia Doerr and Kevin Duke.

4.0 PROJECT LOCATION

The Tesoro Station is located at 900 Main St Haines, AK 99827. (See attached Figure 1).

5.0 PROJECT SCOPE AND OBJECTIVES

- Inspect treatment system
- Remove buildup of iron bacteria and clean out system
- Collect laboratory samples before and after the water passes through the treatment system to provide adequate data for how the system is functioning.
- Change out the used carbon and replace with new carbon

6.0 SITE INSPECTIONS

The Spring site inspection and sampling event occurred on June 11th, 2014. Aside from the buildup of iron bacteria, the treatment system appeared to be functioning properly. Once onsite, ChemTrack thoroughly cleaned out the buildup of iron bacteria in the system, and collected water samples from the intake and discharge of the groundwater treatment system. After samples were collected, the used carbon was removed and replaced with new carbon. Also during this site visit the three onside monitoring wells were inspected. One water sample was collected from MW-13 which at the time of sample collection had sufficient water to obtain a sample. Monitoring wells MW-14, and MW-15 were empty.

The Fall site inspection and sampling event occurred on November 18th, 2014. When ChemTrack arrived at the site, it was evident that the pump was not working. A few days prior to ChemTracks arrival, there had been a power outage and Delta Western personnel identified that the power to the groundwater manhole had been disrupted. Upon arrival, ChemTrack identified that the heat trace line that helps insure that the manhole stays above freezing temperatures had shorted out and needed to be replaced. ChemTrack replaced the heat trace line and inspected the rest of the system. During the process of flushing and cleaning out the build up of iron bacteria in the GAC units and piping, it was identified that there was a blockage in the elbow of the hose running from the manhole to the sewer. Iron bacteria had built up in the elbow causing restricted flow. ChemTrack removed the elbow connection and replaced it with a straight connection piece. Once the standard flow rate was again established, ChemTrack collected laboratory samples from the intake and discharge of the system. After sample collection was complete, ChemTrack changed out the used carbon in the system and replaced it with new carbon. All three of the monitoring wells were inspected during this site visit but none of the monitoring wells had sufficient water to obtain a water sample.

7.0 SAMPLE ANALYTICAL METHODS, CONTAINERS, and HOLDING TIMES

Samples were analyzed by TestAmerica – Anchorage, a State of Alaska ADEC-approved laboratory using ADEC required analytical methods. The following table presents a summary of analytes, analytical methods, method detection limits, and Practical Quantitation Limit.

Table 1: Groundwater Analytes, Methods, MDL/PQL, Containers, Holding Times

Analyte	Analytical Method	MDL* ug/L	PQL** ug/L	Container	Holding Times
DRO/RRO	AK 102/103	80	800	Two 350 ml Amber Glass TLC	HCl to pH <2, 4° ± 2°C 14 days to extract
GRO	EPA 8260	10	100	Three 40 ml VOA, TLS	
BTEX		0.7	5		
PAH	EPA 8270	1	10	1 Liter Amber Glass TLS	4° ± 2°C, Ascorbic acid, dark, 7 days to extract

*Method Detection Limit **Practical Quantitation Limit Volatile Organic Analysis(VOA)

8.0 SAMPLE RESULTS

Samples were collected before and after the water passed through the groundwater treatment system. Samples identified as (MH-A, MH-A-2 and MH-A1) were collected from the groundwater inflow prior to treatment. Samples identified as (MH-B) were collected from the water after it had passed through the groundwater treatment system.

During each sampling event, the three onsite monitoring wells were inspected for the presence of water. Samples were collected from the monitoring wells if sufficient water was present. The sample labeled MW-13 (collected in June 2014) was collected from monitoring well 13.

During the Spring 2014 sampling event, samples were analyzed for Gasoline Range Organics (GRO), Diesel Range Organics (DRO), Residual Range Organics (RRO), Benzene, Toluene, Ethylbenzene, Xylenes (BTEX). During the Fall 2014 sampling event, Polynuclear Aromatic Hydrocarbons (PAH) were added to the analyte list along with the addition of TAH and TAqH calculations. These sampling procedures are consistent with the May 2014 Sampling and Analysis Plan.

Table 2 below includes the data collected in June of 2014. At the time of sample collection the approximate flow rate through the groundwater treatment system was 0.65 GPM.

Table 2: Analytical Data June 2014 - Groundwater Treatment System					
Samples	**MH- A** (mg/L)	**MH-A-2** (duplicate of MH-A) (mg/L)	**MH-B** (mg/L)	**MW-13** (mg/L)	**ADEC Table C Groundwater Cleanup Levels 18 AAC 75.345** (mg/L)
DRO	0.5	0.5	ND	4.2	1.5
RRO	ND	ND	ND	0.72	1.1
GRO	3.0	2.8	ND	0.06	2.2
Benzene	0.27	0.29	ND	0.029	0.005
Ethylbenzene	0.10	0.10	ND	ND	0.7
Toluene	0.59	0.61	ND	ND	1.0
Total Xylenes	1.55	1.64	ND	ND	10
ND= Not Detected at Laboratory Detection Limit					

Tables 3 and 4 below include the data collected in November 2014. At the time of sample collection the flow rate through the groundwater treatment system was 1.2 GPM.

Table 3: Analytical Data November 2014 - Groundwater Treatment System				
Samples	**MH- A** (mg/L)	**MH-A1** (duplicate of MH-A) (mg/L)	**MH-B** (mg/L)	**ADEC Table C Groundwater Cleanup Levels (18 AAC 75.345)** (mg/L)
DRO	0.53	0.55	0.11	1.5
RRO	ND	ND	ND	1.1
GRO	3.8	3.7	ND	2.2
Benzene	0.21	0.20	0.0011	0.005
Ethylbenzene	0.071	0.067	ND	0.7
Toluene	0.39	0.37	ND	1.0
Total Xylenes	0.67	0.53	ND	10
ND= Not Detected at Laboratory Detection Limit				

Table 4: PAH Analytical Data November 2014 - Groundwater Treatment System				
Samples	**MH-A** (mg/L)	**MH- A1** (duplicate of MH-A) (mg/L)	**MH-B** (mg/L)	**ADEC Cleanup Level for Marine Water Uses Water Quality Standards 18 AAC 70** (mg/L)
TAH	1.3	1.3	ND	**0.010**
TAqH	1.3	1.3	ND	**0.015**
Acenaphthene	ND	ND	ND	
Acenaphthyene	ND	ND	ND	
Anthracene	ND	ND	ND	
Benzo-a-anthracene	ND	ND	ND	
Benzo-a-pyrene	ND	ND	ND	
Benzo-b-fluroanthene	ND	ND	ND	
Benzo-k-fluroanthene	ND	ND	ND	
Benzo[g-h-i]perlyrene	ND	ND	ND	
Chrysene	ND	ND	ND	
Dibenzo-a-h-anthracene	ND	ND	ND	
Fluorene	ND	ND	ND	
Fluoranthrene	ND	ND	ND	
Ideno-123-cd-pyrene	ND	ND	ND	
Naphthalene	0.008	0.0085	ND	
1-Methylnaphthalene	0.0014	0.0014	ND	
2-Methylnaphthalene	0.002	0.0022	ND	
Phenanthrene	ND	ND	ND	
Pyrene	ND	ND	ND	
ND= Not Detected at Laboratory Detection Limit				

9.0 DATA VALIDATION AND LABORATORY QUALITY CONTROL DOCUMENTATION

9.1 Laboratory Reports and Data Quality

A review of the laboratory data indicates that all samples arrived intact and property labeled. Samples were properly preserved, extracted and analyzed within the required holding times.

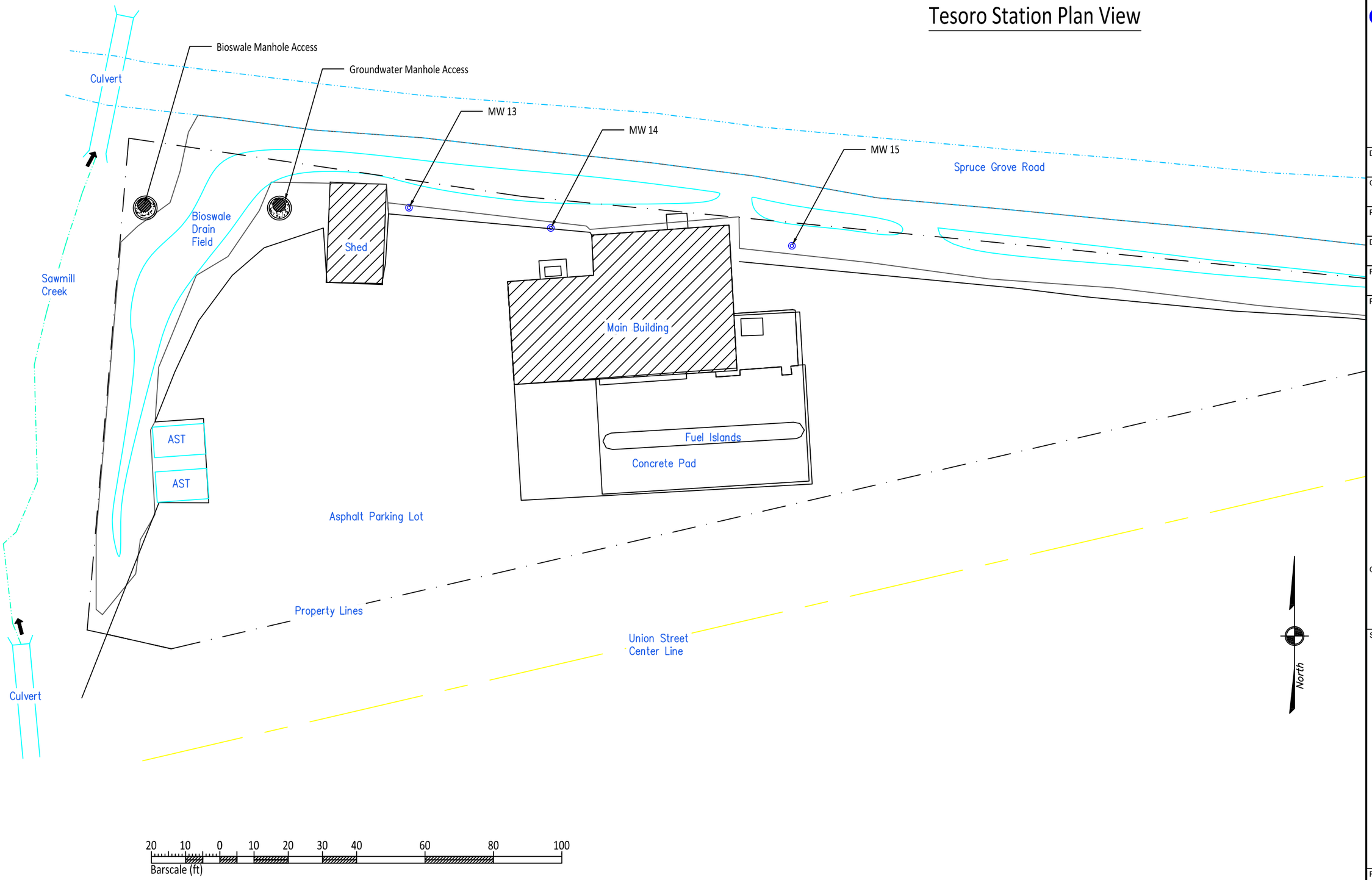
9.2 Laboratory Review Checklist

See attached Laboratory Data Review Checklist.

10.0 DISCUSSION OF RESULTS

The analytical results confirm that the groundwater treatment system is functioning properly. For all analytes tested, the post treatment samples were well below the established cleanup levels. The iron bacteria still continues to back up the system but with routine cleanings, no significant problems are anticipated.

Tesoro Station Plan View



ChemTrack

11711 SOUTH GAMBELL
ANCHORAGE, ALASKA 99515
(907) 349-2511

DRAWN BY:	ISM
CHECKED BY:	GRD
PLOT SCALE:	BARSCALE
DATE OF PLOT:	1/30/15
PROJECT NO.:	6083
PROJECT:	Delta Western, Haines,AK
CLIENT:	Delta Western, Inc.
SHEET CONTENTS:	Haines Tesoro Station Site Plan
FIGURE NO.	1 of 1

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: 230-161-1
Client Project/Site: Delta Western Haines

For:
Chem Track
11711 S. Gambell
Anchorage, Alaska 99515

Attn: Georgia Doerr

Authorized for release by:
6/24/2014 4:32:04 PM

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

Definitions/Glossary

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits

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)

Case Narrative

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

Job ID: 230-161-1

Laboratory: TestAmerica Anchorage

Narrative

Job Narrative
230-161-1

Comments
No additional comments.

Receipt
The samples were received on 6/16/2014 2:32 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.7º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method(s) 3510C, AK102 & 103: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 642 recovered outside control limits for the following analytes: DRO. These analytes were biased low in the LCS/LCSD. The samples 230-161-1 (MH-A), 230-161-2 (MH-A-2), and 230-161-1 (MH-B) did not have volume to perform a re-extraction.

