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ENVIRONMENT

Ms. Rebekah Reams
Alaska Department of Environmental Conservation (ADEC)
Spill Prevention and Response, Contaminated Sites Program
610 University Avenue
Fairbanks, Alaska 99709

Subject:
2022 Annual Groundwater Monitoring Report

Dear Ms. Reams,

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) has prepared the attached *2022 Annual Groundwater Monitoring Report.* The 2022 annual groundwater sampling events for the following facility:

Former Texaco

Station No.	ADEC File No.	Hazard ID	Location
211081	100.26.023	23798	4103 Geist Road Fairbanks, Alaska

If you have any questions, please do not hesitate to contact me.

Sincerely,

Arcadis U.S., Inc.

Nick Wood
Project Manager

Copies:
James Kiernan (*electronic copy*)
Tim Bishop (*electronic copy*)
Camie Pederson (*electronic copy*)
Trish Winters/Chilkoot Ward (*electronic copy*)

Date:
October 14, 2022

Contact:
Nick Wood

Phone:
808-522-0342

Email:
Nick.Wood@arcadis.com

Our ref:
30064221

Chevron Environmental Management Company

2022 ANNUAL GROUNDWATER MONITORING REPORT

University Car Care Center/Former Texaco 211081
4103 Geist Road
Fairbanks, Alaska
ADEC File No: 100.26.023
Hazard ID: 23798

October 14 2022

2022 ANNUAL GROUNDWATER MONITORING REPORT

University Car Care Center/Former Texaco 211081

4103 Geist Road
Fairbanks, Alaska

ADEC File ID: 100.26.023
Hazard ID: 23798

Max Dieckmann
Project Geologist

Nick Wood
Project Manager

Prepared for:

Chevron Environmental Management Company

Prepared by:

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Our Ref.:
30064221

Date:
October 14, 2022

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2022 Annual Groundwater Monitoring Report
October 12, 2022

Facility No: Former Texaco 211081 Address: 4103 Geist Road, Anchorage, Alaska

Arcadis Contact Person / Phone No.:	Nick Wood / 808-522-0342
Arcadis Project No.:	30064221
Primary Agency/Regulatory ID No.:	Alaska Department of Environmental Conservation (ADEC) / Rebekah Reams / ADEC File ID 100.26.023

WORK CONDUCTED THIS PERIOD [2022]:

1. Conducted annual groundwater monitoring activities on July 14, 2022.
2. Prepared the *2022 Annual Groundwater Monitoring Report*.

WORK PROPOSED NEXT PERIOD [2023]:

1. Conduct annual groundwater monitoring activities in 2023.
2. Prepare the 2023 *Annual Groundwater Monitoring Report*.

Current Phase of Project:	Monitoring	
Frequency of Monitoring / Sampling:	Annual	
Is Light Non-Aqueous Phase Liquid (LNAPL) Present On-site:	No	
Cumulative LNAPL Recovered to Date:	None	(gallons)
Approximate Depth to Groundwater:	8.98 to 14.43	(feet below top of casing)
Approximate Groundwater Elevation:	425.11 to 425.46	(feet relative to NAVD88)
Groundwater Flow Direction	South	
Groundwater Gradient	0.0004	(feet per foot)
Current Remediation Techniques:	None	

Permits for Discharge:	None
Summary of Unusual Activity:	Monitoring well G-4 and G-7 was obstructed and could not be sampled. The well vault was missing at monitoring well MW-305.
Agency Directive Requirements:	None

1 INTRODUCTION

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis), has prepared this report to document the annual groundwater sampling events of 2022 for University Car Care Center/former Texaco Service Station No. 211081 (site), located at 4103 Geist Road in Fairbanks, Alaska. The site location and site plan are included as Figure 1 and Figure 2, respectively.

This work was conducted under the direction of a Qualified Environmental Professional" (QEP) and "Qualified Sampler" (18 Alaska Administrative Code [AAC] 75.333). Site background and history summaries are attached as Appendix A.

2 GROUNDWATER MONITORING

2.1 Groundwater Gauging Methods

The 2022 annual groundwater gauging event was conducted on July 14, 2022. Site monitoring wells were gauged with an oil/water interface probe to determine depth-to-water and to ascertain if LNAPL was present.

To prevent the possibility of cross-contamination, wells were gauged in the order of lowest to highest historical petroleum hydrocarbon concentrations in groundwater. In addition, non-disposable groundwater gauging equipment was decontaminated prior to and after each use with a detergent solution and rinsed in potable water.

2.2 Groundwater Elevation and Flow Direction

During the 2022 annual event, monitoring wells G-1R, G-3, G-4, G-5, G-7, G-8, G-9, MW-301D, MW-301S, MW-304D, MW-304S, MW-305, MW-306, and MW-307 were scheduled to be gauged for groundwater elevations and the presence of LNAPL. The groundwater monitoring event field notes are presented in Appendix B.

The inferred groundwater flow direction for the annual 2022 monitoring events is to the south and is not consistent with the overall historic flow direction of north-northwest. This is likely due to the University turning off their supply well in 2018 or 2019 which impacted groundwater flow direction. Current and historical groundwater elevation data and analytical data are included in Table 1 and 2, respectively. A groundwater elevation contour map and a rose diagram depicting groundwater flow direction is presented in Figure 3.

2.3 Groundwater Sampling Methods

The annual groundwater monitoring event was conducted on July 14, 2022. Groundwater samples were scheduled to be collected from monitoring wells G-1R, G-3, G-4, G-5, G-7, G-8, G-9, MW-301D, MW-304D, and MW-307 using a low flow purge sampling method. Monitoring wells G-4 and G-7 were obstructed and could not be sampled.

Sampling procedures were conducted in accordance with ADEC *Field Sampling Guidance* (ADEC, 2019). Monitoring well caps were removed to allow groundwater levels to stabilize and equilibrate before using an electronic interface probe (EIP) meter capable of 0.01-foot accuracy to measure the depth to groundwater and total well depth. A bladder pump with compressor & control unit with clean/disposable Teflon lined tubing and bladders was used to purge groundwater from the wells and collect samples to minimize the risk of volatile contaminant absorption by the sampling equipment. Water table drawdown was continuously monitored during purging with a water level meter and the flow rate of the pump was adjusted to limit drawdown to 0.1 meter. The intake of the pump was set as close as possible to the soil groundwater interface. Water quality parameters were monitored during purging with a multi-parameter water quality meter equipped with a flow through cell and Turbidity meter. Parameters were recorded every 3 to 5 minutes until a minimum of three (minimum of four if using temperature as an indicator) of the parameters listed below stabilized. The flow rate was reduced to 100-150 milliliters/minute and samples were collected from the discharge line into laboratory sample bottles. Water quality parameters were considered stable when three successive readings were within the following ADEC limits:

- ± 3% for temperature (minimum of ± 0.2 C°),
- ± 0.1 for pH,
- ± 3% for conductivity,
- ± 10 millivolts (mv) for redox potential,
- ± 10% for dissolved oxygen, and
- ± 10% for turbidity.

Sample bottles were labeled, stored in a cooler packed with ice, and submitted to Pace Analytical of Mount Juliet, Tennessee, under proper chain-of-custody procedures.

Groundwater samples collected from monitoring wells G-1R, G-3, G-5, G-8, G-9, MW-301D, MW-304D, and MW-307 were submitted to the analytical laboratory for the following analyses:

- Benzene, toluene, ethylbenzene, and total xylenes (BTEX), by United States Environmental Protection Agency (USEPA) method 8260D
- Total Petroleum Hydrocarbons as gasoline range organics (GRO) by Alaska method AK101
- Total Petroleum Hydrocarbons as diesel range organics (DRO) and Total Petroleum Hydrocarbons-as residual range organics (RRO) by Alaska method AK102/103
- Total Petroleum Hydrocarbons-Diesel range organics with silica gel cleanup method (DRO w/Si Gel) by Alaska method AK102.

A groundwater duplicate sample was collected from monitoring well G-8. The duplicate sample was analyzed for BTEX, GRO, DRO, DRO w/Si Gel, and RRO. The duplicate sample was submitted blind with the sample set to Pace Analytical.

2.4 Groundwater Analytical Results

Routine analytical results for BTEX, GRO, DRO, DRO w/Si Gel and RRO obtained from the annual 2022 groundwater monitoring event are summarized in Table 1 and are shown on Figure 4. Historical analytical groundwater data are summarized in Table 2.

3 INVESTIGATION DERIVED WASTE

Purge water and decontamination water from groundwater was temporarily collected into 5-gallon buckets and treated onsite via a Granular Activated Carbon (GAC) bucket. The treatment of purge water and decontamination water was completed per the Technical Guidance Instructions for Investigation Derived waste Treatment Utilizing Granular Activated Carbon provided in Appendix C.

4 LABORATORY DATA QUALITY ASSURANCE SUMMARY

As required by ADEC (Technical Memorandum, October 2019), Arcadis completed a laboratory data review checklist for each of the laboratory reports generated for the 2022 annual event. The laboratory report is included as Appendix D and data review checklist is included as Appendix E. The following quality assurance (QA) summary describes six parameters, related to the quality and usability of the data presented in this report.

4.1 Precision

The relative percent difference (RPD) for laboratory control sample and laboratory control sample duplicate (LCS/LCSD), matrix spike and matrix spike duplicate (MS/MSD) and field duplicates (FD) were within the control limits.

The precision of the data, as measured by laboratory quality control (QC) indicators, suggest that the Data Quality Objectives (DQOs) were met.

4.2 Accuracy

The percent recoveries for LCS/LCSD, MS/MSD and surrogate recoveries were within the control limits.

The accuracy of the data, as measured by laboratory quality control (QC) indicators, suggest that the DQOs were met.

4.3 Representativeness

The data appear to be representative of site conditions and are generally consistent with historical groundwater monitoring results and expected impacts to groundwater.

4.4 Comparability

The laboratory results are presented in the same units as previous reports to allow comparison. The target compounds were not detected in trip blank and method blank with the exceptions listed below.

Compound GRO was detected below the reporting limit in the trip blank for method AK101. Based on blank evaluation, the results for GRO in sample locations blind duplicate (BD-1) and G-8 were qualified as non-detect.

Total xylenes were detected below the reporting limit in the trip blank for method USEPA 8260D. Based on blank evaluation, the results for total xylenes in sample locations MW-304D, G-8, and G-9 were qualified as non-detect.

Compound RRO was detected below the reporting limit in the method blank for method AK102/103. Based on blank evaluation, the results for RRO at sample locations G-8, G-9, G-1R, G-3, and BD-1 were qualified as non-detect.

4.5 Completeness

The results appear to be valid and usable, and thus, the laboratory results have 100% completeness.

4.6 Sensitivity

DRO, GRO, benzene, ethylbenzene, and total xylenes results exceeded the ADEC groundwater cleanup levels (GCLs) at sample locations G-3 and G-5.

DRO w/Si Gel exceeded the ADEC GCLs at sample location G-5.

The sensitivity of the analyses was adequate for the samples as the detection limits were less than the ADEC GCLs for compounds.

5 CONCLUSIONS AND RECOMMENDATIONS

The groundwater data collected during the annual 2022 groundwater monitoring event indicates groundwater flow direction is to the south, consistent with 2018 and 2021 flow data but inconsistent with historical groundwater flow direction, likely due to the University turning off a supply well in 2018 or 2019 that was influencing the local the groundwater flow gradient. Groundwater samples were collected for analysis from monitoring wells G-1R, G-3, G-5, G-8, G-9, MW-301D, MW-304D, and MW-307. Analytical results are generally consistent with historical data. Groundwater monitoring will continue in accordance with the current annual schedule. The next annual sampling event is scheduled for summer 2023. The vault at MW-305 will be repaired during or before the next annual sampling event.

6 REFERENCES

ADEC. *Field Sampling Guidance*. Division of Spill Prevention and Response Contaminated Sites Program. 2019.

ADEC Technical Memorandum, October 2019. *Minimum Quality Assurance Requirements for Sample Handling*, Reports and Laboratory Data. ADEC, Division of Spill Prevention and Response Contaminated Sites Program.