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: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

Client Sample ID: MH-A — Lab Sample ID: 230-161-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene - DL	270		10	ug/L	20		8260B	Total/NA
Ethylbenzene - DL	100		20	ug/L	20		8260B	Total/NA
Toluene - DL	590		20	ug/L	20		8260B	Total/NA
Xylenes, Total - DL	800		20	ug/L	20		8260B	Total/NA
o-Xylene - DL	250		20	ug/L	20		8260B	Total/NA
m,p-Xylene - DL	550		40	ug/L	20		8260B	Total/NA
Gasoline Range Organics (GRO) -C6-C10 - DL	3000		1000	ug/L	20		AK101	Total/NA
Diesel Range Organics (DRO) (C10-C25)	0.50	*	0.38	mg/L	1		AK102 & 103	Total/NA

Client Sample ID: MH-A-2 — Lab Sample ID: 230-161-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene - DL	290		10	ug/L	20		8260B	Total/NA
Ethylbenzene - DL	100		20	ug/L	20		8260B	Total/NA
Toluene - DL	610		20	ug/L	20		8260B	Total/NA
Xylenes, Total - DL	820		20	ug/L	20		8260B	Total/NA
o-Xylene - DL	260		20	ug/L	20		8260B	Total/NA
m,p-Xylene - DL	560		40	ug/L	20		8260B	Total/NA
Gasoline Range Organics (GRO) -C6-C10 - DL	2800		1000	ug/L	20		AK101	Total/NA
Diesel Range Organics (DRO) (C10-C25)	0.50	*	0.38	mg/L	1		AK102 & 103	Total/NA

Client Sample ID: MH-B — Lab Sample ID: 230-161-3

No Detections.

Client Sample ID: MW-12 — Lab Sample ID: 230-161-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	29		0.50	ug/L	1		8260B	Total/NA
Gasoline Range Organics (GRO) -C6-C10	60		50	ug/L	1		AK101	Total/NA
Diesel Range Organics (DRO) (C10-C25)	4.2		0.38	mg/L	1		AK102 & 103	Total/NA
Residual Range Organics (RRO) (C25-C36)	0.72		0.38	mg/L	1		AK102 & 103	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 230-161-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

Client Sample ID: MH-A

Lab Sample ID: 230-161-1

Date Collected: 06/11/14 15:00
Matrix: Water
Date Received: 06/16/14 14:32

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	270		10	ug/L			06/23/14 16:22	20
Ethylbenzene	100		20	ug/L			06/23/14 16:22	20
Toluene	590		20	ug/L			06/23/14 16:22	20
Xylenes, Total	800		20	ug/L			06/23/14 16:22	20
o-Xylene	250		20	ug/L			06/23/14 16:22	20
m,p-Xylene	550		40	ug/L			06/23/14 16:22	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*57.8 - 139*		*06/23/14 16:22*	*20*
Dibromofluoromethane (Surr)	*109*		*35.8 - 145*		*06/23/14 16:22*	*20*
Toluene-d8 (Surr)	*102*		*38.6 - 147*		*06/23/14 16:22*	*20*
Trifluorotoluene (Surr)					*06/23/14 16:22*	*20*

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	3000		1000	ug/L			06/23/14 16:22	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*		*06/23/14 16:22*	*20*
Dibromofluoromethane (Surr)	*109*		*72.7 - 135*		*06/23/14 16:22*	*20*
Toluene-d8 (Surr)	*102*		*72.4 - 121*		*06/23/14 16:22*	*20*
Trifluorotoluene (Surr)					*06/23/14 16:22*	*20*

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	0.50	*	0.38	mg/L		06/18/14 09:30	06/19/14 17:08	1
Residual Range Organics (RRO) (C25-C36)	ND		0.38	mg/L		06/18/14 09:30	06/19/14 17:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctadecane	*106*		*50 - 150*	*06/18/14 09:30*	*06/19/14 17:08*	*1*
n-Triacontane (Surr)	*105*		*50 - 150*	*06/18/14 09:30*	*06/19/14 17:08*	*1*

Client Sample ID: MH-A-2

Lab Sample ID: 230-161-2

Date Collected: 06/11/14 15:01
Matrix: Water
Date Received: 06/16/14 14:32

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	290		10	ug/L			06/23/14 17:26	20
Ethylbenzene	100		20	ug/L			06/23/14 17:26	20
Toluene	610		20	ug/L			06/23/14 17:26	20
Xylenes, Total	820		20	ug/L			06/23/14 17:26	20
o-Xylene	260		20	ug/L			06/23/14 17:26	20
m,p-Xylene	560		40	ug/L			06/23/14 17:26	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*57.8 - 139*		*06/23/14 17:26*	*20*
Dibromofluoromethane (Surr)	*111*		*35.8 - 145*		*06/23/14 17:26*	*20*
Toluene-d8 (Surr)	*101*		*38.6 - 147*		*06/23/14 17:26*	*20*

Client Sample ID: MH-A-2

Lab Sample ID: 230-161-2

Date Collected: 06/11/14 15:01
Matrix: Water
Date Received: 06/16/14 14:32

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)					06/23/14 17:26	20

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	2800		1000	ug/L			06/23/14 17:26	20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		80 - 120		06/23/14 17:26	20
Dibromofluoromethane (Surr)	111		72.7 - 135		06/23/14 17:26	20
Toluene-d8 (Surr)	101		72.4 - 121		06/23/14 17:26	20
Trifluorotoluene (Surr)					06/23/14 17:26	20

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	0.50	*	0.38	mg/L		06/18/14 09:30	06/19/14 18:12	1
Residual Range Organics (RRO) (C25-C36)	ND		0.38	mg/L		06/18/14 09:30	06/19/14 18:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	103		50 - 150	06/18/14 09:30	06/19/14 18:12	1
n-Triacontane (Surr)	101		50 - 150	06/18/14 09:30	06/19/14 18:12	1

Client Sample ID: MH-B

Lab Sample ID: 230-161-3

Date Collected: 06/11/14 15:16
Matrix: Water
Date Received: 06/16/14 14:32

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	ug/L			06/23/14 15:49	1
Ethylbenzene	ND		1.0	ug/L			06/23/14 15:49	1
Toluene	ND		1.0	ug/L			06/23/14 15:49	1
Xylenes, Total	ND		1.0	ug/L			06/23/14 15:49	1
o-Xylene	ND		1.0	ug/L			06/23/14 15:49	1
m,p-Xylene	ND		2.0	ug/L			06/23/14 15:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		57.8 - 139		06/23/14 15:49	1
Dibromofluoromethane (Surr)	110		35.8 - 145		06/23/14 15:49	1
Toluene-d8 (Surr)	101		38.6 - 147		06/23/14 15:49	1
Trifluorotoluene (Surr)					06/23/14 15:49	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		50	ug/L			06/21/14 21:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		80 - 120		06/21/14 21:33	1
Dibromofluoromethane (Surr)	110		72.7 - 135		06/21/14 21:33	1
Toluene-d8 (Surr)	99		72.4 - 121		06/21/14 21:33	1

Client Sample ID: MH-B

Lab Sample ID: 230-161-3

Date Collected: 06/11/14 15:16
Matrix: Water
Date Received: 06/16/14 14:32

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)					06/21/14 21:33	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND	*	0.38	mg/L		06/18/14 09:30	06/19/14 18:45	1
Residual Range Organics (RRO) (C25-C36)	ND		0.38	mg/L		06/18/14 09:30	06/19/14 18:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	100		50 - 150	06/18/14 09:30	06/19/14 18:45	1
n-Triacontane (Surr)	98		50 - 150	06/18/14 09:30	06/19/14 18:45	1

Client Sample ID: MW-12

Lab Sample ID: 230-161-4

Date Collected: 06/11/14 16:23
Matrix: Water
Date Received: 06/16/14 14:32

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**29**		0.50	ug/L			06/21/14 22:05	1
Ethylbenzene	ND		1.0	ug/L			06/21/14 22:05	1
Toluene	ND		1.0	ug/L			06/21/14 22:05	1
Xylenes, Total	ND		1.0	ug/L			06/21/14 22:05	1
o-Xylene	ND		1.0	ug/L			06/21/14 22:05	1
m,p-Xylene	ND		2.0	ug/L			06/21/14 22:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		57.8 - 139		06/21/14 22:05	1
Dibromofluoromethane (Surr)	109		35.8 - 145		06/21/14 22:05	1
Toluene-d8 (Surr)	101		38.6 - 147		06/21/14 22:05	1
Trifluorotoluene (Surr)					06/21/14 22:05	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**60**		50	ug/L			06/21/14 22:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		80 - 120		06/21/14 22:05	1
Dibromofluoromethane (Surr)	109		72.7 - 135		06/21/14 22:05	1
Toluene-d8 (Surr)	101		72.4 - 121		06/21/14 22:05	1
Trifluorotoluene (Surr)					06/21/14 22:05	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	**4.2**		0.38	mg/L		06/21/14 12:24	06/22/14 05:12	1
Residual Range Organics (RRO) (C25-C36)	**0.72**		0.38	mg/L		06/21/14 12:24	06/22/14 05:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	77		50 - 150	06/21/14 12:24	06/22/14 05:12	1

Client Sample ID: MW-12

Lab Sample ID: 230-161-4

Date Collected: 06/11/14 16:23

Matrix: Water

Date Received: 06/16/14 14:32

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Triacontane (Surr)	*79*		*50 - 150*	*06/21/14 12:24*	*06/22/14 05:12*	*1*

Client Sample ID: Trip Blank

Lab Sample ID: 230-161-5

Date Collected: 06/11/14 00:00

Matrix: Water

Date Received: 06/16/14 14:32

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50	ug/L			06/21/14 22:37	1
Ethylbenzene	ND		1.0	ug/L			06/21/14 22:37	1
Toluene	ND		1.0	ug/L			06/21/14 22:37	1
Xylenes, Total	ND		1.0	ug/L			06/21/14 22:37	1
o-Xylene	ND		1.0	ug/L			06/21/14 22:37	1
m,p-Xylene	ND		2.0	ug/L			06/21/14 22:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*57.8 - 139*		*06/21/14 22:37*	*1*
Dibromofluoromethane (Surr)	*108*		*35.8 - 145*		*06/21/14 22:37*	*1*
Toluene-d8 (Surr)	*101*		*38.6 - 147*		*06/21/14 22:37*	*1*
Trifluorotoluene (Surr)					*06/21/14 22:37*	*1*

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		50	ug/L			06/21/14 22:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*06/21/14 22:37*	*1*
Dibromofluoromethane (Surr)	*108*		*72.7 - 135*		*06/21/14 22:37*	*1*
Toluene-d8 (Surr)	*101*		*72.4 - 121*		*06/21/14 22:37*	*1*
Trifluorotoluene (Surr)					*06/21/14 22:37*	*1*

Surrogate Summary

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

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)	
230-152-A-1-K MS	Matrix Spike	104	108	102	79
230-152-A-1-L MSD	Matrix Spike Duplicate	105	109	106	81
230-161-1 - DL	MH-A	105	109	102	
230-161-1 DU - DL	MH-A	102	108	100	
230-161-2 - DL	MH-A-2	101	111	101	
230-161-3	MH-B	103	110	101	
230-161-4	MW-12	102	109	101	
230-161-5	Trip Blank	100	108	101	
230-165-A-1 DU	Duplicate	101	109	100	
230-172-A-5-C MS	Matrix Spike	105	112	102	80
230-172-A-5-D MSD	Matrix Spike Duplicate	102	111	101	78
LCS 230-667/2-A	Lab Control Sample	104	111	106	105
LCS 230-669/1003	Lab Control Sample	104	102	100	111
LCS 230-673/1005	Lab Control Sample	106	103	105	84
LCS 230-677/2-A	Lab Control Sample	101	111	102	96
LCSD 230-667/3-A	Lab Control Sample Dup	105	113	104	105
LCSD 230-669/4	Lab Control Sample Dup	105	104	101	110
LCSD 230-673/6	Lab Control Sample Dup	106	102	102	96
LCSD 230-677/3-A	Lab Control Sample Dup	104	112	102	100
MB 230-667/1-A	Method Blank	103	111	105	102
MB 230-669/7	Method Blank	101	106	100	
MB 230-673/9	Method Blank	103	109	103	
MB 230-677/1-A	Method Blank	102	111	105	100

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)	
230-161-1 - DL	MH-A	105	109	102	
230-161-1 DU - DL	MH-A	102	108	100	
230-161-2 - DL	MH-A-2	101	111	101	
230-161-3	MH-B	100	110	99	
230-161-4	MW-12	102	109	101	
230-161-5	Trip Blank	100	108	101	
230-165-A-1 DU	Duplicate	101	109	100	
LCS 230-668/1005	Lab Control Sample	100	109	100	104
LCS 230-672/1007	Lab Control Sample	103	105	99	101
LCSD 230-668/6	Lab Control Sample Dup	101	107	98	104
LCSD 230-672/8	Lab Control Sample Dup	106	104	103	103
MB 230-668/7	Method Blank	101	106	100	
MB 230-672/9	Method Blank	103	109	103	