TABLES

Table 1. Current Groundwater Gauging and Analytical Results
University Car Care Center / Former Texaco 211081
4103 Geist Road,
Anchorage, Alaska

Well ID	Sample Date	TOC (ft)	Datum	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft)	DRO (mg/L)	DRO w/Si Gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]							**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	
G-1R	7/14/2022	435.66	NAVD88	10.44	0.00	425.22	**0.242 J**	<0.800	<0.100	<0.800 B	<0.00100	<0.00100	<0.00100	<0.00300	
G-3	7/14/2022	434.73	NAVD88	9.56	0.00	425.17	**2.59**	**0.986**	**5.37**	<0.800 B	**0.672**	**0.00323 J**	**0.430**	**1.13**	
G-4	7/14/2022	436.81	NAVD88	11.52	0.00	425.29	--	--	--	--	--	--	--	--	Well obstructed. Could not sample.
G-5	7/14/2022	435.28	NAVD88	10.02	0.00	425.26	**7.58**	**3.42**	**13.1**	<0.800	**0.0464 J**	**0.0608 J**	**0.351**	**3.79**	
G-7	7/14/2022	436.39	NAVD88	11.28	0.00	425.11	--	--	--	--	--	--	--	--	Well obstructed. Could not sample.
G-8	7/14/2022	436.03	NAVD88	10.73	0.00	425.30	**0.322 J [0.452 J]**	**0.322 J [0.452 J]**	<0.100 B [<0.112 B]	<0.800 B [<0.800 B]	**0.000715 J [0.000831 J]**	<0.00100 [<0.00100]	**0.00215 [0.00305]**	<0.00300 J [0.00363]	
G-9	7/14/2022	435.84	NAVD88	10.45	0.00	425.39	<0.800	<0.800	<0.100	<0.800 B	<0.00100	<0.00100	<0.00100	<0.00300 B	
MW-301D	7/14/2022	437.87	NAVD88	12.53	0.00	425.34	--	--	<0.100	--	<0.00100	<0.00100	<0.00100	<0.00300	
MW-301S	7/14/2022	437.51	NAVD88	12.25	0.00	425.26	--	--	--	--	--	--	--	--	
MW-304D	7/14/2022	439.88	NAVD88	14.43	0.00	425.45	--	--	<0.100	--	<0.00100	<0.00100	<0.00100	<0.00300 B	
MW-304S	7/14/2022	439.56	NAVD88	14.10	0.00	425.46	--	--	--	--	--	--	--	--	
MW-305	7/14/2022	436.38	NAVD88	11.06	0.00	425.32	--	--	--	--	--	--	--	--	Well vault missing completely. Only PVC and cap remain
MW-306	7/14/2022	434.17	NAVD88	8.98	0.00	425.19	--	--	--	--	--	--	--	--	
MW-307	7/14/2022	438.11	NAVD88	12.91	0.00	425.20	<0.800	<0.800	<0.100	<0.800	<0.00100	<0.00100	<0.00100	<0.00300	
QA (TB)	7/14/2022	--	--	--	--	--	--	--	**0.0307 J**	--	<0.00100	<0.00100	<0.00100	**0.000266 J**	
QA (EQB)	7/14/2022	--	--	--	--	--	<0.800	<0.800	<0.100	<0.800	<0.00100	<0.00100	<0.00100	<0.00300	

Notes:

MW, G = Groundwater monitoring well
TOC = Top of casing
DTW = Depth to groundwater
ft bTOC = Feet below top of casing
ft = Feet relative to NAVD88
GW Elev = Groundwater elevation
mg/L = Milligrams per liter
-- = Not analyzed/ Not available
<0.800 = Not detected at or above the reported detection limit (RDL)
Bold = Value exceeds Reported detection limit (RDL)
Bold and Shaded = Value exceeds ADEC Groundwater Cleanup Level
Bold : Constituent considered non-detect, however Laboratory RDL is greater than the ADEC Groundwater Cleanup Level
J = The associated numerical value is an estimated concentration only
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.

DRO = Total petroleum hydrocarbons, diesel range by LUFT GC/MS according to Alaska Series Method AK102/103
DRO w/Si Gel = Total petroleum hydrocarbons, diesel range with silica gel by LUFT GC/MS according to Alaska Series Method AK102
GRO = Total petroleum hydrocarbons, gasoline range by LUFT GC/MS according to Alaska Series Method AK101
RRO = Total petroleum hydrocarbons, residual range oraganics by LUFT GC/MS according to Alaska Series Method AK102/103
Analytes by United States Environmental Protection Agency (USEPA) Method 8260D:
Benzene, Toluene, Ethylbenzene, and Total Xylenes (collectively called BTEX)
LUFT = Leaking Underground Fuel Tank
GC/MS = Gas chromatography/Mass Spectrom
ADEC = Alaska Department of Environmental Conservation
[ ] = Blank Duplicate Sample Result
QA (TB) = Quality Assurance (Trip Blank)
QA (EQB) = Quality Assurance (Equipment Blank)
LNAPL = Light non-aqueous phase liquid
NAVD88 = The North American Vertical Datum of 1988
[a] = Levels established in ADEC Table C Groundwater Cleanup Levels (18 AAC 75.345)