Surrogate Summary

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

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	acontane (S								
Lab Sample ID	Client Sample ID	(50-150)	(50-150)								
230-161-1	MH-A	106	105								
230-161-1 DU	MH-A	104	111								
230-161-2	MH-A-2	103	101								
230-161-3	MH-B	100	98								
230-161-4	MW-12	77	79								
230-169-B-1-A DU	Duplicate	91	82								
LCS 230-642/2-A	Lab Control Sample	95	96								
LCS 230-666/2-A	Lab Control Sample	81	79								
LCSD 230-642/3-A	Lab Control Sample Dup	100	105								
LCSD 230-666/3-A	Lab Control Sample Dup	88	86								
MB 230-642/1-A	Method Blank	111	104								
MB 230-666/1-A	Method Blank	95	81								

Surrogate Legend

1COD = 1-Chlorooctadecane
n-Triacontane (Surr) = n-Triacontane (Surr)

QC Sample Results

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

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

Lab Sample ID: MB 230-667/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 669 — **Prep Batch: 667**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		17	ug/L		06/21/14 12:42	06/22/14 04:26	1
Ethylbenzene	ND		33	ug/L		06/21/14 12:42	06/22/14 04:26	1
Toluene	ND		33	ug/L		06/21/14 12:42	06/22/14 04:26	1
Xylenes, Total	ND		33	ug/L		06/21/14 12:42	06/22/14 04:26	1
o-Xylene	ND		33	ug/L		06/21/14 12:42	06/22/14 04:26	1
m,p-Xylene	ND		67	ug/L		06/21/14 12:42	06/22/14 04:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*57.8 - 139*	*06/21/14 12:42*	*06/22/14 04:26*	*1*
Dibromofluoromethane (Surr)	*111*		*35.8 - 145*	*06/21/14 12:42*	*06/22/14 04:26*	*1*
Toluene-d8 (Surr)	*105*		*38.6 - 147*	*06/21/14 12:42*	*06/22/14 04:26*	*1*
Trifluorotoluene (Surr)	*102*			*06/21/14 12:42*	*06/22/14 04:26*	*1*

Lab Sample ID: LCS 230-667/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 669 — **Prep Batch: 667**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	800	865		ug/L		108	73.8 - 128
Ethylbenzene	800	847		ug/L		106	78 - 130
Toluene	800	881		ug/L		110	75.6 - 124
Xylenes, Total	2400	2530		ug/L		105	70 - 130
o-Xylene	800	836		ug/L		105	75.1 - 137
m,p-Xylene	1600	1690		ug/L		106	76 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*57.8 - 139*
Dibromofluoromethane (Surr)	*111*		*35.8 - 145*
Toluene-d8 (Surr)	*106*		*38.6 - 147*
Trifluorotoluene (Surr)	*105*		

Lab Sample ID: LCSD 230-667/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 669 — **Prep Batch: 667**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	800	829		ug/L		104	73.8 - 128	4	20
Ethylbenzene	800	848		ug/L		106	78 - 130	0	20
Toluene	800	855		ug/L		107	75.6 - 124	3	20
Xylenes, Total	2400	2510		ug/L		105	70 - 130	1	20
o-Xylene	800	830		ug/L		104	75.1 - 137	1	20
m,p-Xylene	1600	1680		ug/L		105	76 - 137	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*57.8 - 139*
Dibromofluoromethane (Surr)	*113*		*35.8 - 145*
Toluene-d8 (Surr)	*104*		*38.6 - 147*

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

Lab Sample ID: LCSD 230-667/3-A
Matrix: Water
Analysis Batch: 669

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 667

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	105		

Lab Sample ID: 230-152-A-1-K MS
Matrix: Water
Analysis Batch: 669

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 667

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		320	337		ug/L		105	73.8 - 128
Ethylbenzene	ND		320	336		ug/L		104	78 - 130
Toluene	ND		320	342		ug/L		102	75.6 - 124
Xylenes, Total	ND		961	998		ug/L		104	70 - 130
o-Xylene	ND		320	327		ug/L		102	75.1 - 137
m,p-Xylene	ND		641	671		ug/L		102	76 - 137

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		57.8 - 139
Dibromofluoromethane (Surr)	108		35.8 - 145
Toluene-d8 (Surr)	102		38.6 - 147
Trifluorotoluene (Surr)	79		

Lab Sample ID: 230-152-A-1-L MSD
Matrix: Water
Analysis Batch: 669

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 667

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		320	327		ug/L		102	73.8 - 128	3	25
Ethylbenzene	ND		320	337		ug/L		104	78 - 130	0	25
Toluene	ND		320	353		ug/L		106	75.6 - 124	3	25
Xylenes, Total	ND		961	1000		ug/L		104	70 - 130	0	25
o-Xylene	ND		320	326		ug/L		102	75.1 - 137	0	25
m,p-Xylene	ND		641	676		ug/L		103	76 - 137	1	25

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		57.8 - 139
Dibromofluoromethane (Surr)	109		35.8 - 145
Toluene-d8 (Surr)	106		38.6 - 147
Trifluorotoluene (Surr)	81		

Lab Sample ID: MB 230-669/7
Matrix: Water
Analysis Batch: 669

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			06/21/14 16:59	1
Ethylbenzene	ND		1.0		ug/L			06/21/14 16:59	1
Toluene	ND		1.0		ug/L			06/21/14 16:59	1
Xylenes, Total	ND		1.0		ug/L			06/21/14 16:59	1

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

Lab Sample ID: MB 230-669/7 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 669

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		1.0	ug/L			06/21/14 16:59	1
m,p-Xylene	ND		2.0	ug/L			06/21/14 16:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*57.8 - 139*		*06/21/14 16:59*	*1*
Dibromofluoromethane (Surr)	*106*		*35.8 - 145*		*06/21/14 16:59*	*1*
Toluene-d8 (Surr)	*100*		*38.6 - 147*		*06/21/14 16:59*	*1*
Trifluorotoluene (Surr)					*06/21/14 16:59*	*1*

Lab Sample ID: LCS 230-669/1003 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 669

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	20.0	21.9		ug/L		109	73.8 - 128
Ethylbenzene	20.0	22.1		ug/L		110	78 - 130
Toluene	20.0	21.4		ug/L		107	75.6 - 124
Xylenes, Total	60.0	64.7		ug/L		108	70 - 130
o-Xylene	20.0	21.4		ug/L		107	75.1 - 137
m,p-Xylene	40.0	43.3		ug/L		108	76 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*57.8 - 139*
Dibromofluoromethane (Surr)	*102*		*35.8 - 145*
Toluene-d8 (Surr)	*100*		*38.6 - 147*
Trifluorotoluene (Surr)	*111*		

Lab Sample ID: LCSD 230-669/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 669

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	20.0	21.3		ug/L		106	73.8 - 128	3	20
Ethylbenzene	20.0	21.6		ug/L		108	78 - 130	2	20
Toluene	20.0	21.5		ug/L		107	75.6 - 124	0	20
Xylenes, Total	60.0	63.4		ug/L		106	70 - 130	2	20
o-Xylene	20.0	20.9		ug/L		105	75.1 - 137	2	20
m,p-Xylene	40.0	42.5		ug/L		106	76 - 137	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*57.8 - 139*
Dibromofluoromethane (Surr)	*104*		*35.8 - 145*
Toluene-d8 (Surr)	*101*		*38.6 - 147*
Trifluorotoluene (Surr)	*110*		

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

Lab Sample ID: 230-165-A-1 DU
Matrix: Water
Analysis Batch: 669

Client Sample ID: Duplicate
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	ND			ND		ug/L				NC	20
Toluene	ND			ND		ug/L				NC	20
Xylenes, Total	ND			ND		ug/L				NC	20
o-Xylene	ND			ND		ug/L				NC	20
m,p-Xylene	ND			ND		ug/L				NC	20

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*57.8 - 139*
Dibromofluoromethane (Surr)	*109*		*35.8 - 145*
Toluene-d8 (Surr)	*100*		*38.6 - 147*
Trifluorotoluene (Surr)			

Lab Sample ID: MB 230-673/9
Matrix: Water
Analysis Batch: 673

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.50		ug/L			06/23/14 14:46	1
Ethylbenzene	ND		1.0		ug/L			06/23/14 14:46	1
Toluene	ND		1.0		ug/L			06/23/14 14:46	1
Xylenes, Total	ND		1.0		ug/L			06/23/14 14:46	1
o-Xylene	ND		1.0		ug/L			06/23/14 14:46	1
m,p-Xylene	ND		2.0		ug/L			06/23/14 14:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*57.8 - 139*		*06/23/14 14:46*	*1*
Dibromofluoromethane (Surr)	*109*		*35.8 - 145*		*06/23/14 14:46*	*1*
Toluene-d8 (Surr)	*103*		*38.6 - 147*		*06/23/14 14:46*	*1*
Trifluorotoluene (Surr)					*06/23/14 14:46*	*1*

Lab Sample ID: LCS 230-673/1005
Matrix: Water
Analysis Batch: 673

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	16.8		ug/L		84	73.8 - 128		
Ethylbenzene			20.0	18.0		ug/L		90	78 - 130		
Toluene			20.0	17.2		ug/L		86	75.6 - 124		
Xylenes, Total			60.0	53.1		ug/L		89	70 - 130		
o-Xylene			20.0	17.3		ug/L		86	75.1 - 137		
m,p-Xylene			40.0	35.8		ug/L		89	76 - 137		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*57.8 - 139*
Dibromofluoromethane (Surr)	*103*		*35.8 - 145*
Toluene-d8 (Surr)	*105*		*38.6 - 147*

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

Lab Sample ID: LCS 230-673/1005
Matrix: Water
Analysis Batch: 673

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	84		

Lab Sample ID: LCSD 230-673/6
Matrix: Water
Analysis Batch: 673

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	19.1		ug/L		96	73.8 - 128	13	20
Ethylbenzene	20.0	19.9		ug/L		99	78 - 130	10	20
Toluene	20.0	19.2		ug/L		96	75.6 - 124	11	20
Xylenes, Total	60.0	58.2		ug/L		97	70 - 130	9	20
o-Xylene	20.0	19.0		ug/L		95	75.1 - 137	10	20
m,p-Xylene	40.0	39.2		ug/L		98	76 - 137	9	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		57.8 - 139
Dibromofluoromethane (Surr)	102		35.8 - 145
Toluene-d8 (Surr)	102		38.6 - 147
Trifluorotoluene (Surr)	96		

Lab Sample ID: MB 230-677/1-A
Matrix: Water
Analysis Batch: 673

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 677

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		17	ug/L		06/23/14 12:08	06/23/14 19:02	1
Ethylbenzene	ND		33	ug/L		06/23/14 12:08	06/23/14 19:02	1
Toluene	ND		33	ug/L		06/23/14 12:08	06/23/14 19:02	1
Xylenes, Total	ND		33	ug/L		06/23/14 12:08	06/23/14 19:02	1
o-Xylene	ND		33	ug/L		06/23/14 12:08	06/23/14 19:02	1
m,p-Xylene	ND		67	ug/L		06/23/14 12:08	06/23/14 19:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		57.8 - 139	06/23/14 12:08	06/23/14 19:02	1
Dibromofluoromethane (Surr)	111		35.8 - 145	06/23/14 12:08	06/23/14 19:02	1
Toluene-d8 (Surr)	105		38.6 - 147	06/23/14 12:08	06/23/14 19:02	1
Trifluorotoluene (Surr)	100			06/23/14 12:08	06/23/14 19:02	1

Lab Sample ID: LCS 230-677/2-A
Matrix: Water
Analysis Batch: 673

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 677

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	800	760		ug/L		95	73.8 - 128
Ethylbenzene	800	746		ug/L		93	78 - 130
Toluene	800	749		ug/L		94	75.6 - 124
Xylenes, Total	2400	2210		ug/L		92	70 - 130

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

Lab Sample ID: LCS 230-677/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 673 — **Prep Batch: 677**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	800	722		ug/L		90	75.1 - 137
m,p-Xylene	1600	1490		ug/L		93	76 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*57.8 - 139*
Dibromofluoromethane (Surr)	*111*		*35.8 - 145*
Toluene-d8 (Surr)	*102*		*38.6 - 147*
Trifluorotoluene (Surr)	*96*		

Lab Sample ID: LCSD 230-677/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 673 — **Prep Batch: 677**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	800	818		ug/L		102	73.8 - 128	7	20
Ethylbenzene	800	810		ug/L		101	78 - 130	8	20
Toluene	800	803		ug/L		100	75.6 - 124	7	20
Xylenes, Total	2400	2390		ug/L		100	70 - 130	8	20
o-Xylene	800	791		ug/L		99	75.1 - 137	9	20
m,p-Xylene	1600	1600		ug/L		100	76 - 137	7	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*57.8 - 139*
Dibromofluoromethane (Surr)	*112*		*35.8 - 145*
Toluene-d8 (Surr)	*102*		*38.6 - 147*
Trifluorotoluene (Surr)	*100*		

Lab Sample ID: 230-172-A-5-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 673 — **Prep Batch: 677**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		391	377		ug/L		96	73.8 - 128
Ethylbenzene	ND		391	384		ug/L		98	78 - 130
Toluene	ND		391	371		ug/L		95	75.6 - 124
Xylenes, Total	ND		1170	1120		ug/L		95	70 - 130
o-Xylene	ND		391	378		ug/L		97	75.1 - 137
m,p-Xylene	ND		782	737		ug/L		94	76 - 137

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*57.8 - 139*
Dibromofluoromethane (Surr)	*112*		*35.8 - 145*
Toluene-d8 (Surr)	*102*		*38.6 - 147*
Trifluorotoluene (Surr)	*80*		

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

Lab Sample ID: 230-172-A-5-D MSD
Matrix: Water
Analysis Batch: 673

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 677

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		391	370		ug/L		95	73.8 - 128	2	25
Ethylbenzene	ND		391	371		ug/L		95	78 - 130	3	25
Toluene	ND		391	369		ug/L		94	75.6 - 124	1	25
Xylenes, Total	ND		1170	1130		ug/L		96	70 - 130	1	25
o-Xylene	ND		391	377		ug/L		97	75.1 - 137	0	25
m,p-Xylene	ND		782	749		ug/L		96	76 - 137	2	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*57.8 - 139*
Dibromofluoromethane (Surr)	*111*		*35.8 - 145*
Toluene-d8 (Surr)	*101*		*38.6 - 147*
Trifluorotoluene (Surr)	*78*		

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

Lab Sample ID: 230-161-1 DU
Matrix: Water
Analysis Batch: 673

Client Sample ID: MH-A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Benzene - DL	270			280		ug/L				3	20
Ethylbenzene - DL	100			105		ug/L				5	20
Toluene - DL	590			607		ug/L				4	20
Xylenes, Total - DL	800			820		ug/L				2	20
o-Xylene - DL	250			258		ug/L				2	20
m,p-Xylene - DL	550			562		ug/L				1	20

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
4-Bromofluorobenzene (Surr) - DL	*102*		*57.8 - 139*
Dibromofluoromethane (Surr) - DL	*108*		*35.8 - 145*
Toluene-d8 (Surr) - DL	*100*		*38.6 - 147*
Trifluorotoluene (Surr) - DL			

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

Lab Sample ID: MB 230-668/7
Matrix: Water
Analysis Batch: 668

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		50		ug/L			06/21/14 16:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*06/21/14 16:59*	*1*

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

Lab Sample ID: MB 230-668/7
Matrix: Water
Analysis Batch: 668

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	106		72.7 - 135		06/21/14 16:59	1
Toluene-d8 (Surr)	100		72.4 - 121		06/21/14 16:59	1
Trifluorotoluene (Surr)					06/21/14 16:59	1

Lab Sample ID: LCS 230-668/1005
Matrix: Water
Analysis Batch: 668

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	539		ug/L		108	60 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	100		80 - 120
Dibromofluoromethane (Surr)	109		72.7 - 135
Toluene-d8 (Surr)	100		72.4 - 121
Trifluorotoluene (Surr)	104		

Lab Sample ID: LCSD 230-668/6
Matrix: Water
Analysis Batch: 668

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	533		ug/L		107	60 - 120	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	107		72.7 - 135
Toluene-d8 (Surr)	98		72.4 - 121
Trifluorotoluene (Surr)	104		

Lab Sample ID: 230-165-A-1 DU
Matrix: Water
Analysis Batch: 668

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	ND			ND		ug/L				NC	

Surrogate	DU %Recovery	DU Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	109		72.7 - 135
Toluene-d8 (Surr)	100		72.4 - 121
Trifluorotoluene (Surr)			

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

Lab Sample ID: MB 230-672/9 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 672

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		50		ug/L			06/23/14 14:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*		*06/23/14 14:46*	*1*
Dibromofluoromethane (Surr)	*109*		*72.7 - 135*		*06/23/14 14:46*	*1*
Toluene-d8 (Surr)	*103*		*72.4 - 121*		*06/23/14 14:46*	*1*
Trifluorotoluene (Surr)					*06/23/14 14:46*	*1*

Lab Sample ID: LCS 230-672/1007 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 672

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			500	414		ug/L		83	60 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*72.7 - 135*
Toluene-d8 (Surr)	*99*		*72.4 - 121*
Trifluorotoluene (Surr)	*101*		

Lab Sample ID: LCSD 230-672/8 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 672

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			500	396		ug/L		79	60 - 120	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*72.7 - 135*
Toluene-d8 (Surr)	*103*		*72.4 - 121*
Trifluorotoluene (Surr)	*103*		

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

Lab Sample ID: 230-161-1 DU — **Client Sample ID: MH-A**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 672

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10 - DL	3000			2570		ug/L				15	

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

Lab Sample ID: 230-161-1 DU
Matrix: Water
Analysis Batch: 672

Client Sample ID: MH-A
Prep Type: Total/NA

Surrogate	DU %Recovery	DU Qualifier	Limits
4-Bromofluorobenzene (Surr) - DL	102		80 - 120
Dibromofluoromethane (Surr) - DL	108		72.7 - 135
Toluene-d8 (Surr) - DL	100		72.4 - 121
Trifluorotoluene (Surr) - DL			

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

Lab Sample ID: MB 230-642/1-A
Matrix: Water
Analysis Batch: 647

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 642

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.50		mg/L		06/18/14 09:30	06/19/14 18:12	1
Residual Range Organics (RRO) (C25-C36)	ND		0.50		mg/L		06/18/14 09:30	06/19/14 18:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	111		50 - 150	06/18/14 09:30	06/19/14 18:12	1
n-Triacontane (Surr)	104		50 - 150	06/18/14 09:30	06/19/14 18:12	1

Lab Sample ID: LCS 230-642/2-A
Matrix: Water
Analysis Batch: 647

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 642

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics (DRO) (C10-C25)			10.1	4.97	*	mg/L		49	75 - 125		
Residual Range Organics (RRO) (C25-C36)			10.3	8.99		mg/L		87	60 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctadecane	95		50 - 150
n-Triacontane (Surr)	96		50 - 150

Lab Sample ID: LCSD 230-642/3-A
Matrix: Water
Analysis Batch: 647

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 642

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)			10.1	4.88	*	mg/L		48	75 - 125	2	20
Residual Range Organics (RRO) (C25-C36)			10.3	9.52		mg/L		92	60 - 120	6	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctadecane	100		50 - 150

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

Lab Sample ID: LCSD 230-642/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 647 — **Prep Batch: 642**

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
n-Triacontane (Surr)	105		50 - 150

Lab Sample ID: 230-161-1 DU — **Client Sample ID: MH-A**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 648 — **Prep Batch: 642**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)	0.50	*		0.558	*	mg/L				10	20
Residual Range Organics (RRO) (C25-C36)	ND			ND		mg/L				10	20

Surrogate	DU %Recovery	DU Qualifier	Limits
1-Chlorooctadecane	104		50 - 150
n-Triacontane (Surr)	111		50 - 150

Lab Sample ID: MB 230-666/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 664 — **Prep Batch: 666**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.50		mg/L		06/21/14 12:24	06/21/14 15:17	1
Residual Range Organics (RRO) (C25-C36)	ND		0.50		mg/L		06/21/14 12:24	06/21/14 15:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctadecane	95		50 - 150	06/21/14 12:24	06/21/14 15:17	1
n-Triacontane (Surr)	81		50 - 150	06/21/14 12:24	06/21/14 15:17	1

Lab Sample ID: LCS 230-666/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 664 — **Prep Batch: 666**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics (DRO) (C10-C25)			10.1	8.02		mg/L		79	75 - 125		
Residual Range Organics (RRO) (C25-C36)			10.3	7.93		mg/L		77	60 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctadecane	81		50 - 150
n-Triacontane (Surr)	79		50 - 150

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

Lab Sample ID: LCSD 230-666/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 664 — **Prep Batch: 666**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)			10.1	8.58		mg/L		85	75 - 125	7	20
Residual Range Organics (RRO) (C25-C36)			10.3	8.46		mg/L		82	60 - 120	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctadecane	*88*		*50 - 150*
n-Triacontane (Surr)	*86*		*50 - 150*

Lab Sample ID: 230-169-B-1-A DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 665 — **Prep Batch: 666**

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)	ND			ND		mg/L				10	20
Residual Range Organics (RRO) (C25-C36)	ND			ND		mg/L				8	20

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
1-Chlorooctadecane	*91*		*50 - 150*
n-Triacontane (Surr)	*82*		*50 - 150*

QC Association Summary

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

GC/MS VOA

Prep Batch: 667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-152-A-1-K MS	Matrix Spike	Total/NA	Water	5035	
230-152-A-1-L MSD	Matrix Spike Duplicate	Total/NA	Water	5035	
LCS 230-667/2-A	Lab Control Sample	Total/NA	Water	5035	
LCSD 230-667/3-A	Lab Control Sample Dup	Total/NA	Water	5035	
MB 230-667/1-A	Method Blank	Total/NA	Water	5035	

Analysis Batch: 668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-161-3	MH-B	Total/NA	Water	AK101	
230-161-4	MW-12	Total/NA	Water	AK101	
230-161-5	Trip Blank	Total/NA	Water	AK101	
230-165-A-1 DU	Duplicate	Total/NA	Water	AK101	
LCS 230-668/1005	Lab Control Sample	Total/NA	Water	AK101	
LCSD 230-668/6	Lab Control Sample Dup	Total/NA	Water	AK101	
MB 230-668/7	Method Blank	Total/NA	Water	AK101	

Analysis Batch: 669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-152-A-1-K MS	Matrix Spike	Total/NA	Water	8260B	667
230-152-A-1-L MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	667
230-161-4	MW-12	Total/NA	Water	8260B	
230-161-5	Trip Blank	Total/NA	Water	8260B	
230-165-A-1 DU	Duplicate	Total/NA	Water	8260B	
LCS 230-667/2-A	Lab Control Sample	Total/NA	Water	8260B	667
LCS 230-669/1003	Lab Control Sample	Total/NA	Water	8260B	
LCSD 230-667/3-A	Lab Control Sample Dup	Total/NA	Water	8260B	667
LCSD 230-669/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 230-667/1-A	Method Blank	Total/NA	Water	8260B	667
MB 230-669/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-161-1 - DL	MH-A	Total/NA	Water	AK101	
230-161-1 DU - DL	MH-A	Total/NA	Water	AK101	
230-161-2 - DL	MH-A-2	Total/NA	Water	AK101	
LCS 230-672/1007	Lab Control Sample	Total/NA	Water	AK101	
LCSD 230-672/8	Lab Control Sample Dup	Total/NA	Water	AK101	
MB 230-672/9	Method Blank	Total/NA	Water	AK101	

Analysis Batch: 673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-161-1 - DL	MH-A	Total/NA	Water	8260B	
230-161-1 DU - DL	MH-A	Total/NA	Water	8260B	
230-161-2 - DL	MH-A-2	Total/NA	Water	8260B	
230-161-3	MH-B	Total/NA	Water	8260B	
230-172-A-5-C MS	Matrix Spike	Total/NA	Water	8260B	677
230-172-A-5-D MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	677
LCS 230-673/1005	Lab Control Sample	Total/NA	Water	8260B	
LCS 230-677/2-A	Lab Control Sample	Total/NA	Water	8260B	677
LCSD 230-673/6	Lab Control Sample Dup	Total/NA	Water	8260B	
LCSD 230-677/3-A	Lab Control Sample Dup	Total/NA	Water	8260B	677

GC/MS VOA (Continued)

Analysis Batch: 673 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 230-673/9	Method Blank	Total/NA	Water	8260B	
MB 230-677/1-A	Method Blank	Total/NA	Water	8260B	677

Prep Batch: 677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-172-A-5-C MS	Matrix Spike	Total/NA	Water	5035	
230-172-A-5-D MSD	Matrix Spike Duplicate	Total/NA	Water	5035	
LCS 230-677/2-A	Lab Control Sample	Total/NA	Water	5035	
LCSD 230-677/3-A	Lab Control Sample Dup	Total/NA	Water	5035	
MB 230-677/1-A	Method Blank	Total/NA	Water	5035	

GC Semi VOA

Prep Batch: 642

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-161-1	MH-A	Total/NA	Water	3510C	
230-161-1 DU	MH-A	Total/NA	Water	3510C	
230-161-2	MH-A-2	Total/NA	Water	3510C	
230-161-3	MH-B	Total/NA	Water	3510C	
LCS 230-642/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 230-642/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 230-642/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-161-3	MH-B	Total/NA	Water	AK102 & 103	642
LCS 230-642/2-A	Lab Control Sample	Total/NA	Water	AK102 & 103	642
LCSD 230-642/3-A	Lab Control Sample Dup	Total/NA	Water	AK102 & 103	642
MB 230-642/1-A	Method Blank	Total/NA	Water	AK102 & 103	642

Analysis Batch: 648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-161-1	MH-A	Total/NA	Water	AK102 & 103	642
230-161-1 DU	MH-A	Total/NA	Water	AK102 & 103	642
230-161-2	MH-A-2	Total/NA	Water	AK102 & 103	642

Analysis Batch: 664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-161-4	MW-12	Total/NA	Water	AK102 & 103	666
LCS 230-666/2-A	Lab Control Sample	Total/NA	Water	AK102 & 103	666
LCSD 230-666/3-A	Lab Control Sample Dup	Total/NA	Water	AK102 & 103	666
MB 230-666/1-A	Method Blank	Total/NA	Water	AK102 & 103	666

Analysis Batch: 665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-169-B-1-A DU	Duplicate	Total/NA	Water	AK102 & 103	666