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
G-1R	3/28/2000	430.69	15.37	--	415.32	--	--	--	--	--	--	--	--	--	
G-1R	6/27/2000	430.69	12.07	--	418.62	--	--	--	--	--	--	--	--	--	
G-1R	9/26/2000	430.69	11.09	--	419.60	--	--	--	--	--	--	--	--	--	
G-1R	12/19/2000	430.69	13.59	--	417.10	--	--	--	--	--	--	--	--	--	
G-1R	3/28/2001	430.69	14.51	--	416.18	--	--	--	--	--	--	--	--	--	
G-1R	6/27/2001	430.69	12.96	--	417.73	--	--	--	--	--	--	--	--	--	
G-1R	9/19/2001	430.69	12.03	--	418.66	--	--	--	--	--	--	--	--	--	
G-1R	12/12/2001	430.69	14.32	--	416.37	--	--	--	--	--	--	--	--	--	
G-1R	3/27/2002	430.69	14.62	--	416.07	--	--	--	--	--	--	--	--	--	
G-1R	6/25/2002	430.69	11.86	--	418.83	--	--	--	--	--	--	--	--	--	
G-1R	9/28/2002	430.69	11.62	--	419.07	--	--	--	--	--	--	--	--	--	
G-1R	12/17/2002	430.69	12.87	--	417.82	--	--	--	--	--	--	--	--	--	
G-1R	4/8/2003	430.69	12.61	--	418.08	--	--	--	--	--	--	--	--	--	
G-1R	6/24/2003	430.69	13.07	--	417.62	--	--	--	--	--	--	--	--	--	
G-1R	9/16/2003	430.69	9.82	--	420.87	--	--	--	--	--	--	--	--	--	
G-1R	12/22/2003	430.69	12.69	--	418.00	--	--	--	--	--	--	--	--	--	
G-1R	3/23/2004	430.69	14.50	--	416.19	--	--	**1.6**	--	**0.094**	**0.0014**	**0.14**	**0.003**	--	
G-1R	6/21/2004	430.69	11.98	--	418.71	--	--	**1.4 / 1.6**	--	**0.089 / 0.095**	**0.0009 / 0.001**	**0.089 / 0.11**	**0.0042 / 0.0057**	--	BTEX by SW-846 8021B
G-1R	9/29/2004	430.69	13.32	--	417.37	--	--	**0.069**	--	**0.013**	<0.00050	**0.0019**	<0.00150	--	
G-1R	12/2/2004	430.69	14.49	--	416.20	**0.16**	--	**0.74**	**0.12**	**0.043**	<0.00050	**0.048**	**0.0025**	--	
G-1R	4/7/2005	430.69	14.61	--	416.08	**0.4**	--	**1.7**	**0.18**	**0.087**	**0.0009**	**0.15**	**0.009**	--	
G-1R	6/27/2005	430.69	11.04	--	419.65	**0.45 / 0.42**	--	**2.3 / 2.3**	**0.14 / 0.15**	**0.11 / 0.11**	**0.0009 / 0.0009**	**0.16 / 0.16**	**0.0081 / 0.0081**	--	BTEX by SW-846 8021B
G-1R	9/22/2005	430.69	12.20	--	418.49	**0.053 / 0.054**	--	**0.14 / 0.14**	**0.039 / 0.066**	**0.0151 / 0.0171**	<0.000501/ <0.000501	**0.0131 / 0.011**	<0.001501 / <0.001501	--	BTEX by SW-846 8021B
G-1R	12/6/2005	430.69	13.92	--	416.77	--	--	**0.29**	--	**0.026**	<0.00050	**0.02**	<0.00150	--	
G-1R	3/29/2006	430.69	15.29	--	415.40	--	--	--	--	--	--	--	--	--	
G-1R	6/8/2006	430.69	12.94	--	417.75	--	--	--	--	--	--	--	--	--	
G-1R	9/26/2006	98.87	12.99	--	85.88	--	--	**0.024 / 0.026**	--	**0.0027 / 0.0027**	<0.00050 / <0.00050	**0.0014 / 0.0013**	<0.00150 / <0.00150	--	BTEX by SW-846 8021B
G-1R	3/31/2007	98.87	15.31	--	83.56	--	--	**0.5**	--	**0.03**	<0.0010	**0.02**	<0.0020	--	
G-1R	9/15/2007	98.87	12.35	--	86.52	--	--	**0.02**	--	**0.008**	<0.0010	<0.0010	<0.0020	--	
G-1R	3/26/2008	98.87	14.92	--	83.95	--	--	**0.427**	--	**0.0329**	<0.00050	**0.0159**	**0.0025**	--	
G-1R	9/9/2008	98.87	11.87	--	87.00	--	--	**0.03**	--	**0.001**	<0.0010	<0.0010	<0.0020	--	
G-1R	5/11/2009	98.87	13.70	--	85.17	--	--	**1.8**	--	**0.074**	**0.0007**	**0.12**	**0.015**	--	
G-1R	10/2/2009	435.81	13.26	--	422.55	--	--	**0.024**	--	**0.0011**	<0.00050	<0.00050	<0.00150	--	
G-1R	6/16/2010	435.81	13.84	--	421.97	**0.34**	--	**0.68**	--	**0.015**	**0.001**	**0.028**	<0.00150	--	
G-1R	9/25/2010	435.81	12.80	--	423.01	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-1R	6/9/2011	435.81	13.51	--	422.30	--	--	**0.024**	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-1R	9/20/2011	435.81	12.22	--	423.59	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-1R	6/12/2012	435.81	12.68	--	423.13	**0.18**	**0.081**	**0.28**	**0.099**	**0.0074**	**0.0005**	**0.0058**	**0.0018**	--	
G-1R	10/2/2012	435.77	13.23	--	422.54	**0.48**	<0.052	**0.0120J**	**3.7**	**0.00060 J**	<0.00050	<0.00050	<0.00150	--	
G-1R	6/11/2013	435.77	12.00	--	423.77	--	--	**0.5600**	--	**0.0174**	**0.000310 J**	**0.0443**	**0.0079**	--	
G-1R	10/10/2013	435.77	13.25	--	422.52	<0.4300 / <0.4300	--	<0.1000/ <0.1000	--	<0.00100 / <0.00100	<0.00100 / <0.00100	<0.00100 / <0.00100	<0.00300 / <0.00300	--	
G-1R	6/30/2014	435.77	11.60	--	424.17	<0.42	--	**0.4110**	--	**0.0075**	<0.00100	**0.0251**	**0.0066**	--	
G-1R	9/16/2015	435.77	11.37	--	424.44	**0.59J**	--	**0.17**	**0.74 J**	<0.00050	<0.00050	<0.00050	<0.00050	--	
G-1R	8/3/2016	435.77	9.06	--	426.71	**1.2 J**	**0.035 J**	**0.051 J**	**0.55 J**	<0.0005	<0.0005	<0.0005	<0.0005	--	
G-1R	9/19/2017	435.46	11.97	--	423.49	--	<0.052 J	**0.16**	**0.19 J**	**0.039**	<0.0005	<0.0005	<0.0005	--	
G-1R	8/20/2018	435.45	10.17	--	425.28	**0.17 J**	**0.11 J**	**0.044 J**	**0.11 J**	**0.002**	<0.0002	<0.0002	<0.0005	--	
G-1R	7/10/2019	435.66	12.35	--	423.31	**0.35**	< 0.078	<0.1 J	**0.43**	<0.00053	< 0.00039	< 0.00050	< 0.00114	--	Depth to water taken from well survey dated July 25, 2019
G-1R	6/24/2020	435.66	10.40	0.00	425.26	<0.800 J	<0.800	**0.101**	<0.800 J	**0.061**	<0.00100	**0.000526 J**	**0.000297 J**	--	Depth to water taken during gauging event on 6/23/2020
G-1R	7/16/2021	435.66	12.30	0.00	423.36	<0.800 B J	<0.800 B	<0.100 B	<0.800 J	<0.00100	<0.00100	<0.00100	<0.00300	--	
G-1R	7/14/2022	435.66	10.44	0.00	425.22	**0.242 J**	<0.800	<0.100	<0.800 B	<0.00100	<0.00100	<0.00100	<0.00300	--	
				--											
G-2	3/28/2000	430.11	--	--	--	--	--	--	--	--	--	--	--	--	
G-2	6/27/2000	430.11	11.51	--	418.60	--	--	--	--	--	--	--	--	--	
G-2	9/26/2000	430.11	10.56	--	419.55	--	--	--	--	--	--	--	--	--	
G-2	3/27/2002	430.11	--	--	--	--	--	--	--	--	--	--	--	--	
G-2	4/8/2003	430.11	--	--	--	--	--	--	--	--	--	--	--	--	
G-2	3/24/2004	430.11	--	--	--	--	--	--	--	--	--	--	--	--	
G-2	4/6/2005	430.11	--	--	--	--	--	--	--	--	--	--	--	--	
G-2	6/27/2005	430.11	10.47	--	419.64	**0.21**	--	<0.0100	**0.49**	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-2	9/22/2005	430.11	11.62	--	418.49	--	--	--	--	--	--	--	--	--	
G-2	3/30/2006	430.11	14.73	--	415.38	--	--	--	--	--	--	--	--	--	
G-3	7/15/1994	--	--	--	--	--	--	--	--	--	--	--	--	--	
G-3	7/25/1994	--	--	--	--	--	--	--	--	--	--	--	--	--	
G-3	5/12/2009	429.36	11.89	--	417.47	**3.2**	--	**19**	--	**0.014**	**0.1**	**0.96**	**4**	--	
G-3	10/2/2009	434.46	11.87	--	422.59	--	--	**9**	--	**0.011**	**0.069**	**0.41**	**2.5**	--	
G-3	6/17/2010	434.46	12.43	--	422.03	**27**	--	**13**	--	**0.069**	**0.89**	**0.54**	**3.3**	--	
G-3	9/25/2010	434.46	11.42	--	423.04	**12**	--	**33**	<1.4	**0.13**	**0.88**	**0.98**	**7.8**	--	
G-3	6/8/2011	434.46	--	--	--	--	--	--	--	--	--	--	--	--	
G-3	7/29/2011	--	--	--	--	**4.3**	--	**7.6**	--	**0.025 / 0.026**	**0.032 / 0.0085**	**0.26 / 0.2**	**1.9 / 0.79**	--	BTEX by SW-846 8021B
G-3	9/20/2011	434.46	12.5	--	421.96	**4.8**	--	**22**	<1.3	<0.0310	**0.041**	**0.72**	**4.8**	--	
G-3	6/11/2012	434.46	--	--	--	--	--	--	--	--	--	--	--	--	
G-3	10/2/2012	434.42	11.85	--	422.57	**9**	**4.4**	**12**	**0.87J**	<0.0410 / <0.0390	**0.018 / 0.019**	**0.61 / 0.62**	**3.3 / 3.4**	--	BTEX by SW-846 8021B
G-3	6/11/2013	434.42	10.57	--	423.85	**2.7**	**1.6**	**3.48**	--	**0.00120 J**	**0.0047**	**0.188**	**0.516**	--	
G-3	10/10/2013	434.42	11.86	--	422.56	**3.1**	**1.8**	**10.4**	**1.1**	<0.00100	**0.0119**	**0.0335**	**3.21**	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
G-3	6/29/2014	434.42	10.2	--	424.22	--	--	--	--	--	--	--	--	--	
G-3	9/16/2015	434.42	9.98	--	424.44	**6.9**	--	**15**	**4.9**	**0.0090J**	**0.027**	**0.21**	**4.1**	--	
G-3	8/3/2016	434.42	8.01	--	426.41	**2.1**	**0.30 J**	**5.4**	**0.61 J**	**0.003 J**	**0.01**	**0.22**	**0.83**	--	
G-3	9/19/2017	434.55	11.01	--	423.54	**2.4 J / 4.2 J**	**0.93 J / 1.7 J**	**7.7 / 7.4**	<0.40 / 1.1 J	**0.75 / 0.67**	**0.004 J / 0.003 J**	**0.41 / 0.36**	**0.91 / 0.80**	--	
G-3	8/20/2018	434.53	9.27	--	425.26	**4.2**	**0.80 J**	**6.2**	**0.34**	**0.39**	<0.001	**0.49**	**0.83**	--	
G-3	7/10/2019	434.73	11.36	0.00	423.37	**2.4**	**0.85**	**4.5 J**	**0.77**	**0.68 D**	**0.08**	**0.47 D**	**0.892 D**	--	Depth to water taken from well survey dated July 25, 2019
G-3	6/23/2020	434.73	--	--	--	--	--	--	--	--	--	--	--	--	Ice obstruction at 7.6 ft
G-3	7/16/2021	434.73	11.35	0.00	423.38	**2.12 J**	<0.800 B	**7.03**	<0.800 J	**1.12**	**0.0391**	**0.647**	**1.51**	--	
G-3	7/14/2022	434.73	9.56	0.00	425.17	**2.59**	**0.986**	**5.37**	<0.800 B	**0.672**	**0.00323 J**	**0.430**	**1.13**		
G-4	3/28/2000	431.62	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	6/27/2000	431.62	13.1	--	418.52	--	--	--	--	--	--	--	--	--	
G-4	9/26/2000	431.62	12.05	--	419.57	--	--	--	--	--	--	--	--	--	
G-4	12/19/2000	431.62	14.56	--	417.06	--	--	--	--	--	--	--	--	--	
G-4	3/30/2001	431.62	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	6/28/2001	431.62	14.02	--	417.60	--	--	--	--	--	--	--	--	--	
G-4	9/19/2001	431.62	13.12	--	418.50	--	--	--	--	--	--	--	--	--	
G-4	12/12/2001	431.62	15.3	--	416.32	--	--	--	--	--	--	--	--	--	
G-4	3/27/2002	431.62	15.59	--	416.03	--	--	--	--	--	--	--	--	--	
G-4	6/25/2002	431.62	12.9	--	418.72	--	--	--	--	--	--	--	--	--	
G-4	9/28/2002	431.62	12.53	--	419.09	--	--	--	--	--	--	--	--	--	
G-4	12/17/2002	431.62	13.89	--	417.73	--	--	--	--	--	--	--	--	--	
G-4	4/8/2003	431.62	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	6/25/2003	431.62	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	9/16/2003	431.62	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	12/22/2003	431.62	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	3/24/2004	431.62	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	6/21/2004	431.62	--	--	--	--	--	**9.4**	--	**0.036**	**1.3**	**0.15**	**1.7**	--	
G-4	9/29/2004	431.62	14.04	--	417.58	--	--	**0.29**	--	<0.00050	**0.0005**	**0.0015**	**0.04**	--	
G-4	12/2/2004	431.62	15.23	--	416.39	**0.062**	--	**0.015**	**0.089**	**0.0038**	<0.00050	<0.00050	<0.00150	--	
G-4	12/2/2004	--	--	--	--	**0.48**	--	**0.17**	**0.57**	<0.00050	<0.00050	**0.0006**	**0.0048**	--	
G-4	4/7/2005	431.62	15.41	--	416.21	**0.27**	--	<0.0100	**0.32**	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-4	6/27/2005	431.62	11.95	--	419.67	**0.75**	--	**5**	**0.12**	**0.011**	**0.43**	**0.077**	**0.83**	--	
G-4	9/22/2005	431.62	12.9	--	418.72	**1.2**	--	**3**	**1.1**	**0.012**	**0.45**	**0.055**	**0.62**	--	
G-4	12/7/2005	--	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	3/30/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	6/8/2006	--	13.93	--	--	--	--	--	--	--	--	--	--	--	
G-4	9/26/2006	99.66	13.7	--	85.96	--	--	**1.6**	--	**0.019**	**0.0016**	**0.03**	**0.38**	--	
G-4	12/20/2006	--	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	3/31/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	9/15/2007	99.66	13.12	--	86.54	--	--	**5.2**	--	**0.4**	**0.2**	**0.4**	**1**	--	
G-4	1/30/2008	99.66	15.11	--	84.55	--	--	--	--	**0.6**	**3.2**	**1.1**	**2.8**	--	
G-4	3/26/2008	99.66	15.72	--	83.94	--	--	**68.1**	--	**1.06**	**11.4**	**2.5**	**9.18**	--	
G-4	6/27/2008	99.66	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	9/9/2008	99.66	12.59	--	87.07	--	--	**5.4**	--	**0.2**	**0.2**	**0.3**	**0.9**	--	
G-4	12/12/2008	99.66	15.14	--	84.52	--	--	--	--	--	--	--	--	--	
G-4	1/13/2009	99.66	15.32	--	84.34	--	--	**22**	--	**0.3**	**3.5**	**1.1**	**4.6**	--	
G-4	5/8/2009	99.66	14.65	--	85.01	--	--	--	--	--	--	--	--	--	
G-4	5/12/2009	--	--	--	--	--	--	**31**	--	**2.6**	**4.2**	**1.2**	**4.6**	--	
G-4	10/2/2009	436.50	14	--	422.50	--	--	**44**	--	**0.3**	**5.5**	**1.7**	**11**	--	
G-4	6/16/2010	436.50	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	8/17/2010	--	--	--	--	**0.44**	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-4	9/25/2010	436.50	13.58	--	422.92	**2.3**	--	**0.28**	**0.82**	<0.00250	<0.00250	**0.0067**	**0.085**	--	
G-4	6/8/2011	436.50	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	9/20/2011	436.50	13.03	--	423.47	**6.1**	--	**3.9**	<1.3	**0.03**	**0.0081**	**0.19**	**0.83**	--	
G-4	6/11/2012	434.46	13.5	--	420.96	--	--	--	--	--	--	--	--	--	
G-4	10/2/2012	436.53	14.01	--	422.52	**6.3**	**2.9**	**17**	<0.33	**0.14**	**1.7**	**0.97**	**4.6**	--	
G-4	6/10/2013	436.53	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	10/10/2013	436.53	13.99	--	422.54	**7.3**	**3.7**	**15.9**	--	**0.164**	**0.816**	**0.651**	**4.04**	--	
G-4	6/29/2014	436.53	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	9/16/2015	436.53	12.22	--	424.31	**2.5**	--	**2.5**	**1**	**0.024**	**0.08**	**0.061**	**0.49**	--	
G-4	8/3/2016	436.53	9.99	--	426.54	**4.8**	**1.4**	**53**	**0.25 J**	**1.8**	**6.1**	**1.4**	**7.6**	--	
G-4	9/19/2017	436.32	12.63	--	423.69	**1.3**	**0.23 J**	**8.3**	**0.23 J**	**1.7**	**0.19**	**0.3**	**0.62**	--	
G-4	8/20/2018	436.62	11.23	--	425.39	**0.4**	**0.19 J**	**3.9**	**0.14 J**	**0.81 / 0.83**	**0.055 / 0.053**	**0.22 / 0.20**	**0.27 / 0.24**	--	
G-4	7/10/2019	436.81	13.45	0.00	423.36	**1**	**0.51**	**3.8 J**	**0.51**	**1.8 D**	**0.0075**	**0.65 D**	**0.83 D**	--	Depth to water taken from well survey dated July 25, 2019
G-4	6/25/2020	436.81	11.55	0.00	425.26	**1.56**	**1.16**	**7.52**	<0.888	**2.65**	**0.382**	**0.624**	**2.01**	--	Depth to water taken during gauging event on 6/23/2020
G-4	7/16/2021	436.81	13.37	0.00	423.44	--	--	--	--	--	--	--	--	--	Well frozen could not get pump down well
G-4	7/14/2022	436.81	11.52	0.00	425.29	--	--	--	--	--	--	--	--	--	Well obstructed. Could not sample.
G-5	1/30/1982	98.39	13.78	--	84.61	--	--	--	--	--	--	--	--	--	
G-5	3/28/2000	430.19	14.86	--	415.33	--	--	--	--	--	--	--	--	--	
G-5	6/27/2000	430.19	11.56	--	418.63	--	--	--	--	--	--	--	--	--	
G-5	9/26/2000	430.19	10.53	--	419.66	--	--	--	--	--	--	--	--	--	
G-5	12/19/2000	430.19	13.07	--	417.12	--	--	--	--	--	--	--	--	--	
G-5	3/30/2001	430.19	14.05	--	416.14	--	--	--	--	--	--	--	--	--	
G-5	6/27/2001	430.19	12.43	--	417.76	--	--	--	--	--	--	--	--	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
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4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
G-5	9/19/2001	430.19	11.69	--	418.50	--	--	--	--	--	--	--	--	--	
G-5	12/12/2001	430.19	13.82	--	416.37	--	--	--	--	--	--	--	--	--	
G-5	3/27/2002	430.19	14.10	--	416.09	--	--	--	--	--	--	--	--	--	
G-5	6/25/2002	430.19	11.37	--	418.82	--	--	--	--	--	--	--	--	--	
G-5	9/28/2002	430.19	11.05	--	419.14	--	--	--	--	--	--	--	--	--	
G-5	12/17/2002	430.19	12.39	--	417.80	--	--	--	--	--	--	--	--	--	
G-5	4/8/2003	430.19	12.12	--	418.07	--	--	--	--	--	--	--	--	--	
G-5	6/24/2003	430.19	12.57	--	417.62	--	--	--	--	--	--	--	--	--	
G-5	9/16/2003	430.19	9.30	--	420.89	--	--	--	--	--	--	--	--	--	
G-5	12/22/2003	430.19	12.18	--	418.01	--	--	--	--	--	--	--	--	--	
G-5	3/24/2004	430.19	14.01	--	416.18	--	--	**94**	--	<0.1000	**5.8**	**2.6**	**15**	--	
G-5	6/21/2004	430.19	11.46	--	418.73	--	--	**90**	--	**0.19**	**6.2**	**2.8**	**19**	--	
G-5	9/29/2004	430.19	12.80	--	417.39	--	--	**110**	--	**0.14**	**6.4**	**3.4**	**21**	--	
G-5	12/2/2004	430.19	13.98	--	416.21	**26**	--	**97**	**3.4**	**0.12**	**6**	**3.2**	**17**	--	
G-5	4/7/2005	430.19	14.11	--	416.08	**5.3**	--	**53**	**0.53**	**0.048**	**3**	**2**	**8.8**	--	
G-5	6/27/2005	430.19	10.52	--	419.67	**7**	--	**76**	**1.1**	**0.1**	**4.2**	**2.8**	**16**	--	
G-5	9/23/2005	430.19	11.67	--	418.52	**8.1**	--	**65**	<1.0	**0.074**	**3.4**	**2.5**	**16**	--	
G-5	12/7/2005	430.19	13.40	--	416.79	**8.5**	--	**80**	--	**0.071**	**3.7**	**3**	**17**	<0.0630	
G-5	3/30/2006	430.19	14.75	--	415.44	--	--	--	--	--	--	--	--	--	
G-5	6/8/2006	430.19	12.50	--	417.69	--	--	--	--	--	--	--	--	--	
G-5	9/27/2006	98.39	12.45	--	85.94	**7.3**	--	**83**	--	**0.072**	**3.4**	**3.3**	**21**	--	
G-5	12/20/2006	98.39	13.91	--	84.48	**4.4**	--	**66**	--	**0.056**	**3.7**	**2.6**	**16**	--	
G-5	3/31/2007	98.39	14.79	--	83.60	**2**	--	**40**	<0.20	**0.09**	**2**	**1.8**	**9.1**	--	
G-5	6/10/2007	98.39	13.17	--	85.22	**1.9**	--	**34**	<0.0940	<1.0000	**2.1**	**1.5**	**7.6**	--	
G-5	9/15/2007	98.39	11.82	--	86.57	**12**	--	**55**	--	**0.08**	**2.1**	**2.1**	**15**	--	
G-5	1/30/2008	98.39	13.78	--	84.61	**6.1 / 6.4**	--	--	--	**<0.0400 / <0.0500**	**1.8 / 1.5**	**1.8 / 1.4**	**9.3 / 7.7**	--	BTEX by SW-846 8021B
G-5	3/26/2008	98.39	14.40	--	83.99	**3.26**	--	**31**	<0.7430	**0.00844**	**1.56**	**1.38**	**6.87**	--	
G-5	6/30/2008	98.39	12.57	--	85.82	**11**	--	**36**	<0.98	<0.0500	**0.9**	**1.3**	**8.4**	--	
G-5	7/8/2008	98.39	12.58	--	85.81	**12**	--	**44**	--	<0.0500	**0.9**	**1.6**	**11**	--	
G-5	8/7/2008	98.39	9.94	--	88.45	**2.8**	--	**26**	--	<0.0400	**0.4**	**1.2**	**7.8**	--	
G-5	9/9/2008	98.39	11.32	--	87.07	**2.4**	--	**23**	<0.50	**0.03**	**0.3**	**0.9**	**6.3**	--	
G-5	12/12/2008	98.39	13.82	--	84.57	--	--	--	--	--	--	--	--	--	