Prep Batch: 666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-161-4	MW-12	Total/NA	Water	3510C	

GC Semi VOA (Continued)

Prep Batch: 666 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-169-B-1-A DU	Duplicate	Total/NA	Water	3510C	
LCS 230-666/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 230-666/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 230-666/1-A	Method Blank	Total/NA	Water	3510C	

Lab Chronicle

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

Client Sample ID: MH-A
Lab Sample ID: 230-161-1
Date Collected: 06/11/14 15:00
Matrix: Water
Date Received: 06/16/14 14:32

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	20	673	06/23/14 16:22	ASD	TAL ANC
Total/NA	Analysis	AK101	DL	20	672	06/23/14 16:22	ASD	TAL ANC
Total/NA	Prep	3510C			642	06/18/14 09:30	ASD	TAL ANC
Total/NA	Analysis	AK102 & 103		1	648	06/19/14 17:08	KDC	TAL ANC

Client Sample ID: MH-A-2
Lab Sample ID: 230-161-2
Date Collected: 06/11/14 15:01
Matrix: Water
Date Received: 06/16/14 14:32

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B	DL	20	673	06/23/14 17:26	ASD	TAL ANC
Total/NA	Analysis	AK101	DL	20	672	06/23/14 17:26	ASD	TAL ANC
Total/NA	Prep	3510C			642	06/18/14 09:30	ASD	TAL ANC
Total/NA	Analysis	AK102 & 103		1	648	06/19/14 18:12	KDC	TAL ANC

Client Sample ID: MH-B
Lab Sample ID: 230-161-3
Date Collected: 06/11/14 15:16
Matrix: Water
Date Received: 06/16/14 14:32

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	673	06/23/14 15:49	ASD	TAL ANC
Total/NA	Analysis	AK101		1	668	06/21/14 21:33	ASD	TAL ANC
Total/NA	Prep	3510C			642	06/18/14 09:30	ASD	TAL ANC
Total/NA	Analysis	AK102 & 103		1	647	06/19/14 18:45	KDC	TAL ANC

Client Sample ID: MW-12
Lab Sample ID: 230-161-4
Date Collected: 06/11/14 16:23
Matrix: Water
Date Received: 06/16/14 14:32

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	669	06/21/14 22:05	ASD	TAL ANC
Total/NA	Analysis	AK101		1	668	06/21/14 22:05	ASD	TAL ANC
Total/NA	Prep	3510C			666	06/21/14 12:24	KDC	TAL ANC
Total/NA	Analysis	AK102 & 103		1	664	06/22/14 05:12	KDC	TAL ANC

Client Sample ID: Trip Blank
Lab Sample ID: 230-161-5
Date Collected: 06/11/14 00:00
Matrix: Water
Date Received: 06/16/14 14:32

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	669	06/21/14 22:37	ASD	TAL ANC
Total/NA	Analysis	AK101		1	668	06/21/14 22:37	ASD	TAL ANC

Lab Chronicle

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

Laboratory References:

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

Certification Summary

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

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	06-30-14

Method Summary

Client: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

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: Chem Track
Project/Site: Delta Western Haines

TestAmerica Job ID: 230-161-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
230-161-1	MH-A	Water	06/11/14 15:00	06/16/14 14:32
230-161-2	MH-A-2	Water	06/11/14 15:01	06/16/14 14:32
230-161-3	MH-B	Water	06/11/14 15:16	06/16/14 14:32
230-161-4	MW-12	Water	06/11/14 16:23	06/16/14 14:32
230-161-5	Trip Blank	Water	06/11/14 00:00	06/16/14 14:32

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2000 W

230-161 Chain of Custody

4-1317	253-922-2310	FAX 922-5047
5-5302	509-924-9200	FAX 924-9290
8-7145	503-906-9200	FAX 906-9210
2-1119	907-563-9200	FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: 230-161

CLIENT: ChemTrack

REPORT TO: 11711 S. Gambell Georgia Doew

ADDRESS: Anchorage AK, 99503

PHONE: 907-349-2511 FAX:

INVOICE TO: Jack Little

P.O. NUMBER:

PROJECT NAME: Delta Western Haines

PROJECT NUMBER: 6083

SAMPLED BY: KSD

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 (STD.) 7 5 4 3 2 1 <1

Petroleum Hydrocarbon Analyses: 5 (STD.) 4 3 2 1 <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE: HCl; ~~MeOH~~ HCl

REQUESTED ANALYSES: GRO/BTEX; DRO/RRO

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	GRO/BTEX	DRO/RRO	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	MH-A	11 JUN14 1500	x	x	W	6		
2	MH-A-2	11 JUN14 1501	x	x	W	6		
3	MH-B	11 JUN14 1516	x	x	W	6		
4	MW-12	11 JUN14 1623	x	x	W	6		
5	Trip blank							
6								
7								
8								
9								
10								

RELEASED BY: Georgia Doew	DATE: 6/16/14	RECEIVED BY: [signature]	DATE: 6/16/14
PRINT NAME: Georgia Doew	FIRM: ChemTrack	PRINT NAME: Ally Hill	FIRM: TA-AK
	TIME: 14:32		TIME: 1432
RELEASED BY:	DATE:	RECEIVED BY:	DATE:
PRINT NAME:	FIRM:	PRINT NAME:	FIRM:
	TIME:		TIME:

ADDITIONAL REMARKS:

TEMP: 27

PAGE 1 OF 1

TAL-1000 (0612)

230-161

6/13/14

TestAmerica
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654755

Custody Seal

DATE

SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
654755

Login Sample Receipt Checklist

Client: Chem Track

Job Number: 230-161-1

Login Number: 161

List Source: TestAmerica Anchorage

List Number: 1

Creator: Pilch, Andrew C

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	2.7C
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: Georgia Doerr

Title: Environmental Scientist Date: January 21, 2015

CS Report Name: Delta Western Haines Report Date: June 24, 2014

Consultant Firm: ChemTrack Alaska Inc.

Laboratory Name: TestAmerica Laboratory Report Number: 230-761-1

ADEC File Number: ADEC RecKey Number:

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

Samples were received by the lab in good condition, properly perserved and on ice.

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:

No discrepancies noted.

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

Data quality acceptable.

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:

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

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

Data quality acceptable.

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:

All samples were water 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:

Data quality acceptable.

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:

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

No affected samples.

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

Data quality acceptable.

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 analyzed.

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:

The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 642 recovered outside control limits for DRO. These analytes were biased low in the LCS/LCSD. Re-extration was not possible due to the limited volume of sample.

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:

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

☒Yes ☐ No ☐NA (Please explain.) Comments:

All other LCS and LCSD for all aother analytes were within the acceptable control limits.

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

Comments:

Data quality acceptable.

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:

No failed surrogate recoveries.

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

Comments:

Data quality acceptable.

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:

iii. All results less than PQL?

☒Yes ☐ No ☐NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality acceptable.

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:

Data quality acceptable.

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

☒Yes ☐ No ☐NA (Please explain.) Comments:

Clean sampling gloves and sampling equipment was used at each sampling location.

i. All results less than PQL?

☒Yes ☐ No ☐NA (Please explain.) Comments:

ii. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality acceptable.

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

a. Defined and appropriate?

☒Yes ☐ No ☐NA (Please explain.) Comments:

TestAmerica

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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: 230-395-1
Client Project/Site: Haines Groundwater Treatment System

For:
Chem Track
11711 S. Gambell
Anchorage, Alaska 99515

Attn: Georgia Doerr

Authorized for release by:
12/9/2014 3:34:26 PM

Steve Crupi, Project Manager II
(253)248-4961
steve.crupi@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
Y	The chromatographic response resembles a typical fuel pattern.

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: 230-395-1

Laboratory: TestAmerica Anchorage

Narrative

Job Narrative
230-395-1

Receipt
The samples were received on 11/21/2014 12:38 PM, arriving in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.2º C.

A trip blank was not submitted for analysis with the sample shipment and was not listed on the Chain of Custody (COC).

GC/MS VOA
Method 624: Samples MH-A (230-395-1), MH-A1 (230-395-2) were diluted to bring the concentration of target analytes within the calibration range. Elevated reporting limits (RLs) are provided.

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

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method AK102: In analysis batch 176642, from preparation batch 176712, sample MH-B (230-395-3) contained a hydrocarbon pattern in the diesel range; however, the elution pattern was later than the typical diesel fuel pattern used by the laboratory for quantitative purposes. In the same batches, samples MH-A (230-395-1), MH-A1 (230-395-2) contained a hydrocarbon pattern in the diesel range; however, the elution pattern was earlier than the typical diesel fuel pattern used by the laboratory for quantitative purposes: .

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: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

Client Sample ID: MH-A — Lab Sample ID: 230-395-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	71		1.0	ug/L	1		624	Total/NA
Benzene - DL	210		10	ug/L	10		624	Total/NA
Toluene - DL	390		10	ug/L	10		624	Total/NA
m-Xylene & p-Xylene - DL	460		20	ug/L	10		624	Total/NA
o-Xylene - DL	210		10	ug/L	10		624	Total/NA
TAH - DL	1300		60	ug/L	10		624	Total/NA
TAqH	1300		6.0	ug/L	1		TAqH	Total/NA
Naphthalene	8.0		0.38	ug/L	1		625	Total/NA
2-Methylnaphthalene	2.0		0.19	ug/L	1		625	Total/NA
1-Methylnaphthalene	1.4		0.057	ug/L	1		625	Total/NA
TPAH	8.0		0.038	ug/L	1		625	Total/NA
Gasoline Range Organics (GRO) -C6-C10	3.8		0.050	mg/L	1		AK101	Total/NA
DRO (nC10-<nC25)	0.53	Y	0.096	mg/L	1		AK102 & 103	Total/NA

Client Sample ID: MH-A1 — Lab Sample ID: 230-395-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	67		1.0	ug/L	1		624	Total/NA
Benzene - DL	200		10	ug/L	10		624	Total/NA
Toluene - DL	370		10	ug/L	10		624	Total/NA
m-Xylene & p-Xylene - DL	430		20	ug/L	10		624	Total/NA
o-Xylene - DL	200		10	ug/L	10		624	Total/NA
TAH - DL	1300		60	ug/L	10		624	Total/NA
TAqH	1300		6.0	ug/L	1		TAqH	Total/NA
Naphthalene	8.5		0.42	ug/L	1		625	Total/NA
2-Methylnaphthalene	2.2		0.21	ug/L	1		625	Total/NA
1-Methylnaphthalene	1.4		0.063	ug/L	1		625	Total/NA
TPAH	8.5		0.042	ug/L	1		625	Total/NA
Gasoline Range Organics (GRO) -C6-C10	3.7		0.050	mg/L	1		AK101	Total/NA
DRO (nC10-<nC25)	0.55	Y	0.096	mg/L	1		AK102 & 103	Total/NA

Client Sample ID: MH-B — Lab Sample ID: 230-395-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1.1		1.0	ug/L	1		624	Total/NA
DRO (nC10-<nC25)	0.11	Y	0.096	mg/L	1		AK102 & 103	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

Client Sample ID: MH-A

Date Collected: 11/18/14 13:50
Date Received: 11/21/14 12:38

Lab Sample ID: 230-395-1

Matrix: Water

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	71		1.0		ug/L			11/24/14 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*96*		*74 - 123*		*11/24/14 18:41*	*1*
Toluene-d8 (Surr)	*103*		*79 - 122*		*11/24/14 18:41*	*1*
4-Bromofluorobenzene (Surr)	*98*		*78 - 119*		*11/24/14 18:41*	*1*
Dibromofluoromethane (Surr)	*95*		*70 - 120*		*11/24/14 18:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 120*		*11/24/14 18:41*	*1*

Method: 624 - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	210		10		ug/L			11/25/14 17:33	10
Toluene	390		10		ug/L			11/25/14 17:33	10
m-Xylene & p-Xylene	460		20		ug/L			11/25/14 17:33	10
o-Xylene	210		10		ug/L			11/25/14 17:33	10
TAH	1300		60		ug/L			11/25/14 17:33	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*101*		*74 - 123*		*11/25/14 17:33*	*10*
Toluene-d8 (Surr)	*101*		*79 - 122*		*11/25/14 17:33*	*10*
4-Bromofluorobenzene (Surr)	*101*		*78 - 119*		*11/25/14 17:33*	*10*
Dibromofluoromethane (Surr)	*100*		*70 - 120*		*11/25/14 17:33*	*10*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 120*		*11/25/14 17:33*	*10*

Method: TAqH - Total Aqueous Hydrocarbons

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
TAqH	1300		6.0		ug/L			12/09/14 16:01	1