G-5	1/13/2009	98.39	13.97	--	84.42	**3.5**	--	**23**	<0.48	<0.1000	**0.4**	**1.4**	**6.9**	--	
G-5	5/13/2009	98.39	13.18	--	85.21	**0.9**	--	**7.1**	<0.10	<0.00250	**0.11**	**0.29**	**1.9**	--	
G-5	10/1/2009	435.28	12.71	--	422.57	**3.1**	--	**48**	<0.98	<0.1000	**0.4**	**2.2**	**13**	--	
G-5	6/17/2010	435.28	13.86	--	421.42	**3.5**	--	**11**	--	<0.0200	**0.069**	**0.51**	**3.5**	--	
G-5	9/25/2010	435.28	12.29	--	422.99	**12**	--	**43 / 44**	**1.4**	<0.0500 / <0.0200	**0.14 / 0.15**	**1.9 / 1.9**	**9.5 / 9.6**	--	BTEX by SW-846 8021B
G-5	6/9/2011	435.28	12.99	--	422.29	**6**	--	**40 / 40**	<1.3	**0.034** / <0.0400	**0.082 / 0.073**	**1.6 / 1.6**	**12 / 13**	--	BTEX by SW-846 8021B
G-5	9/20/2011	435.28	11.71	--	423.57	**10**	--	**49**	<1.3	**0.044**	**0.057**	**2**	**11**	--	
G-5	6/12/2012	435.28	12.10	--	423.18	**19**	**9.2**	**46**	<1.4	<0.0630	**0.035**	**1.8**	**11**	--	
G-5	10/2/2012	435.29	12.71	--	422.58	**12**	**6.9**	**32**	<0.36	<0.0750	**0.021**	**1.7**	**10**	--	
G-5	6/11/2013	435.29	11.48	--	423.81	**3.2 / 3.8**	**2**	**15.2 / 3.76**	<0.42/ <1.2	<0.000240 / <0.00100	**0.0033 / 0.0012**	**0.4670 / 0.0983**	**2.83 / 0.541**	--	
G-5	10/10/2013	435.29	12.69	--	422.60	**11**	**6.9**	**44.3**	<0.43	<0.02000	<0.02000	**1.73**	**11.6**	--	
G-5	6/30/2014	435.29	11.09	--	424.20	**10.6**	**6.4**	**35.9**	**0.64**	<0.00500	**0.0056**	**1.31**	**8.99**	--	
G-5	9/16/2015	435.29	10.82	--	424.47	**2.5**	--	**1.1**	**0.4**	<0.00050	<0.00050	**0.018**	**0.17**	--	
G-5	8/3/2016	435.29	9.02	--	426.27	**3.2 / 3.3**	**1.7 / 1.9**	**11 / 11**	<0.080 / 0.081 J	<0.005 / <0.005	<0.005 / <0.005	**0.34 / 0.37**	**2.3 / 2.4**	--	
G-5	9/19/2017	435.09	11.50	--	423.59	**14**	**6.0 J**	**23**	<0.82	**0.022**	**1.1**	**0.87**	**5.1**	--	
G-5	8/20/2018	435.09	9.79	--	425.30	<0.051 J / 0.96 J	<0.050 J / 0.71 J	**1.3 J / 2.3 J**	<0.082 / <0.083	**0.014**	**0.05**	**0.071**	**0.45**	--	
G-5	7/10/2019	435.28	11.91	0.00	423.37	**3.5**	**3**	**27 J**	**0.3**	**0.1 J**	**0.24**	**1.3**	**11.2 D**	--	Depth to water taken from well survey dated July 25, 2019
G-5	6/25/2020	435.28	9.97	0.00	425.31	<1.14 **[0.313 J]**	**0.359 J [0.286 J]**	**0.694 [0.830]**	***<1.14*** [<0.800]	***<0.0100*** [<0.00100]	<0.0100 **[0.000590 J]**	**0.0617 J [0.0322 J]**	**0.529 J [0.335 J]**	--	Depth to water taken during gauging event on 6/23/2020
G-5	7/16/2021	435.28	11.87	0.00	423.41	**3.51 J**	**2.45**	**14.9**	<0.800 J	**0.0576**	**0.0931**	**0.434**	**4.47**	--	
G-5	7/14/2022	435.28	10.02	0.00	425.26	**7.58**	**3.42**	**13.1**	<0.800	**0.0464 J**	**0.0608 J**	**0.351**	**3.79**	--	
G-6	6/27/2000	430.40	11.71	--	418.69	--	--	--	--	--	--	--	--	--	
G-6	3/27/2002	430.40	--	--	--	--	--	--	--	--	--	--	--	--	
G-6	3/28/2004	430.40	--	--	--	--	--	--	--	--	--	--	--	--	
G-6	9/26/2006	98.43	--	--	--	--	--	--	--	--	--	--	--	--	
G-7	3/28/2000	431.54	16.27	--	415.27	--	--	--	--	--	--	--	--	--	
G-7	6/27/2000	431.54	13.00	--	418.54	--	--	--	--	--	--	--	--	--	
G-7	9/26/2000	431.54	11.94	--	419.60	--	--	--	--	--	--	--	--	--	
G-7	12/19/2000	431.54	14.49	--	417.05	--	--	--	--	--	--	--	--	--	
G-7	3/30/2001	431.54	15.49	--	416.05	--	--	--	--	--	--	--	--	--	
G-7	6/27/2001	431.54	14.00	--	417.54	--	--	--	--	--	--	--	--	--	
G-7	9/19/2001	431.54	12.88	--	418.66	--	--	--	--	--	--	--	--	--	
G-7	12/12/2001	431.54	15.22	--	416.32	--	--	--	--	--	--	--	--	--	
G-7	3/27/2002	431.54	15.60	--	415.94	--	--	--	--	--	--	--	--	--	
G-7	6/25/2002	431.54	12.78	--	418.76	--	--	--	--	--	--	--	--	--	
G-7	9/28/2002	431.54	12.46	--	419.08	--	--	--	--	--	--	--	--	--	
G-7	12/17/2002	431.54	13.82	--	417.72	--	--	--	--	--	--	--	--	--	
G-7	4/8/2003	431.54	13.57	--	417.97	--	--	--	--	--	--	--	--	--	
G-7	6/24/2003	431.54	14.01	--	417.53	--	--	--	--	--	--	--	--	--	
G-7	9/16/2003	431.54	10.72	--	420.82	--	--	--	--	--	--	--	--	--	
G-7	12/22/2003	431.54	13.64	--	417.90	--	--	--	--	--	--	--	--	--	
G-7	3/24/2004	431.54	15.42	--	416.12	--	--	**28**	--	**0.23**	**0.077**	**1.4**	**6.1**	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
G-7	6/21/2004	431.54	13.00	--	418.54	--	--	**13**	--	**0.09**	**0.02**	**1.3**	**1.6**	--	
G-7	9/29/2004	431.54	14.18	--	417.36	--	--	**7.4**	--	**0.042**	**0.0064**	**0.64**	**0.97**	--	
G-7	12/2/2004	431.54	15.40	--	416.14	**3.4**	--	**8.7**	**0.94**	**0.054**	**0.031**	**0.81**	**0.97**	--	
G-7	4/7/2005	431.54	15.55	--	415.99	**6.5**	--	**16**	**1.7**	**0.13**	**0.0097**	**1.5**	**1.7**	--	
G-7	6/27/2005	431.54	11.96	--	419.58	**4.1**	--	**17**	**0.91**	**0.067**	**0.0063**	**1.7**	**1.8**	--	
G-7	9/23/2005	431.54	13.05	--	418.49	**6.3**	--	**4.1**	<0.4200	**0.018**	**0.008**	**0.36**	**0.93**	--	
G-7	12/7/2005	431.54	14.81	--	416.73	**9.7**	--	**8.4**	--	**0.046**	**0.0037**	**0.86**	**0.44**	<0.0100	
G-7	3/30/2006	431.54	16.11	--	415.43	--	--	--	--	--	--	--	--	--	
G-7	6/8/2006	431.54	14.02	--	417.52	--	--	--	--	--	--	--	--	--	
G-7	9/26/2006	99.65	13.74	--	85.91	**6.1**	--	**5**	--	**0.031**	**0.0033**	**0.61**	**0.6**	--	
G-7	12/20/2006	99.65	15.24	--	84.41	**6.5**	--	**5.9**	--	**0.05**	<0.0050	**0.86**	**0.48**	--	
G-7	3/31/2007	99.65	16.10	--	83.55	**4.2**	--	**8.4**	**0.84**	**0.4**	<0.0050	**0.8**	**0.8**	--	
G-7	6/10/2007	98.43	14.59	--	83.84	**2.9**	--	**9.1**	<0.0940	**0.4**	**0.02**	**1.1**	**0.9**	--	
G-7	9/15/2007	98.43	13.15	--	85.28	**2.3**	--	**2.7**	--	<0.0100	**0.1**	**0.1**	**0.9**	--	
G-7	3/26/2008	98.43	15.74	--	82.69	**7.67 / 7.63**	--	**8.38 / 8.52**	**1.02/1.05**	**0.336 / 0.342**	<0.0250 / 0.00298	**0.935 / 0.896**	**1 / 0.969**	--	BTEX by SW-846 8021B
G-7	6/6/2008	98.43	14.55	--	83.88	--	--	--	--	--	--	--	--	--	
G-7	7/8/2008	98.43	14.00	--	84.43	**2.7**	--	**10**	--	**0.4**	**0.6**	**0.6**	**1.9**	--	
G-7	8/7/2008	98.43	11.41	--	87.02	**1.9**	--	**6.9**	--	**0.3**	**0.09**	**0.7**	**1.2**	--	
G-7	9/9/2008	98.43	12.66	--	85.77	**0.63**	--	<0.0100	**0.38**	<0.0010	<0.0010	<0.0010	<0.0020	--	
G-7	12/12/2008	98.43	15.19	--	83.24	**1.5**	--	--	<0.5	--	--	--	--	--	
G-7	1/13/2009	98.43	15.33	--	83.10	**3.2**	--	**7.6**	**0.67**	**0.4**	<0.0050	**1**	**1.4**	--	
G-7	5/13/2009	98.43	14.64	--	83.79	**2.4**	--	**9.8**	<0.24	**0.34**	**0.013**	**1.3**	**0.8**	--	
G-7	10/2/2009	436.57	14.05	--	422.52	**1.3**	--	**5.3**	**0.26**	**0.13**	**0.007**	**0.68**	**0.67**	--	
G-7	4/20/2010	--	--	--	--	--	--	**3.4**	--	**0.29**	**0.049**	**0.38**	**0.62**	--	
G-7	6/16/2010	436.57	13.10	--	423.47	**2.6**	--	**17**	--	**0.66**	**1.2**	**1.1**	**3.2**	--	
G-7	9/25/2010	436.57	13.63	--	422.94	**3.9**	--	**4.4 / 4.8**	**0.56**	**0.15 / 0.16**	**0.0018 / 0.002**	**0.35 / 0.38**	**0.46 / 0.49**	--	BTEX by SW-846 8021B
G-7	6/9/2011	436.57	14.40	--	422.17	**2.1**	--	**3.7**	**0.82**	**0.1**	<0.00250	**0.53**	**0.35**	--	
G-7	9/20/2011	436.57	13.03	--	423.54	**1.6**	--	**3.2**	<1.3	**0.027**	**0.002**	**0.23**	**0.23**	--	
G-7	6/12/2012	436.57	13.56	--	423.01	**2.3**	**0.8**	**4.7**	**0.34**	**0.18**	**0.0028**	**0.66**	**0.36**	--	
G-7	10/2/2012	436.57	14.06	--	422.51	**2.9**	**1.4**	**3**	**0.38 J**	**0.032**	**0.0015 J**	**0.32**	**0.2**	--	
G-7	6/10/2013	436.57	12.92	--	423.65	--	--	--	--	--	--	--	--	--	
G-7	10/10/2013	436.57	14.03	--	422.54	**1.5**	**0.78**	**2.29**	<0.43	**0.046**	<0.00200	**0.167**	**0.114**	--	
G-7	6/30/2014	436.57	12.52	--	424.05	**1.5 / 1.4**	**0.84 / 0.79**	**4.4100 / 4.46**	**0.62 / 0.57**	**0.1280 / 0.123**	**0.0252 / 0.0254**	**0.8180 / 0.781**	**0.307 / 0.318**	--	
G-7	8/3/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	
G-7	9/19/2017	436.57	12.71	--	423.86	**0.17 J**	**0.054 J**	**0.2**	**0.11 J**	**0.026**	<0.0005	**0.01**	**0.004**	--	
G-7	8/20/2018	436.39	10.98	--	425.41	**0.55**	**0.12 J**	**1.4**	**0.65**	**0.29**	**0.0002 J**	**0.15**	**0.012**	--	
G-7	7/10/2019	436.58	13.25	0.00	423.33	**0.34**	< 0.078	<0.1 J	**0.37**	**0.0045**	< 0.00039	**0.0026 J**	< 0.00114	--	Depth to water taken from well survey dated July 25, 2019
G-7	6/23/2020	436.58	--	--	--	--	--	--	--	--	--	--	--	--	Obstructed at 5.7 ft. Unknown obstruction
G-7	7/16/2021	436.58	13.15	0.00	423.43	<0.800 B	<0.800 B	<0.100	<0.800	<0.00100	<0.00100	<0.00100	<0.00300	--	
G-7	7/14/2022	436.39	11.28	0.00	425.11	<0.800 B	<0.800 B	<0.100	<0.800	<0.00100	<0.00100	<0.00100	<0.00300	--	Well obstructed. Could not sample.
G-8	9/26/2006	99.12	13.21	--	85.91	--	--	**21**	--	**0.072**	**0.07**	**0.72**	**4**	--	
G-8	12/20/2006	99.12	14.67	--	84.45	**3.2**	--	**5**	--	**0.05**	**0.0046**	**0.18**	**0.52**	--	
G-8	3/31/2007	99.12	15.56	--	83.56	**2.4**	--	**12**	<0.2100	**0.1**	**0.03**	**0.5**	**1.9**	--	
G-8	6/10/2007	99.12	14.01	--	85.11	**1.9**	--	**19**	**0.054**	**2.1**	**0.06**	**1.2**	**2**	--	
G-8	9/15/2007	99.12	12.76	--	86.36	**2.3**	--	**3.1**	--	**0.3**	<0.0100	**0.2**	**0.5**	--	
G-8	1/30/2008	99.12	14.59	--	84.53	**2.6**	--	--	--	**0.4**	**0.04**	**0.6**	**1.3**	--	
G-8	3/26/2008	99.12	15.18	--	83.94	**4.55**	--	**13.8**	**0.899**	**0.63**	**0.233**	**0.719**	**2.1**	--	
G-8	6/6/2008	99.12	14.00	--	85.12	--	--	--	--	--	--	--	--	--	
G-8	7/8/2008	99.12	13.43	--	85.69	**1.5**	--	**5.5**	--	**0.3**	**0.09**	**0.2**	**0.8**	--	
G-8	8/7/2008	99.12	10.83	--	88.29	**0.62**	--	**3.5**	--	**0.09**	**0.03**	**0.2**	**0.7**	--	
G-8	9/9/2008	99.12	12.11	--	87.01	**1.8**	--	**11**	<0.2600	**0.6**	**0.4**	**0.4**	**1.6**	--	
G-8	12/12/2008	99.12	14.62	--	84.50	--	--	--	--	--	--	--	--	--	
G-8	1/13/2009	99.12	14.78	--	84.34	**2.7**	--	**5.1**	**1.1**	**0.5**	**0.04**	**0.5**	**0.8**	--	
G-8	5/12/2009	99.12	14.04	--	85.08	**0.68**	--	**3.3**	**0.15**	**0.34**	**0.015**	**0.22**	**0.3**	--	
G-8	10/2/2009	436.03	13.44	--	422.59	**0.35**	--	**0.095**	**0.4**	**0.003**	<0.00050	**0.0014**	**0.0032**	--	
G-8	4/20/2010	--	--	--	--	--	--	**0.67**	--	**0.0009**	**0.0039**	**0.0043**	**0.13**	--	
G-8	6/16/2010	436.03	14.16	--	421.87	**1**	--	**0.28**	**0.35**	**0.0018**	<0.00050	**0.0047**	**0.041**	--	
G-8	9/25/2010	436.03	13.07	--	422.96	**0.61**	--	**0.086**	**0.57**	<0.00050	<0.00050	<0.00050	**0.03**	--	
G-8	6/9/2011	436.03	13.84	--	422.19	**1.3**	--	**2.2 / 2.7**	**0.47**	**0.31 / 0.3**	**0.0011 / 0.0015**	**0.057 / 0.068**	**0.15 / 0.25**	--	BTEX by SW-846 8021B
G-8	9/20/2011	436.03	12.52	--	423.51	**1.7**	--	**3.2**	<0.68	**0.13**	**0.0021**	**0.045**	**0.72**	--	
G-8	6/12/2012	436.03	13.00	--	423.03	**1.7 / 1.2**	**0.61**	**4.7 / 4.7**	**0.44/0.24**	**0.34**	**0.002**	**0.39**	**0.25**	--	
G-8	10/2/2012	436.03	13.50	--	422.53	**0.48**	<0.049	**0.0260 J**	**0.17J**	**0.006**	<0.00050	<0.00050	<0.00150	--	
G-8	6/11/2013	436.03	12.32	--	423.71	**1.9**	**0.99**	**4.33**	<0.50	**0.227**	**0.0057**	**0.405**	**0.402**	--	
G-8	10/10/2013	436.03	13.46	--	422.57	**0.58**	**<0.4300**	<0.5000	**0.44**	**0.012**	<0.00100	<0.00100	<0.00300	--	
G-8	6/30/2014	436.03	11.94	--	424.09	**2.9**	**1.9**	**8.05**	<0.40	**0.239**	**0.0061**	**0.676**	**1.15**	--	
G-8	9/16/2015	436.03	11.69	--	424.34	**2.6**	--	**2.3**	**1.8**	**0.2**	**0.002**	**0.14**	**0.12**	--	
G-8	8/3/2016	436.03	9.39	--	426.64	**4.4**	**1.3**	**21**	<0.39	**1.5**	**1.1**	**0.65**	**2.4**	--	
G-8	9/19/2017	435.81	12.13	--	423.68	**0.45**	<0.050 J	**0.16**	**0.20 J**	**0.007**	<0.0005	**0.011**	**0.017**	--	
G-8	8/20/2018	435.84	10.48	--	425.36	**0.37**	<0.055 J	**0.096 J**	**0.25 J**	**0.008**	<0.0002	**0.004**	**0.001 J**	--	
G-8	7/10/2019	436.03	12.65	0.00	423.38	**0.58**	< 0.076	<0.1 J	**0.69**	<0.00053	< 0.00039	< 0.00050	< 0.00114	--	Depth to water taken from well survey dated July 25, 2019
G-8	6/23/2020	436.03	--	--	--	--	--	--	--	--	--	--	--	--	Could not open due to seized bolts
G-8	7/16/2021	436.03	12.57	0.00	423.46	<0.800 B [<0.800 B]	<0.800 B [<0.800 B]	<0.100 B [<0.100 B]	<0.800 [<0.800]	**0.000397 J [0.000344 J]**	<0.00100 [<0.00100]	<0.00100 [<0.00100]	<0.00300 [<0.00300]	--	
G-8	7/14/2022	436.03	10.73	0.00	425.30	**0.322 J [0.452 J]**	**0.322 J [0.452 J]**	<0.100 B [<0.112 B]	<0.800 B [<0.800 B]	**0.000715 J [0.000831 J]**	<0.00100 [<0.00100]	**0.00215 [0.00305]**	<0.00300 J [0.00363]	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
G-9	9/26/2006	98.78	12.87	--	85.91	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-9	12/20/2006	98.78	14.33	--	84.45	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
G-9	3/31/2007	98.78	15.24	--	83.54	--	--	<0.0100 / <0.0100	--	<0.0010 / <0.0010	<0.0010 / <0.0010	<0.0010 / <0.0010	<0.0020 / <0.0020	--	
G-9	6/10/2007	98.78	13.63	--	85.15	--	--	<0.0100	--	**0.002**	<0.0010	<0.0010	<0.0020	--	
G-9	9/15/2007	98.78	12.20	--	86.58	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
G-9	3/26/2008	98.78	14.81	--	83.97	**0.223**	--	<0.0500	<0.7430	**0.00938**	<0.00050	<0.00050	<0.0010	--	
G-9	9/9/2008	98.78	11.73	--	87.05	**0.2**	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
G-9	5/11/2009	98.78	13.70	--	85.08	**0.066**	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-9	10/2/2009	435.67	13.14	--	422.53	**0.059**	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-9	6/16/2010	435.67	13.50	--	422.17	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-9	9/25/2010	435.67	12.72	--	422.95	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
G-9	6/8/2011	435.67	13.50	--	422.17	--	--	--	--	--	--	--	--	--	
G-9	9/19/2011	435.67	12.19	--	423.48	--	--	--	--	--	--	--	--	--	
G-9	6/11/2012	435.67	12.68	--	422.99	--	--	--	--	--	--	--	--	--	
G-9	10/2/2012	435.69	13.19	--	422.50	--	--	--	--	--	--	--	--	--	
G-9	6/10/2013	435.69	12.06	--	423.63	--	--	--	--	--	--	--	--	--	
G-9	10/10/2013	435.69	13.17	--	422.52	--	--	--	--	--	--	--	--	--	
G-9	6/29/2014	435.69	11.66	--	424.03	--	--	--	--	--	--	--	--	--	
G-9	9/16/2015	435.60	11.39	--	424.21	--	--	--	--	--	--	--	--	--	
G-9	8/3/2016	435.60	9.03	--	426.57	--	--	--	--	--	--	--	--	--	
G-9	9/19/2017	435.45	11.88	--	423.57	--	--	--	--	--	--	--	--	--	
G-9	8/20/2018	435.42	10.16	--	425.26	--	--	--	--	--	--	--	--	--	
G-9	7/10/2019	435.84	12.27	0.00	423.57	--	--	--	--	--	--	--	--	--	Depth to water taken from well survey dated July 25, 2019
G-9	6/24/2020	435.84	10.40	0.00	425.44	<0.800 J [<0.800 J]	<0.800 [<0.800]	**0.0122 J** [<0.100]	<0.800 J [<0.800 J]	**0.000343 J [0.000361 J]**	<0.00100 [<0.00100]	<0.00100 [<0.00100]	**0.000176 J** [<0.00300]	--	Depth to water taken during gauging event on 6/23/2020
G-9	7/16/2021	435.84	12.28	0.00	423.56	<0.800 B	<0.800 B	<0.100	<0.800	<0.00100	<0.00100	<0.00100	<0.00300	--	
G-9	7/14/2022	435.84	10.45	0.00	425.39	<0.800	<0.800	<0.100	<0.800 B	<0.00100	<0.00100	<0.00100	<0.00300 B	--	
MW-211	3/29/2000	430.48	14.97	--	415.51	--	--	--	--	--	--	--	--	--	
MW-211	6/28/2000	430.48	11.74	--	418.74	--	--	--	--	--	--	--	--	--	
MW-211	9/26/2000	430.48	10.76	--	419.72	--	--	--	--	--	--	--	--	--	
MW-211	12/19/2000	430.48	13.10	--	417.38	--	--	--	--	--	--	--	--	--	
MW-211	3/30/2001	430.48	14.12	--	416.36	--	--	--	--	--	--	--	--	--	
MW-211	6/27/2001	430.48	12.62	--	417.86	--	--	--	--	--	--	--	--	--	
MW-211	9/19/2001	430.48	11.43	--	419.05	--	--	--	--	--	--	--	--	--	
MW-211	3/27/2002	430.48	14.19	--	416.29	--	--	--	--	--	--	--	--	--	
MW-211	9/28/2002	430.48	11.00	--	419.48	--	--	--	--	--	--	--	--	--	
MW-211	4/7/2003	430.48	12.19	--	418.29	--	--	--	--	--	--	--	--	--	
MW-211	9/16/2003	430.48	9.30	--	421.18	--	--	--	--	--	--	--	--	--	
MW-211	3/23/2004	430.48	13.95	--	416.53	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-211	9/29/2004	430.48	12.66	--	417.82	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-211	4/6/2005	430.48	14.23	--	416.25	<0.0190	--	<0.0100	**0.032**	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-211	9/22/2005	430.48	12.08	--	418.40	<0.0210	--	<0.0100	**0.027**	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-211	3/29/2006	430.48	16.02	--	414.46	--	--	--	--	--	--	--	--	--	
MW-211	3/30/2007	430.48	15.99	--	414.49	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-211	5/11/2009	430.48	12.23	--	418.25	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-211	10/1/2009	435.19	12.78	--	422.41	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-211	6/16/2010	435.19	12.80	--	422.39	--	--	--	--	--	--	--	--	--	
MW-211	9/25/2010	435.19	12.38	--	422.81	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-211	6/8/2011	435.19	13.24	--	421.95	--	--	--	--	--	--	--	--	--	
MW-211	9/19/2011	435.19	11.85	--	423.34	--	--	--	--	--	--	--	--	--	
MW-211	6/11/2012	435.19	12.40	--	422.79	--	--	--	--	--	--	--	--	--	
MW-211	10/2/2012	435.22	12.83	--	422.39	--	--	--	--	--	--	--	--	--	
MW-211	6/10/2013	435.22	12.14	--	423.08	--	--	--	--	--	--	--	--	--	
MW-211	10/10/2013	435.22	12.74	--	422.48	--	--	--	--	--	--	--	--	--	
MW-211	6/29/2014	435.22	11.34	--	423.88	--	--	--	--	--	--	--	--	--	