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	8.0		0.38		ug/L		11/24/14 11:33	11/28/14 20:18	1
2-Methylnaphthalene	2.0		0.19		ug/L		11/24/14 11:33	11/28/14 20:18	1
1-Methylnaphthalene	1.4		0.057		ug/L		11/24/14 11:33	11/28/14 20:18	1
Acenaphthylene	ND		0.076		ug/L		11/24/14 11:33	11/28/14 20:18	1
Acenaphthene	ND		0.095		ug/L		11/24/14 11:33	11/28/14 20:18	1
Fluorene	ND		0.057		ug/L		11/24/14 11:33	11/28/14 20:18	1
Phenanthrene	ND		0.076		ug/L		11/24/14 11:33	11/28/14 20:18	1
Anthracene	ND		0.038		ug/L		11/24/14 11:33	11/28/14 20:18	1
Fluoranthene	ND		0.047		ug/L		11/24/14 11:33	11/28/14 20:18	1
Pyrene	ND		0.057		ug/L		11/24/14 11:33	11/28/14 20:18	1
Benzo[a]anthracene	ND		0.057		ug/L		11/24/14 11:33	11/28/14 20:18	1
Chrysene	ND		0.038		ug/L		11/24/14 11:33	11/28/14 20:18	1
Benzofluoranthene	ND		0.076		ug/L		11/24/14 11:33	11/28/14 20:18	1
Benzo[a]pyrene	ND		0.038		ug/L		11/24/14 11:33	11/28/14 20:18	1
Indeno[1,2,3-cd]pyrene	ND		0.057		ug/L		11/24/14 11:33	11/28/14 20:18	1
Dibenz(a,h)anthracene	ND		0.057		ug/L		11/24/14 11:33	11/28/14 20:18	1
Benzo[g,h,i]perylene	ND		0.057		ug/L		11/24/14 11:33	11/28/14 20:18	1
TPAH	8.0		0.038		ug/L		11/24/14 11:33	11/28/14 20:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*95*		*59 - 123*	*11/24/14 11:33*	*11/28/14 20:18*	*1*

Client Sample ID: MH-A

Lab Sample ID: 230-395-1
Matrix: Water
Date Collected: 11/18/14 13:50
Date Received: 11/21/14 12:38

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	88		56 - 124	11/24/14 11:33	11/28/14 20:18	1
Terphenyl-d14	109		60 - 135	11/24/14 11:33	11/28/14 20:18	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	3.8		0.050	mg/L			11/25/14 00:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	97		50 - 150		11/25/14 00:58	1
4-Bromofluorobenzene (Surr)	99		50 - 150		11/25/14 00:58	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	0.53	Y	0.096	mg/L		11/25/14 12:16	11/25/14 17:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	97		50 - 150	11/25/14 12:16	11/25/14 17:41	1

Client Sample ID: MH-A1

Lab Sample ID: 230-395-2
Matrix: Water
Date Collected: 11/18/14 14:00
Date Received: 11/21/14 12:38

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	67		1.0	ug/L			11/24/14 19:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	95		74 - 123		11/24/14 19:08	1
Toluene-d8 (Surr)	101		79 - 122		11/24/14 19:08	1
4-Bromofluorobenzene (Surr)	99		78 - 119		11/24/14 19:08	1
Dibromofluoromethane (Surr)	96		70 - 120		11/24/14 19:08	1
1,2-Dichloroethane-d4 (Surr)	98		70 - 120		11/24/14 19:08	1

Method: 624 - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	200		10	ug/L			11/25/14 18:00	10
Toluene	370		10	ug/L			11/25/14 18:00	10
m-Xylene & p-Xylene	430		20	ug/L			11/25/14 18:00	10
o-Xylene	200		10	ug/L			11/25/14 18:00	10
TAH	1300		60	ug/L			11/25/14 18:00	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	103		74 - 123		11/25/14 18:00	10
Toluene-d8 (Surr)	104		79 - 122		11/25/14 18:00	10
4-Bromofluorobenzene (Surr)	97		78 - 119		11/25/14 18:00	10
Dibromofluoromethane (Surr)	95		70 - 120		11/25/14 18:00	10
1,2-Dichloroethane-d4 (Surr)	92		70 - 120		11/25/14 18:00	10

Client Sample Results

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

Client Sample ID: MH-A1

Lab Sample ID: 230-395-2

Date Collected: 11/18/14 14:00
Date Received: 11/21/14 12:38

Matrix: Water

Method: TAqH - Total Aqueous Hydrocarbons

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
TAqH	1300		6.0	ug/L			12/09/14 16:01	1

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	8.5		0.42	ug/L		11/24/14 11:33	11/28/14 20:43	1
2-Methylnaphthalene	2.2		0.21	ug/L		11/24/14 11:33	11/28/14 20:43	1
1-Methylnaphthalene	1.4		0.063	ug/L		11/24/14 11:33	11/28/14 20:43	1
Acenaphthylene	ND		0.084	ug/L		11/24/14 11:33	11/28/14 20:43	1
Acenaphthene	ND		0.10	ug/L		11/24/14 11:33	11/28/14 20:43	1
Fluorene	ND		0.063	ug/L		11/24/14 11:33	11/28/14 20:43	1
Phenanthrene	ND		0.084	ug/L		11/24/14 11:33	11/28/14 20:43	1
Anthracene	ND		0.042	ug/L		11/24/14 11:33	11/28/14 20:43	1
Fluoranthene	ND		0.052	ug/L		11/24/14 11:33	11/28/14 20:43	1
Pyrene	ND		0.063	ug/L		11/24/14 11:33	11/28/14 20:43	1
Benzo[a]anthracene	ND		0.063	ug/L		11/24/14 11:33	11/28/14 20:43	1
Chrysene	ND		0.042	ug/L		11/24/14 11:33	11/28/14 20:43	1
Benzofluoranthene	ND		0.084	ug/L		11/24/14 11:33	11/28/14 20:43	1
Benzo[a]pyrene	ND		0.042	ug/L		11/24/14 11:33	11/28/14 20:43	1
Indeno[1,2,3-cd]pyrene	ND		0.063	ug/L		11/24/14 11:33	11/28/14 20:43	1
Dibenz(a,h)anthracene	ND		0.063	ug/L		11/24/14 11:33	11/28/14 20:43	1
Benzo[g,h,i]perylene	ND		0.063	ug/L		11/24/14 11:33	11/28/14 20:43	1
TPAH	8.5		0.042	ug/L		11/24/14 11:33	11/28/14 20:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*99*		*59 - 123*	*11/24/14 11:33*	*11/28/14 20:43*	*1*
2-Fluorobiphenyl	*89*		*56 - 124*	*11/24/14 11:33*	*11/28/14 20:43*	*1*
Terphenyl-d14	*113*		*60 - 135*	*11/24/14 11:33*	*11/28/14 20:43*	*1*

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	3.7		0.050	mg/L			11/25/14 01:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*107*		*50 - 150*		*11/25/14 01:31*	*1*
4-Bromofluorobenzene (Surr)	*98*		*50 - 150*		*11/25/14 01:31*	*1*

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	0.55	Y	0.096	mg/L		11/25/14 12:16	11/25/14 18:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*97*		*50 - 150*	*11/25/14 12:16*	*11/25/14 18:00*	*1*

Client Sample ID: MH-B

Lab Sample ID: 230-395-3

Date Collected: 11/18/14 14:20
Date Received: 11/21/14 12:38

Matrix: Water

Method: 624 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.1		1.0	ug/L			11/24/14 19:37	1

Client Sample ID: MH-B

Lab Sample ID: 230-395-3

Date Collected: 11/18/14 14:20

Matrix: Water

Date Received: 11/21/14 12:38

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		1.0	ug/L			11/24/14 19:37	1
Toluene	ND		1.0	ug/L			11/24/14 19:37	1
m-Xylene & p-Xylene	ND		2.0	ug/L			11/24/14 19:37	1
o-Xylene	ND		1.0	ug/L			11/24/14 19:37	1
TAH	ND		6.0	ug/L			11/24/14 19:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*102*		*74 - 123*		*11/24/14 19:37*	*1*
Toluene-d8 (Surr)	*96*		*79 - 122*		*11/24/14 19:37*	*1*
4-Bromofluorobenzene (Surr)	*105*		*78 - 119*		*11/24/14 19:37*	*1*
Dibromofluoromethane (Surr)	*107*		*70 - 120*		*11/24/14 19:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 120*		*11/24/14 19:37*	*1*

Method: TAqH - Total Aqueous Hydrocarbons

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
TAqH	ND		6.0	ug/L			12/09/14 16:01	1

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.38	ug/L		11/24/14 11:33	11/28/14 21:07	1
2-Methylnaphthalene	ND		0.19	ug/L		11/24/14 11:33	11/28/14 21:07	1
1-Methylnaphthalene	ND		0.057	ug/L		11/24/14 11:33	11/28/14 21:07	1
Acenaphthylene	ND		0.076	ug/L		11/24/14 11:33	11/28/14 21:07	1
Acenaphthene	ND		0.096	ug/L		11/24/14 11:33	11/28/14 21:07	1
Fluorene	ND		0.057	ug/L		11/24/14 11:33	11/28/14 21:07	1
Phenanthrene	ND		0.076	ug/L		11/24/14 11:33	11/28/14 21:07	1
Anthracene	ND		0.038	ug/L		11/24/14 11:33	11/28/14 21:07	1
Fluoranthene	ND		0.048	ug/L		11/24/14 11:33	11/28/14 21:07	1
Pyrene	ND		0.057	ug/L		11/24/14 11:33	11/28/14 21:07	1
Benzo[a]anthracene	ND		0.057	ug/L		11/24/14 11:33	11/28/14 21:07	1
Chrysene	ND		0.038	ug/L		11/24/14 11:33	11/28/14 21:07	1
Benzofluoranthene	ND		0.076	ug/L		11/24/14 11:33	11/28/14 21:07	1
Benzo[a]pyrene	ND		0.038	ug/L		11/24/14 11:33	11/28/14 21:07	1
Indeno[1,2,3-cd]pyrene	ND		0.057	ug/L		11/24/14 11:33	11/28/14 21:07	1
Dibenz(a,h)anthracene	ND		0.057	ug/L		11/24/14 11:33	11/28/14 21:07	1
Benzo[g,h,i]perylene	ND		0.057	ug/L		11/24/14 11:33	11/28/14 21:07	1
TPAH	ND		0.038	ug/L		11/24/14 11:33	11/28/14 21:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*96*		*59 - 123*	*11/24/14 11:33*	*11/28/14 21:07*	*1*
2-Fluorobiphenyl	*92*		*56 - 124*	*11/24/14 11:33*	*11/28/14 21:07*	*1*
Terphenyl-d14	*109*		*60 - 135*	*11/24/14 11:33*	*11/28/14 21:07*	*1*

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.050	mg/L			11/25/14 02:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*95*		*50 - 150*		*11/25/14 02:04*	*1*
4-Bromofluorobenzene (Surr)	*92*		*50 - 150*		*11/25/14 02:04*	*1*

Client Sample Results

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

Client Sample ID: MH-B

Lab Sample ID: 230-395-3

Date Collected: 11/18/14 14:20
Matrix: Water
Date Received: 11/21/14 12:38

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	0.11	Y	0.096		mg/L		11/25/14 12:16	11/25/14 18:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*78*		*50 - 150*	*11/25/14 12:16*	*11/25/14 18:18*	*1*

Surrogate Summary

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

Method: 624 - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)				
		TFT	TOL	BFB	DBFM	12DCE
Lab Sample ID	Client Sample ID	(74-123)	(79-122)	(78-119)	(70-120)	(70-120)
230-395-1	MH-A	96	103	98	95	100
230-395-1 - DL	MH-A	101	101	101	100	106
230-395-2	MH-A1	95	101	99	96	98
230-395-2 - DL	MH-A1	103	104	97	95	92
230-395-3	MH-B	102	96	105	107	103
LCS 580-176611/5	Lab Control Sample	102	101	100	100	99
LCS 580-176702/4	Lab Control Sample	100	100	97	99	98
LCSD 580-176611/6	Lab Control Sample Dup	101	101	99	97	100
LCSD 580-176702/5	Lab Control Sample Dup	102	100	96	101	97
MB 580-176611/4	Method Blank	99	102	103	97	100
MB 580-176702/3	Method Blank	101	103	100	96	96

Surrogate Legend

TFT = Trifluorotoluene (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPH
Lab Sample ID	Client Sample ID	(59-123)	(56-124)	(60-135)
230-395-1	MH-A	95	88	109
230-395-2	MH-A1	99	89	113
230-395-3	MH-B	96	92	109
LCS 580-176573/2-A	Lab Control Sample	92	90	104
LCSD 580-176573/3-A	Lab Control Sample Dup	92	91	104
MB 580-176573/1-A	Method Blank	88	93	109

Surrogate Legend

NBZ = Nitrobenzene-d5
FBP = 2-Fluorobiphenyl
TPH = Terphenyl-d14

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TFT2	BFB2
Lab Sample ID	Client Sample ID	(50-150)	(50-150)
230-395-1	MH-A	97	99
230-395-2	MH-A1	107	98
230-395-3	MH-B	95	92
LCS 580-176617/6	Lab Control Sample	99	97
LCSD 580-176617/7	Lab Control Sample Dup	98	97
MB 580-176617/5	Method Blank	107	92

Surrogate Summary

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

Surrogate Legend

TFT = Trifluorotoluene (Surr)

BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**OTPH (50-150)**							
230-395-1	MH-A	97							
230-395-2	MH-A1	97							
230-395-3	MH-B	78							
LCS 580-176712/2-A	Lab Control Sample	104							
LCSD 580-176712/3-A	Lab Control Sample Dup	98							
MB 580-176712/1-A	Method Blank	95							