MW-211	9/16/2015	435.22	11.15	--	424.07	--	--	--	--	--	--	--	--	--	
MW-211	8/3/2016	435.22	8.89	--	426.33	--	--	--	--	--	--	--	--	--	
MW-211	9/19/2017	435.22								Monitoring Well Decommissioned (July 2017)					
MW-301D	3/29/2000	432.81	17.63	--	415.18	--	--	--	--	--	--	--	--	--	
MW-301D	6/28/2000	432.81	14.46	--	418.35	--	--	--	--	--	--	--	--	--	
MW-301D	9/27/2000	432.81	13.43	--	419.38	--	--	--	--	--	--	--	--	--	
MW-301D	12/20/2000	432.81	15.78	--	417.03	--	--	--	--	--	--	--	--	--	
MW-301D	3/30/2001	432.81	16.79	--	416.02	--	--	--	--	--	--	--	--	--	Unable to Locate.
MW-301D	6/28/2001	432.81	15.34	--	417.47	--	--	--	--	--	--	--	--	--	
MW-301D	9/19/2001	432.81	14.17	--	418.64	--	--	--	--	--	--	--	--	--	
MW-301D	3/27/2002	432.81	16.89	--	415.92	--	--	--	--	--	--	--	--	--	
MW-301D	9/28/2002	432.81	13.74	--	419.07	--	--	--	--	--	--	--	--	--	
MW-301D	4/7/2003	432.81	14.89	--	417.92	--	--	--	--	--	--	--	--	--	
MW-301D	9/16/2003	432.81	12.07	--	420.74	--	--	--	--	--	--	--	--	--	
MW-301D	3/23/2004	432.81	16.66	--	416.15	--	--	**0.031**	--	**0.011**	<0.00050	<0.00050	<0.00150	--	
MW-301D	9/29/2004	432.81	15.40	--	417.41	--	--	**0.035**	--	**0.0065**	<0.00050	<0.00050	<0.00150	--	
MW-301D	4/6/2005	432.81	16.91	--	415.90	**0.033**	--	**0.023**	**0.023**	**0.0074**	<0.00050	<0.00050	<0.00150	--	
MW-301D	6/27/2005	432.81	13.47	--	419.34	**0.037**	--	**0.012**	**0.067**	**0.0029**	<0.00050	<0.00050	<0.00150	--	
MW-301D	9/22/2005	433.81	14.40	--	419.41	<0.0200	--	**0.014**	**0.022**	**0.0022**	<0.00050	<0.00050	<0.00150	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
MW-301D	12/6/2005	433.81	16.10	--	417.71	--	--	**0.013**	--	**0.0029**	<0.00050	<0.00050	<0.00150	--	
MW-301D	3/29/2006	433.81	17.69	--	416.12	--	--	--	--	--	--	--	--	--	
MW-301D	6/7/2006	433.81	15.45	--	418.36	--	--	--	--	--	--	--	--	--	
MW-301D	9/26/2006	100.97	15.11	--	85.86	--	--	**0.014**	--	**0.0017**	<0.00050	<0.00050	<0.00150	--	
MW-301D	3/30/2007	100.97	17.48	--	83.49	--	--	**0.01**	--	**0.003**	<0.0010	<0.0010	<0.0020	--	
MW-301D	9/15/2007	100.97	14.53	--	86.44	--	--	**0.02**	--	**0.005**	<0.0010	<0.0010	<0.0020	--	
MW-301D	3/26/2008	100.97	17.20	--	83.77	--	--	<0.0500	--	**0.00757**	<0.00050	<0.00050	<0.0010	--	
MW-301D	9/9/2008	100.97	14.09	--	86.88	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-301D	5/12/2009	100.97	16.20	--	84.77	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301D	9/30/2009	437.84	15.50	--	422.34	--	--	**0.012**	--	**0.0025**	<0.00050	<0.00050	<0.00150	--	
MW-301D	6/16/2010	437.84	16.30	--	421.54	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301D	9/25/2010	437.84	15.07	--	422.77	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301D	6/9/2011	437.84	15.94	--	421.90	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301D	9/20/2011	437.84	14.49	--	423.35	--	--	--	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301D	6/12/2012	437.84	15.08	--	422.76	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301D	10/2/2012	437.87	15.44	--	422.43	--	--	--	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301D	6/10/2013	437.87	14.55	--	423.32	--	--	<0.05000	--	**0.0016**	**0.000650 J**	<0.000240	<0.000720	--	
MW-301D	10/10/2013	437.87	15.35	--	422.52	--	--	--	--	<0.00100	<0.00100	<0.00100	<0.00300	--	
MW-301D	6/30/2014	437.87	14.02	--	423.85	--	--	<0.1000	--	<0.00100	<0.00100	<0.00100	<0.00300	--	
MW-301D	9/16/2015	437.87	13.76	--	424.11	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00050	--	
MW-301D	8/3/2016	437.87	11.53	--	426.34	--	--	<0.010	--	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-301D	9/19/2017	437.66	13.61	--	424.05	--	--	<0.010	--	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-301D	8/20/2018	437.66	12.09	--	425.57	--	--	<0.014	--	<0.0002	<0.0002	<0.0002	<0.0005	--	
MW-301D	7/10/2019	437.87	14.49	0.00	423.38	--	--	<0.1 J / <0.1 J	--	<0.00053 / <0.00053	< 0.00039 / < 0.00039	< 0.00050 / < 0.00050	< 0.00114 / < 0.00114	--	Depth to water taken from well survey dated July 25, 2019
MW-301D	6/25/2020	437.87	12.55	0.00	425.32	--	--	<0.100	--	**0.000144 J**	<0.00100	<0.00100	<0.00300	--	Depth to water taken during gauging event on 6/23/2020
MW-301D	7/16/2021	437.87	14.30	0.00	423.57	--	--	<0.100	--	<0.00100	<0.00100	<0.00100	<0.00300	--	
MW-301D	7/14/2022	437.87	12.53	0.00	425.34	--	--	<0.100	--	<0.00100	<0.00100	<0.00100	<0.00300	--	
MW-301S	3/29/2000	432.44	17.26	--	415.18	--	--	--	--	--	--	--	--	--	
MW-301S	6/28/2000	432.44	14.06	--	418.38	--	--	--	--	--	--	--	--	--	
MW-301S	9/27/2000	432.44	13.06	--	419.38	--	--	--	--	--	--	--	--	--	
MW-301S	12/20/2000	432.44	15.41	--	417.03	--	--	--	--	--	--	--	--	--	
MW-301S	3/30/2001	432.44	16.43	--	416.01	--	--	--	--	--	--	--	--	--	
MW-301S	6/28/2001	432.44	14.95	--	417.49	--	--	--	--	--	--	--	--	--	
MW-301S	9/19/2001	432.44	13.78	--	418.66	--	--	--	--	--	--	--	--	--	
MW-301S	12/12/2001	432.44	16.13	--	416.31	--	--	--	--	--	--	--	--	--	
MW-301S	3/27/2002	432.44	16.50	--	415.94	--	--	--	--	--	--	--	--	--	
MW-301S	6/25/2002	432.44	13.78	--	418.66	--	--	--	--	--	--	--	--	--	
MW-301S	9/28/2002	432.44	13.36	--	419.08	--	--	--	--	--	--	--	--	--	
MW-301S	12/17/2002	432.44	14.76	--	417.68	--	--	--	--	--	--	--	--	--	
MW-301S	4/7/2003	432.44	14.50	--	417.94	--	--	--	--	--	--	--	--	--	
MW-301S	6/24/2003	432.44	15.01	--	417.43	--	--	--	--	--	--	--	--	--	
MW-301S	9/16/2003	432.44	11.69	--	420.75	--	--	--	--	--	--	--	--	--	
MW-301S	12/22/2003	432.44	14.56	--	417.88	--	--	--	--	--	--	--	--	--	
MW-301S	3/23/2004	432.44	16.29	--	416.15	--	--	**0.013**	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301S	6/21/2004	432.44	13.93	--	418.51	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301S	9/29/2004	432.44	15.03	--	417.41	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301S	12/2/2004	432.44	16.31	--	416.13	**0.058**	--	<0.0100	**0.1**	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301S	4/6/2005	432.44	16.52	--	415.92	**0.051**	--	**0.012**	**0.054**	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301S	6/27/2005	432.44	13.08	--	419.36	**0.23**	--	**0.24**	**0.17**	**0.084**	<0.00050	<0.00050	<0.00150	--	
MW-301S	9/22/2005	433.44	14.03	--	419.41	**0.14**	--	<0.0100	**0.36**	**0.0018**	<0.00050	<0.00050	<0.00150	--	
MW-301S	12/6/2005	433.44	15.75	--	417.69	--	--	<0.0100	--	**0.0016**	<0.00050	<0.00050	<0.00150	--	
MW-301S	3/29/2006	433.44	17.27	--	416.17	--	--	--	--	--	--	--	--	--	
MW-301S	6/7/2006	433.44	15.05	--	418.39	--	--	--	--	--	--	--	--	--	
MW-301S	9/26/2006	100.60	14.73	--	85.87	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301S	3/30/2007	100.60	17.12	--	83.48	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-301S	9/15/2007	100.60	14.18	--	86.42	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-301S	3/26/2008	100.60	16.80	--	83.80	--	--	<0.0500	--	<0.00050	<0.00050	<0.00050	<0.0010	--	
MW-301S	9/9/2008	100.60	13.73	--	86.87	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-301S	5/11/2009	100.60	15.50	--	85.10	--	--	**0.011**	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301S	10/1/2009	437.49	15.10	--	422.39	--	--	**0.02**	--	**0.0034**	<0.00050	<0.00050	<0.00150	--	
MW-301S	6/16/2010	437.49	15.93	--	421.56	--	--	**0.6**	--	**0.2**	<0.00050	**0.0038**	**0.002**	--	
MW-301S	9/25/2010	437.49	14.70	--	422.79	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-301S	6/8/2011	437.49	15.57	--	421.92	--	--	--	--	--	--	--	--	--	
MW-301S	9/19/2011	437.49	14.13	--	423.36	--	--	--	--	--	--	--	--	--	
MW-301S	6/11/2012	437.49	14.70	--	422.79	--	--	--	--	--	--	--	--	--	
MW-301S	10/2/2012	437.51	15.08	--	422.43	--	--	--	--	--	--	--	--	--	
MW-301S	6/10/2013	437.51	14.22	--	423.29	--	--	--	--	--	--	--	--	--	
MW-301S	10/10/2013	437.51	15.00	--	422.51	--	--	--	--	--	--	--	--	--	
MW-301S	6/29/2014	437.51	13.66	--	423.85	--	--	--	--	--	--	--	--	--	
MW-301S	9/16/2015	437.51	13.38	--	424.13	--	--	--	--	--	--	--	--	--	
MW-301S	8/3/2016	437.51	11.16	--	426.35	--	--	--	--	--	--	--	--	--	
MW-301S	9/19/2017	437.30	13.28	--	424.02	--	--	--	--	--	--	--	--	--	
MW-301S	8/20/2018	437.31	11.75	--	425.56	--	--	--	--	--	--	--	--	--	
MW-301S	7/10/2019	437.51	14.13	0.00	423.38	--	--	--	--	--	--	--	--	--	Depth to water taken from well survey dated July 25, 2019

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
MW-301S	6/23/2020	437.51	12.19	0.00	425.32	--	--	--	--	--	--	--	--	--	Depth to water taken during gauging event on 6/23/2020
MW-301S	7/16/2021	437.51	13.94	0.00	423.57	--	--	--	--	--	--	--	--	--	
MW-301S	7/14/2022	437.51	12.25	0.00	425.26	--	--	--	--	--	--	--	--	--	
MW-302D	3/29/2000	435.32	20.28	--	415.04	--	--	--	--	--	--	--	--	--	
MW-302D	6/28/2000	435.32	17.15	--	418.17	--	--	--	--	--	--	--	--	--	
MW-302D	9/27/2000	435.32	16.09	--	419.23	--	--	--	--	--	--	--	--	--	
MW-302D	12/20/2000	435.32	18.44	--	416.88	--	--	--	--	--	--	--	--	--	
MW-302D	3/30/2001	435.32	19.45	--	415.87	--	--	--	--	--	--	--	--	--	
MW-302D	6/28/2001	435.32	18.05	--	417.27	--	--	--	--	--	--	--	--	--	
MW-302D	9/19/2001	435.32	16.76	--	418.56	--	--	--	--	--	--	--	--	--	
MW-302D	3/27/2002	435.32	19.54	--	415.78	--	--	--	--	--	--	--	--	--	
MW-302D	9/28/2002	435.32	16.32	--	419.00	--	--	--	--	--	--	--	--	--	
MW-302D	4/7/2003	435.32	17.52	--	417.80	--	--	--	--	--	--	--	--	--	
MW-302D	9/16/2003	435.32	14.73	--	420.59	--	--	--	--	--	--	--	--	--	
MW-302D	3/23/2004	435.32	19.24	--	416.08	--	--	**0.047**	--	**0.022**	<0.00050	<0.00050	<0.00150	--	
MW-302D	9/29/2004	435.32	17.97	--	417.35	--	--	**0.14**	--	**0.044**	<0.00050	<0.00050	<0.00150	--	
MW-302D	4/6/2005	435.32	19.58	--	415.74	**0.051**	--	**0.029**	**0.12**	**0.011**	<0.00050	<0.00050	<0.00150	--	
MW-302D	6/27/2005	435.32	16.20	--	419.12	**0.035**	--	**0.017**	**0.063**	**0.0061**	<0.00050	<0.00050	<0.00150	--	
MW-302D	9/21/2005	--	--	--	--	<0.0210	--	**0.068**	<0.0210	**0.024**	<0.00050	<0.00050	<0.00150	--	
MW-302D	9/22/2005	435.32	17.01	--	418.31	--	--	--	--	--	--	--	--	--	
MW-302D	12/6/2005	435.32	18.74	--	416.58	--	--	**0.056**	--	**0.017**	<0.00050	<0.00050	<0.00150	--	
MW-302D	3/29/2006	435.32	20.55	--	414.77	--	--	--	--	--	--	--	--	--	
MW-302D	6/7/2006	435.32	18.34	--	416.98	--	--	--	--	--	--	--	--	--	
MW-302D	9/26/2006	103.50	17.69	--	85.81	--	--	**0.04**	--	**0.013**	<0.00050	<0.00050	<0.00150	--	
MW-302D	3/30/2007	103.50	20.11	--	83.39	--	--	<0.0100	--	**0.004**	<0.0010	<0.0010	<0.0020	--	
MW-302D	9/15/2007	103.50	17.18	--	86.32	--	--	**0.02**	--	**0.01**	<0.0010	<0.0010	<0.0020	--	
MW-302D	3/25/2008	103.50	19.95	--	83.55	--	--	<0.0500	--	**0.00274**	<0.00050	<0.00050	<0.0010	--	
MW-302D	9/9/2008	103.50	16.78	--	86.72	--	--	**0.01**	--	**0.004**	<0.0010	<0.0010	<0.0020	--	
MW-302D	5/12/2009	103.50	18.99	--	84.51	--	--	<0.010	--	**0.0017**	<0.00050	<0.00050	<0.00150	--	
MW-302D	9/30/2009	440.39	18.05	--	422.34	--	--	**0.011**	--	**0.0028**	<0.00050	<0.00050	<0.00150	--	
MW-302D	6/16/2010	440.39	19.05	--	421.34	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302D	9/25/2010	440.39	17.77	--	422.62	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302D	6/8/2011	440.39	18.73	--	421.66	--	--	--	--	--	--	--	--	--	
MW-302D	9/19/2011	440.39	17.26	--	423.13	--	--	--	--	--	--	--	--	--	
MW-302D	6/11/2012	440.39	17.92	--	422.47	--	--	--	--	--	--	--	--	--	
MW-302D	10/2/2012	440.38	18.15	--	422.23	--	--	--	--	--	--	--	--	--	
MW-302D	6/10/2013	440.38	17.41	--	422.97	--	--	--	--	--	--	--	--	--	
MW-302D	10/10/2013	440.38	17.98	--	422.40	--	--	--	--	--	--	--	--	--	
MW-302D	6/29/2014	440.38	17.77	--	422.61	--	--	--	--	--	--	--	--	--	
MW-302D	9/16/2015	440.38	16.55	--	423.83	--	--	--	--	--	--	--	--	--	
MW-302D	8/3/2016	440.38	14.39	--	425.99	--	--	--	--	--	--	--	--	--	
MW-302D	9/19/2017	440.18								Monitoring Well Decommissioned (July 2017)					
MW-302S	3/29/2000	434.91	19.85	--	415.06	--	--	--	--	--	--	--	--	--	
MW-302S	6/28/2000	434.91	16.74	--	418.17	--	--	--	--	--	--	--	--	--	
MW-302S	9/27/2000	434.91	15.70	--	419.21	--	--	--	--	--	--	--	--	--	
MW-302S	12/20/2000	434.91	18.03	--	416.88	--	--	--	--	--	--	--	--	--	
MW-302S	3/30/2001	434.91	19.05	--	415.86	--	--	--	--	--	--	--	--	--	
MW-302S	6/28/2001	434.91	17.62	--	417.29	--	--	--	--	--	--	--	--	--	
MW-302S	9/19/2001	434.91	16.35	--	418.56	--	--	--	--	--	--	--	--	--	
MW-302S	12/12/2001	434.91	18.74	--	416.17	--	--	--	--	--	--	--	--	--	
MW-302S	3/28/2002	434.91	19.15	--	415.76	--	--	--	--	--	--	--	--	--	
MW-302S	6/25/2002	434.91	16.40	--	418.51	--	--	--	--	--	--	--	--	--	
MW-302S	9/28/2002	434.91	15.91	--	419.00	--	--	--	--	--	--	--	--	--	
MW-302S	12/17/2002	434.91	17.38	--	417.53	--	--	--	--	--	--	--	--	--	
MW-302S	4/7/2003	434.91	17.12	--	417.79	--	--	--	--	--	--	--	--	--	
MW-302S	6/24/2003	434.91	17.66	--	417.25	--	--	--	--	--	--	--	--	--	
MW-302S	9/16/2003	434.91	14.32	--	420.59	--	--	--	--	--	--	--	--	--	
MW-302S	12/22/2003	434.91	17.16	--	417.75	--	--	--	--	--	--	--	--	--	
MW-302S	3/23/2004	434.91	18.84	--	416.07	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302S	6/21/2004	434.91	16.63	--	418.28	--	--	**0.032**	--	**0.0059**	<0.00050	<0.00050	<0.00150	--	
MW-302S	9/29/2004	434.91	17.56	--	417.35	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302S	12/2/2004	434.91	18.90	--	416.01	**0.079**	--	**0.012**	**0.12**	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302S	4/6/2005	434.91	19.19	--	415.72	**0.095**	--	**0.02**	**0.057**	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302S	6/27/2005	434.91	15.81	--	419.10	**0.2**	--	**0.028**	**0.13**	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302S	9/21/2005	--	--	--	--	**0.03**	--	**0.01**	**0.077**	**0.0021**	<0.00050	<0.00050	<0.00150	--	
MW-302S	9/22/2005	434.91	16.61	--	418.30	--	--	--	--	--	--	--	--	--	
MW-302S	12/6/2005	434.91	18.34	--	416.57	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302S	3/29/2006	434.91	20.04	--	414.87	--	--	--	--	--	--	--	--	--	
MW-302S	6/7/2006	434.91	17.84	--	417.07	--	--	--	--	--	--	--	--	--	
MW-302S	9/26/2006	103.10	17.29	--	85.81	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302S	3/30/2007	103.10	19.70	--	83.40	--	--	**0.02**	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-302S	9/15/2007	103.10	16.78	--	86.32	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-302S	3/25/2008	103.10	19.45	--	83.65	--	--	<0.0500	--	<0.00050	<0.00050	<0.00050	<0.0010	--	
MW-302S	9/9/2008	103.10	16.37	--	86.73	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
MW-302S	5/8/2009	103.10	--	--	--	--	--	--	--	--	--	--	--	--	
MW-302S	10/1/2009	440.00	17.68	--	422.32	--	--	**0.019**	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302S	6/16/2010	440.00	18.70	--	421.30	--	--	**0.087**	--	**0.0006**	<0.00050	<0.00050	<0.00150	--	
MW-302S	9/25/2010	440.00	17.37	--	422.63	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-302S	6/8/2011	440.00	18.32	--	421.68	--	--	--	--	--	--	--	--	--	
MW-302S	9/19/2011	440.00	16.81	--	423.19	--	--	--	--	--	--	--	--	--	
MW-302S	6/11/2012	440.00	17.46	--	422.54	--	--	--	--	--	--	--	--	--	
MW-302S	10/2/2012	439.99	17.73	--	422.26	--	--	--	--	--	--	--	--	--	
MW-302S	6/10/2013	439.99	17.02	--	422.97	--	--	--	--	--	--	--	--	--	
MW-302S	10/10/2013	439.99	17.57	--	422.42	--	--	--	--	--	--	--	--	--	
MW-302S	6/29/2014	439.99	16.41	--	423.58	--	--	--	--	--	--	--	--	--	
MW-302S	9/16/2015	439.99	16.12	--	423.87	--	--	--	--	--	--	--	--	--	
MW-302S	8/3/2016	439.99	13.96	--	426.03	--	--	--	--	--	--	--	--	--	
MW-302S	9/19/2017	439.80								Monitoring Well Decommissioned (July 2017)					
MW-303D	9/25/2010	435.42	12.80	--	422.62	--	--	--	--	--	--	--	--	--	
MW-303D	6/8/2011	435.42	--	--	--	--	--	--	--	--	--	--	--	--	
MW-303D	9/19/2011	435.42	12.10	--	423.32	--	--	--	--	--	--	--	--	--	
MW-303D	6/11/2012	435.42	12.77	--	422.65	--	--	--	--	--	--	--	--	--	
MW-303D	10/2/2012	435.41	13.01	--	422.40	--	--	--	--	--	--	--	--	--	
MW-303D	6/10/2013	435.41	12.45	--	422.96	--	--	--	--	--	--	--	--	--	
MW-303D	10/10/2013	435.41	13.00	--	422.41	--	--	--	--	--	--	--	--	--	
MW-303D	6/29/2014	435.41	11.83	--	423.58	--	--	--	--	--	--	--	--	--	
MW-303D	9/16/2015	435.41	11.63	--	423.78	--	--	--	--	--	--	--	--	--	
MW-303D	8/3/2016	435.41	9.35	--	426.06	--	--	--	--	--	--	--	--	--	
MW-303D	9/19/2017	435.23								Monitoring Well Decommissioned (July 2017)					
MW-303S	3/28/2000	429.99	--	--	--	--	--	--	--	--	--	--	--	--	
MW-303S	6/27/2000	429.99	11.96	--	418.03	--	--	--	--	--	--	--	--	--	
MW-303S	9/26/2000	429.99	10.90	--	419.09	--	--	--	--	--	--	--	--	--	
MW-303S	12/19/2000	429.99	13.19	--	416.80	--	--	--	--	--	--	--	--	--	
MW-303S	3/30/2001	429.99	14.28	--	415.71	--	--	--	--	--	--	--	--	--	
MW-303S	6/28/2001	429.99	--	--	--	--	--	--	--	--	--	--	--	--	
MW-303S	3/27/2002	429.99	14.40	--	415.59	--	--	--	--	--	--	--	--	--	
MW-303S	4/7/2003	429.99	12.27	--	417.72	--	--	--	--	--	--	--	--	--	
MW-303S	3/24/2004	429.99	13.99	--	416.00	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-303S	4/6/2005	429.99	14.41	--	415.58	<0.0400	--	<0.0100	**0.04**	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-303S	3/30/2006	429.99	15.06	--	414.93	--	--	--	--	--	--	--	--	--	
MW-303S	9/26/2006	98.24	--	--	--	--	--	--	--	--	--	--	--	--	
MW-303S	3/31/2007	98.24	14.88	--	83.36	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-303S	5/13/2009	98.24	13.91	--	84.33	--	--	**0.011**	--	**0.0009**	<0.00050	<0.00050	<0.00150	--	
MW-303S	10/1/2009	435.10	12.90	--	422.20	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-303S	6/16/2010	435.10	13.91	--	421.19	--	--	--	--	--	--	--	--	--	
MW-303S	9/25/2010	435.10	12.57	--	422.53	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-303S	6/8/2011	435.10	13.57	--	421.53	--	--	--	--	--	--	--	--	--	
MW-303S	9/19/2011	435.10	10.81	--	424.29	--	--	--	--	--	--	--	--	--	
MW-303S	6/11/2012	435.10	--	--	--	--	--	--	--	--	--	--	--	--	
MW-303S	10/2/2012	435.11	12.73	--	422.38	--	--	--	--	--	--	--	--	--	
MW-303S	6/10/2013	435.11	12.42	--	422.69	--	--	--	--	--	--	--	--	--	
MW-303S	10/10/2013	435.11	12.71	--	422.40	--	--	--	--	--	--	--	--	--	
MW-303S	6/29/2014	435.11	11.64	--	423.47	--	--	--	--	--	--	--	--	--	
MW-303S	9/16/2015	435.11	11.35	--	423.76	--	--	--	--	--	--	--	--	--	
MW-303S	8/3/2016	435.11	9.13	--	425.98	--	--	--	--	--	--	--	--	--	
MW-303S	9/19/2017	434.89								Monitoring Well Decommissioned (July 2017)					
MW-304D	1/30/1982	103.00	18.98	--	84.02	--	--	--	--	--	--	--	--	--	
MW-304D	3/28/2000	434.86	20.15	--	414.71	--	--	--	--	--	--	--	--	--	
MW-304D	6/28/2000	434.86	17.19	--	417.67	--	--	--	--	--	--	--	--	--	
MW-304D	9/27/2000	434.86	16.04	--	418.82	--	--	--	--	--	--	--	--	--	
MW-304D	12/20/2000	434.86	18.31	--	416.55	--	--	--	--	--	--	--	--	--	
MW-304D	3/30/2001	434.86	19.35	--	415.51	--	--	--	--	--	--	--	--	--	
MW-304D	6/28/2001	434.86	18.03	--	416.83	--	--	--	--	--	--	--	--	--	
MW-304D	9/19/2001	434.86	16.56	--	418.30	--	--	--	--	--	--	--	--	--	
MW-304D	12/12/2001	434.86	19.00	--	415.86	--	--	--	--	--	--	--	--	--	
MW-304D	3/27/2002	434.86	19.47	--	415.39	--	--	--	--	--	--	--	--	--	
MW-304D	6/25/2002	434.86	16.67	--	418.19	--	--	--	--	--	--	--	--	--	
MW-304D	9/28/2002	434.86	16.14	--	418.72	--	--	--	--	--	--	--	--	--	
MW-304D	12/17/2002	434.86	17.59	--	417.27	--	--	--	--	--	--	--	--	--	
MW-304D	4/7/2003	434.86	17.35	--	417.51	--	--	--	--	--	--	--	--	--	
MW-304D	6/24/2003	434.86	18.00	--	416.86	--	--	--	--	--	--	--	--	--	
MW-304D	9/16/2003	434.86	14.69	--	420.17	--	--	--	--	--	--	--	--	--	
MW-304D	12/22/2003	434.86	17.37	--	417.49	--	--	--	--	--	--	--	--	--	
MW-304D	3/23/2004	434.86	19.03	--	415.83	--	--	**0.16 / 0.15**	--	**0.06 / 0.056**	<0.00050 / <0.00050	<0.00050 / <0.00050	<0.00150 / <0.00150	--	
MW-304D	3/24/2004	--	--	--	--	--	--	**1.5**	--	**0.097**	**0.0014**	**0.14**	**0.0067**	--	
MW-304D	6/21/2004	434.86	17.16	--	417.70	--	--	**0.21**	--	**0.081**	<0.00050	<0.00050	<0.00150	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
MW-304D	9/29/2004	434.86	17.71	--	417.15	--	--	**0.49 / 0.48**	--	**0.15 / 0.15**	**0.0005 / 0.0005**	<0.00050 / <0.00050	<0.00150 / <0.00150	--	
MW-304D	12/2/2004	434.86	19.16	--	415.70	**0.07**	--	**0.19**	**0.086**	**0.062**	<0.00050	<0.00050	<0.00150	--	
MW-304D	4/6/2005	434.86	19.52	--	415.34	**0.066**	--	**0.12**	**0.14**	**0.041**	<0.00050	<0.00050	<0.00150	--	
MW-304D	6/27/2005	434.86	16.20	--	418.66	**0.048**	--	**0.29**	**0.064**	**0.096**	<0.00050	<0.00050	<0.00150	--	
MW-304D	9/21/2005	434.86	16.85	--	418.01	**0.028**	--	**0.21**	<0.0190	**0.071**	<0.00050	<0.00050	<0.00150	--	
MW-304D	12/6/2005	434.86	18.65	--	416.21	--	--	**0.087**	--	**0.023**	<0.00050	<0.00050	<0.00150	--	
MW-304D	3/29/2006	434.86	20.00	--	414.86	--	--	--	--	--	--	--	--	--	
MW-304D	6/7/2006	434.86	17.83	--	417.03	--	--	--	--	--	--	--	--	--	
MW-304D	9/26/2006	103.00	17.48	--	85.52	--	--	**0.092**	--	**0.026**	<0.00050	<0.00050	<0.00150	--	
MW-304D	12/19/2006	103.00	18.91	--	84.09	--	--	**0.04**	--	**0.0071**	<0.0010	<0.0010	<0.0020	--	
MW-304D	3/28/2007	103.00	19.94	--	83.06	--	--	**0.03**	--	**0.008**	<0.0010	<0.0010	<0.0020	--	
MW-304D	6/8/2007	103.00	18.72	--	84.28	--	--	**0.04**	--	**0.01**	<0.0010	<0.0010	<0.0020	--	
MW-304D	9/15/2007	103.00	17.10	--	85.90	--	--	**0.04**	--	**0.01**	<0.0010	<0.0010	<0.0020	--	
MW-304D	1/30/2008	--	--	--	--	--	--	--	--	**0.006**	<0.0010	<0.0010	<0.0020	--	
MW-304D	3/25/2008	103.00	19.98	--	83.02	--	--	<0.0500	--	**0.00377**	<0.00050	<0.00050	<0.0010	--	
MW-304D	