Surrogate Legend

OTPH = o-Terphenyl

Method: 624 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-176611/4
Matrix: Water
Analysis Batch: 176611

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	ug/L			11/24/14 15:52	1
Ethylbenzene	ND		1.0	ug/L			11/24/14 15:52	1
Toluene	ND		1.0	ug/L			11/24/14 15:52	1
m-Xylene & p-Xylene	ND		2.0	ug/L			11/24/14 15:52	1
o-Xylene	ND		1.0	ug/L			11/24/14 15:52	1
TAH	ND		6.0	ug/L			11/24/14 15:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*99*		*74 - 123*		*11/24/14 15:52*	*1*
Toluene-d8 (Surr)	*102*		*79 - 122*		*11/24/14 15:52*	*1*
4-Bromofluorobenzene (Surr)	*103*		*78 - 119*		*11/24/14 15:52*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 120*		*11/24/14 15:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 120*		*11/24/14 15:52*	*1*

Lab Sample ID: LCS 580-176611/5
Matrix: Water
Analysis Batch: 176611

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	19.3		ug/L		96	37 - 151
Ethylbenzene	20.0	20.0		ug/L		100	37 - 162
Toluene	20.0	19.2		ug/L		96	47 - 150
m-Xylene & p-Xylene	20.0	19.6		ug/L		98	78 - 114
o-Xylene	20.0	19.9		ug/L		99	77 - 116
TAH	100	98.0		ug/L		98	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*102*		*74 - 123*
Toluene-d8 (Surr)	*101*		*79 - 122*
4-Bromofluorobenzene (Surr)	*100*		*78 - 119*
Dibromofluoromethane (Surr)	*100*		*70 - 120*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 120*

Lab Sample ID: LCSD 580-176611/6
Matrix: Water
Analysis Batch: 176611

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	18.7		ug/L		94	37 - 151	3	30
Ethylbenzene	20.0	19.4		ug/L		97	37 - 162	3	30
Toluene	20.0	18.9		ug/L		95	47 - 150	2	30
m-Xylene & p-Xylene	20.0	19.1		ug/L		95	78 - 114	2	30
o-Xylene	20.0	19.0		ug/L		95	77 - 116	4	30
TAH	100	95.1		ug/L		95		3	

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Trifluorotoluene (Surr)	*101*		*74 - 123*

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-176611/6
Matrix: Water
Analysis Batch: 176611

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

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Toluene-d8 (Surr)	101		79 - 122
4-Bromofluorobenzene (Surr)	99		78 - 119
Dibromofluoromethane (Surr)	97		70 - 120
1,2-Dichloroethane-d4 (Surr)	100		70 - 120

Lab Sample ID: MB 580-176702/3
Matrix: Water
Analysis Batch: 176702

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0	ug/L			11/25/14 13:00	1
Toluene	ND		1.0	ug/L			11/25/14 13:00	1
m-Xylene & p-Xylene	ND		2.0	ug/L			11/25/14 13:00	1
o-Xylene	ND		1.0	ug/L			11/25/14 13:00	1
TAH	ND		6.0	ug/L			11/25/14 13:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Trifluorotoluene (Surr)	101		74 - 123		11/25/14 13:00	1
Toluene-d8 (Surr)	103		79 - 122		11/25/14 13:00	1
4-Bromofluorobenzene (Surr)	100		78 - 119		11/25/14 13:00	1
Dibromofluoromethane (Surr)	96		70 - 120		11/25/14 13:00	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 120		11/25/14 13:00	1

Lab Sample ID: LCS 580-176702/4
Matrix: Water
Analysis Batch: 176702

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	16.2		ug/L		81	37 - 151
Toluene	20.0	16.4		ug/L		82	47 - 150
m-Xylene & p-Xylene	20.0	16.7		ug/L		84	78 - 114
o-Xylene	20.0	16.6		ug/L		83	77 - 116
TAH	100	82.7		ug/L		83	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Trifluorotoluene (Surr)	100		74 - 123
Toluene-d8 (Surr)	100		79 - 122
4-Bromofluorobenzene (Surr)	97		78 - 119
Dibromofluoromethane (Surr)	99		70 - 120
1,2-Dichloroethane-d4 (Surr)	98		70 - 120

Lab Sample ID: LCSD 580-176702/5
Matrix: Water
Analysis Batch: 176702

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	16.4		ug/L		82	37 - 151	2	30

Method: 624 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-176702/5
Matrix: Water
Analysis Batch: 176702

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
Toluene	20.0	16.5		ug/L		82	47 - 150	1	30
m-Xylene & p-Xylene	20.0	16.9		ug/L		85	78 - 114	1	30
o-Xylene	20.0	16.9		ug/L		85	77 - 116	2	30
TAH	100	83.6		ug/L		84		1	

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Trifluorotoluene (Surr)	*102*		*74 - 123*
Toluene-d8 (Surr)	*100*		*79 - 122*
4-Bromofluorobenzene (Surr)	*96*		*78 - 119*
Dibromofluoromethane (Surr)	*101*		*70 - 120*
1,2-Dichloroethane-d4 (Surr)	*97*		*70 - 120*

Method: 625 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-176573/1-A
Matrix: Water
Analysis Batch: 176913

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 176573

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.40	ug/L		11/24/14 11:33	11/28/14 17:24	1
2-Methylnaphthalene	ND		0.20	ug/L		11/24/14 11:33	11/28/14 17:24	1
1-Methylnaphthalene	ND		0.060	ug/L		11/24/14 11:33	11/28/14 17:24	1
Acenaphthylene	ND		0.080	ug/L		11/24/14 11:33	11/28/14 17:24	1
Acenaphthene	ND		0.10	ug/L		11/24/14 11:33	11/28/14 17:24	1
Fluorene	ND		0.060	ug/L		11/24/14 11:33	11/28/14 17:24	1
Phenanthrene	ND		0.080	ug/L		11/24/14 11:33	11/28/14 17:24	1
Anthracene	ND		0.040	ug/L		11/24/14 11:33	11/28/14 17:24	1
Fluoranthene	ND		0.050	ug/L		11/24/14 11:33	11/28/14 17:24	1
Pyrene	ND		0.060	ug/L		11/24/14 11:33	11/28/14 17:24	1
Benzo[a]anthracene	ND		0.060	ug/L		11/24/14 11:33	11/28/14 17:24	1
Chrysene	ND		0.040	ug/L		11/24/14 11:33	11/28/14 17:24	1
Benzofluoranthene	ND		0.080	ug/L		11/24/14 11:33	11/28/14 17:24	1
Benzo[a]pyrene	ND		0.040	ug/L		11/24/14 11:33	11/28/14 17:24	1
Indeno[1,2,3-cd]pyrene	ND		0.060	ug/L		11/24/14 11:33	11/28/14 17:24	1
Dibenz(a,h)anthracene	ND		0.060	ug/L		11/24/14 11:33	11/28/14 17:24	1
Benzo[g,h,i]perylene	ND		0.060	ug/L		11/24/14 11:33	11/28/14 17:24	1
TPAH	ND		0.040	ug/L		11/24/14 11:33	11/28/14 17:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*88*		*59 - 123*	*11/24/14 11:33*	*11/28/14 17:24*	*1*
2-Fluorobiphenyl	*93*		*56 - 124*	*11/24/14 11:33*	*11/28/14 17:24*	*1*
Terphenyl-d14	*109*		*60 - 135*	*11/24/14 11:33*	*11/28/14 17:24*	*1*

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-176573/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 176913 — **Prep Batch: 176573**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	2.00	1.82		ug/L		91	21 - 133
2-Methylnaphthalene	2.00	1.84		ug/L		92	20 - 150
1-Methylnaphthalene	2.00	1.90		ug/L		95	20 - 150
Acenaphthylene	2.00	1.81		ug/L		90	33 - 145
Acenaphthene	2.00	1.83		ug/L		91	47 - 145
Fluorene	2.00	1.88		ug/L		94	59 - 121
Phenanthrene	2.00	2.00		ug/L		100	54 - 120
Anthracene	2.00	1.92		ug/L		96	27 - 133
Fluoranthene	2.00	2.07		ug/L		103	26 - 137
Pyrene	2.00	2.04		ug/L		102	52 - 115
Benzo[a]anthracene	2.00	2.02		ug/L		101	33 - 143
Chrysene	2.00	2.06		ug/L		103	17 - 168
Benzofluoranthene	4.00	4.37		ug/L		109	46 - 153
Benzo[a]pyrene	2.00	2.05		ug/L		103	17 - 163
Indeno[1,2,3-cd]pyrene	2.00	2.20		ug/L		110	1 - 171
Dibenz(a,h)anthracene	2.00	1.88		ug/L		94	1 - 227
Benzo[g,h,i]perylene	2.00	2.21		ug/L		111	1 - 219
TPAH	32.0	32.1		ug/L		100	50 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*92*		*59 - 123*
2-Fluorobiphenyl	*90*		*56 - 124*
Terphenyl-d14	*104*		*60 - 135*

Lab Sample ID: LCSD 580-176573/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 176913 — **Prep Batch: 176573**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	2.00	1.81		ug/L		91	21 - 133	0	50
2-Methylnaphthalene	2.00	1.82		ug/L		91	20 - 150	1	50
1-Methylnaphthalene	2.00	1.85		ug/L		93	20 - 150	3	50
Acenaphthylene	2.00	1.89		ug/L		95	33 - 145	4	50
Acenaphthene	2.00	1.88		ug/L		94	47 - 145	3	50
Fluorene	2.00	1.95		ug/L		98	59 - 121	4	50
Phenanthrene	2.00	2.03		ug/L		102	54 - 120	2	50
Anthracene	2.00	2.02		ug/L		101	27 - 133	5	50
Fluoranthene	2.00	2.10		ug/L		105	26 - 137	1	50
Pyrene	2.00	2.08		ug/L		104	52 - 115	2	50
Benzo[a]anthracene	2.00	2.10		ug/L		105	33 - 143	4	50
Chrysene	2.00	2.10		ug/L		105	17 - 168	2	50
Benzofluoranthene	4.00	4.45		ug/L		111	46 - 153	2	50
Benzo[a]pyrene	2.00	2.12		ug/L		106	17 - 163	3	50
Indeno[1,2,3-cd]pyrene	2.00	2.22		ug/L		111	1 - 171	1	50
Dibenz(a,h)anthracene	2.00	1.86		ug/L		93	1 - 227	1	50
Benzo[g,h,i]perylene	2.00	2.25		ug/L		113	1 - 219	2	50
TPAH	32.0	32.9		ug/L		103	50 - 150	2	50

Method: 625 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-176573/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 176913 — **Prep Batch: 176573**

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*92*		*59 - 123*
2-Fluorobiphenyl	*91*		*56 - 124*
Terphenyl-d14	*104*		*60 - 135*

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

Lab Sample ID: MB 580-176617/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 176617

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.050		mg/L			11/24/14 14:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*107*		*50 - 150*		*11/24/14 14:08*	*1*
4-Bromofluorobenzene (Surr)	*92*		*50 - 150*		*11/24/14 14:08*	*1*

Lab Sample ID: LCS 580-176617/6 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 176617

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			1.00	0.875		mg/L		88	60 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*99*		*50 - 150*
4-Bromofluorobenzene (Surr)	*97*		*50 - 150*

Lab Sample ID: LCSD 580-176617/7 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 176617

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			1.00	0.874		mg/L		87	60 - 120	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Trifluorotoluene (Surr)	*98*		*50 - 150*
4-Bromofluorobenzene (Surr)	*97*		*50 - 150*

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

Lab Sample ID: MB 580-176712/1-A
Matrix: Water
Analysis Batch: 176642

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 176712

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	ND		0.10		mg/L		11/25/14 12:16	11/25/14 16:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*11/25/14 12:16*	*11/25/14 16:47*	*1*

Lab Sample ID: LCS 580-176712/2-A
Matrix: Water
Analysis Batch: 176642

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 176712

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
DRO (nC10-<nC25)			4.00	4.09		mg/L		102	75 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*104*		*50 - 150*

Lab Sample ID: LCSD 580-176712/3-A
Matrix: Water
Analysis Batch: 176642

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 176712

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
DRO (nC10-<nC25)			4.00	3.72		mg/L		93	75 - 125	9	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*98*		*50 - 150*

QC Association Summary

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

GC/MS VOA

Analysis Batch: 176611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-395-1	MH-A	Total/NA	Water	624	
230-395-2	MH-A1	Total/NA	Water	624	
230-395-3	MH-B	Total/NA	Water	624	
LCS 580-176611/5	Lab Control Sample	Total/NA	Water	624	
LCSD 580-176611/6	Lab Control Sample Dup	Total/NA	Water	624	
MB 580-176611/4	Method Blank	Total/NA	Water	624	

Analysis Batch: 176702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-395-1 - DL	MH-A	Total/NA	Water	624	
230-395-2 - DL	MH-A1	Total/NA	Water	624	
LCS 580-176702/4	Lab Control Sample	Total/NA	Water	624	
LCSD 580-176702/5	Lab Control Sample Dup	Total/NA	Water	624	
MB 580-176702/3	Method Blank	Total/NA	Water	624	

Analysis Batch: 177773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-395-1	MH-A	Total/NA	Water	TAqH	
230-395-2	MH-A1	Total/NA	Water	TAqH	
230-395-3	MH-B	Total/NA	Water	TAqH	

GC/MS Semi VOA

Prep Batch: 176573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-395-1	MH-A	Total/NA	Water	CWA_Prep_CLLE	
230-395-2	MH-A1	Total/NA	Water	CWA_Prep_CLLE	
230-395-3	MH-B	Total/NA	Water	CWA_Prep_CLLE	
LCS 580-176573/2-A	Lab Control Sample	Total/NA	Water	CWA_Prep_CLLE	
LCSD 580-176573/3-A	Lab Control Sample Dup	Total/NA	Water	CWA_Prep_CLLE	
MB 580-176573/1-A	Method Blank	Total/NA	Water	CWA_Prep_CLLE	

Analysis Batch: 176913

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-395-1	MH-A	Total/NA	Water	625	176573
230-395-2	MH-A1	Total/NA	Water	625	176573
230-395-3	MH-B	Total/NA	Water	625	176573
LCS 580-176573/2-A	Lab Control Sample	Total/NA	Water	625	176573
LCSD 580-176573/3-A	Lab Control Sample Dup	Total/NA	Water	625	176573
MB 580-176573/1-A	Method Blank	Total/NA	Water	625	176573

GC VOA

Analysis Batch: 176617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-395-1	MH-A	Total/NA	Water	AK101	

GC VOA (Continued)

Analysis Batch: 176617 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-395-2	MH-A1	Total/NA	Water	AK101	
230-395-3	MH-B	Total/NA	Water	AK101	
LCS 580-176617/6	Lab Control Sample	Total/NA	Water	AK101	
LCSD 580-176617/7	Lab Control Sample Dup	Total/NA	Water	AK101	
MB 580-176617/5	Method Blank	Total/NA	Water	AK101	

GC Semi VOA

Analysis Batch: 176642

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-395-1	MH-A	Total/NA	Water	AK102 & 103	176712
230-395-2	MH-A1	Total/NA	Water	AK102 & 103	176712
230-395-3	MH-B	Total/NA	Water	AK102 & 103	176712
LCS 580-176712/2-A	Lab Control Sample	Total/NA	Water	AK102 & 103	176712
LCSD 580-176712/3-A	Lab Control Sample Dup	Total/NA	Water	AK102 & 103	176712
MB 580-176712/1-A	Method Blank	Total/NA	Water	AK102 & 103	176712

Prep Batch: 176712

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-395-1	MH-A	Total/NA	Water	3510C	
230-395-2	MH-A1	Total/NA	Water	3510C	
230-395-3	MH-B	Total/NA	Water	3510C	
LCS 580-176712/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 580-176712/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MB 580-176712/1-A	Method Blank	Total/NA	Water	3510C	

Lab Chronicle

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

Client Sample ID: MH-A

Lab Sample ID: 230-395-1
Date Collected: 11/18/14 13:50
Matrix: Water
Date Received: 11/21/14 12:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624	DL	10	176702	11/25/14 17:33	SOC	TAL SEA
Total/NA	Analysis	624		1	176611	11/24/14 18:41	CJ	TAL SEA
Total/NA	Analysis	TAqH		1	177773	12/09/14 16:01	KDA	TAL SEA
Total/NA	Prep	CWA_Prep_CLLE			176573	11/24/14 11:33	LHJ	TAL SEA
Total/NA	Analysis	625		1	176913	11/28/14 20:18	ERB	TAL SEA
Total/NA	Analysis	AK101		1	176617	11/25/14 00:58	CJ	TAL SEA
Total/NA	Prep	3510C			176712	11/25/14 12:16	WJR	TAL SEA
Total/NA	Analysis	AK102 & 103		1	176642	11/25/14 17:41	JJP	TAL SEA

Client Sample ID: MH-A1

Lab Sample ID: 230-395-2
Date Collected: 11/18/14 14:00
Matrix: Water
Date Received: 11/21/14 12:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624	DL	10	176702	11/25/14 18:00	SOC	TAL SEA
Total/NA	Analysis	624		1	176611	11/24/14 19:08	CJ	TAL SEA
Total/NA	Analysis	TAqH		1	177773	12/09/14 16:01	KDA	TAL SEA
Total/NA	Prep	CWA_Prep_CLLE			176573	11/24/14 11:33	LHJ	TAL SEA
Total/NA	Analysis	625		1	176913	11/28/14 20:43	ERB	TAL SEA
Total/NA	Analysis	AK101		1	176617	11/25/14 01:31	CJ	TAL SEA
Total/NA	Prep	3510C			176712	11/25/14 12:16	WJR	TAL SEA
Total/NA	Analysis	AK102 & 103		1	176642	11/25/14 18:00	JJP	TAL SEA

Client Sample ID: MH-B

Lab Sample ID: 230-395-3
Date Collected: 11/18/14 14:20
Matrix: Water
Date Received: 11/21/14 12:38

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624		1	176611	11/24/14 19:37	CJ	TAL SEA
Total/NA	Analysis	TAqH		1	177773	12/09/14 16:01	KDA	TAL SEA
Total/NA	Prep	CWA_Prep_CLLE			176573	11/24/14 11:33	LHJ	TAL SEA
Total/NA	Analysis	625		1	176913	11/28/14 21:07	ERB	TAL SEA
Total/NA	Analysis	AK101		1	176617	11/25/14 02:04	CJ	TAL SEA
Total/NA	Prep	3510C			176712	11/25/14 12:16	WJR	TAL SEA
Total/NA	Analysis	AK102 & 103		1	176642	11/25/14 18:18	JJP	TAL SEA

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

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	06-16-15

Laboratory: TestAmerica Seattle

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-04-15
California	State Program	9	2901	01-31-15
L-A-B	DoD ELAP		L2236	01-19-16
L-A-B	ISO/IEC 17025		L2236	01-19-16
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-15
USDA	Federal		P330-11-00222	04-08-17
Washington	State Program	10	C553	02-17-15

Method Summary

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

Method	Method Description	Protocol	Laboratory
624	Volatile Organic Compounds (GC/MS)	40CFR136A	TAL SEA
TAqH	Total Aqueous Hydrocarbons	TAL-TAC	TAL SEA
625	Semivolatile Organic Compounds (GC/MS)	40CFR136A	TAL SEA
AK101	Alaska - Gasoline Range Organics (GC)	ADEC	TAL SEA
AK102 & 103	Alaska - Diesel Range Organics & Residual Range Organics (GC)	ADEC	TAL SEA

Protocol References:

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.
ADEC = Alaska Department of Environmental Conservation

TAL-TAC = TestAmerica Laboratories, Tacoma, Facility Standard Operating Procedure.

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Sample Summary

Client: Chem Track
Project/Site: Haines Groundwater Treatment System

TestAmerica Job ID: 230-395-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
230-395-1	MH-A	Water	11/18/14 13:50	11/21/14 12:38
230-395-2	MH-A1	Water	11/18/14 14:00	11/21/14 12:38
230-395-3	MH-B	Water	11/18/14 14:20	11/21/14 12:38

Chain of Custody Record

TAL-4124-280 (0508)

Sampler ID _____

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

230-395 Chain of Custody

230-395

Client	Project Manager	Date	Chain of Custody Number
ChemTrack	Georgia Doerr	11/18/14	155736
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
11711 S. Gambell	907-349-2511 ext 0		

City	State	Zip Code	Site Contact	Lab Contact
Anchorage	AK	99515		

Project Name and Location (State): Haines Groundwater Treatment System

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.: 60083

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil		Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		DRO AK 102	BTEX 8260	GRO 8260	PAH 8270	TAH	TPH-d							Special Instructions/ Conditions of Receipt
MH-A	11/18/14	13:50		✓							✓				✓	✓	✓	✓	✓	✓							01
MH-A1	11/18/14	14:00		✓							✓				✓	✓	✓	✓	✓	✓							02
MH-B	11/18/14	14:20		✓							✓				✓	✓	✓	✓	✓	✓							03

Analysis (Attach list if more space is needed)

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other Standard

QC Requirements (Specify): Arc-T: 4.2°C

	Date	Time		Date	Time
1. Relinquished By: Georgia Doerr	11/21/14	11:30	1. Received By	11/21/14	12:38
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Chain of Custody Record

TAL-4124-280 (0508)

Sampler ID _____

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

230-395 Chain of Custody

230-395

Client	Project Manager	Date	Chain of Custody Number
ChemTrack	Georgia Doerr	11/18/14	155736
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
11711 S. Gambell	907-349-2511 ext 0		

City	State	Zip Code	Site Contact	Lab Contact
Anchorage	AK	99515		

Project Name and Location (State): Haines Groundwater Treatment System

Carrier/Waybill Number:

Contract/Purchase Order/Quote No.: 6083

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): DRO AK 102	BTEX 8260	GRO 8260	PAH 8270	TAH	TAqH							Special Instructions/ Conditions of Receipt
MH-A	11/18/14	13:50		✓							✓				✓	✓	✓	✓	✓	✓							01
MH-A1	11/18/14	14:00		✓							✓				✓	✓	✓	✓	✓	✓							02
MH-B	11/18/14	14:20		✓							✓				✓	✓	✓	✓	✓	✓							03

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other Standard

QC Requirements (Specify): Arc-T: 4.2°C

	Date	Time		Date	Time
1. Relinquished By: Georgia Doerr	11/21/14	11:30	1. Received By	11/21/14	12:38
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
648422

Custody Seal
DATE 11/21/14
SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
648421

Custody Seal
DATE 11/21/14
SIGNATURE

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
648422

Chain of Custody Record

TAL-4124-280 (0508)

Sampler ID _____

Temperature on Receipt _____

Drinking Water? Yes ☐ No ☒

230-395 Chain of Custody

230-395

Client	Project Manager	Date	Chain of Custody Number
ChemTrack	Georgia Doerr	11/18/14	155736
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page 1 of 1**
11711 S. Gambell	907-349-2511 ext 0		
City / State / Zip Code	**Site Contact**	**Lab Contact**	
Anchorage / AK / 99515			
Project Name and Location (State)	**Carrier/Waybill Number**		
Haines Groundwater Treatment System			
Contract/Purchase Order/Quote No.			
60083			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	DRO AK 102	BTEX 8260	GRO 8260	PAH 8270	TAH	TAqH	Special Instructions/ Conditions of Receipt
MH-A	11/18/14	13:50		✓						✓			✓	✓	✓	✓	✓	✓	01
MH-A1	11/18/14	14:00		✓						✓			✓	✓	✓	✓	✓	✓	02
MH-B	11/18/14	14:20		✓						✓			✓	✓	✓	✓	✓	✓	03

Analysis (Attach list if more space is needed)

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other Standard

QC Requirements (Specify): Anc-T: 4.2°C

Relinquished By	Date	Time	Received By	Date	Time
1. [signature]	11/21/14	11:30	1. [signature]	11/21/14	12:38
2.			2.		
3.			3.		

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Custody Seal

DATE 11/21/14

SIGNATURE

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

648422

230-395

Custody Seal

DATE 11/21/14

SIGNATURE

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

648421

Login Sample Receipt Checklist

Client: Chem Track

Job Number: 230-395-1

Login Number: 395

List Source: TestAmerica Anchorage

List Number: 1

Creator: Pilch, Andrew C

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	4.2 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	

Login Sample Receipt Checklist

Client: Chem Track

Job Number: 230-395-1

Login Number: 395
List Number: 2
Creator: Balles, Racheal M

List Source: TestAmerica Seattle
List Creation: 11/22/14 09:58 AM

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.	N/A	
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	A2TB=1.8/2.1
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	Headspace larger than 1/4" in one or more vials, one vial with accpt. headspace
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: Georgia Doerr

Title: Environmental Scientist Date: January 21, 2015

CS Report Name: Delta Western Haines Report Date: December 9, 2014

Consultant Firm: ChemTrack Alaska Inc.

Laboratory Name: TestAmerica Laboratory Report Number: 230-395-1

ADEC File Number: ADEC RecKey Number:

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

Samples were received by the lab in good condition, properly perserved and on ice.

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:

No discrepancies noted.

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

Data quality acceptable.

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:

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

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

Data quality acceptable.

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

Yes. TAH and TAqH calculations were requested. As a result Method 624 and 625 were used.

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:

All samples were water 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:

Data quality acceptable.

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:

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

No affected samples.

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

Data quality acceptable.

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 analyzed.

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:

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

No affected samples.

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

Data quality acceptable.

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:

No failed surrogate recoveries.

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

Comments:

Data quality acceptable.

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:

The trip blank was not submitted to the laboratory.

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:

iii. All results less than PQL?

☐Yes ☐ No ☒NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality acceptable. All laboratory quality controls were within the acceptable range. Data is consistent with what was expected based on historical sample collection from this site.

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:

Data quality acceptable.

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

☒Yes ☐ No ☐NA (Please explain.) Comments:

Clean sampling gloves and sampling equipment was used at each sampling location.

i. All results less than PQL?

☒Yes ☐ No ☐NA (Please explain.) Comments:

ii. If above PQL, what samples are affected?

Comments:

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

Comments:

Data quality acceptable.

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

a. Defined and appropriate?

☒Yes ☐ No ☐NA (Please explain.) Comments: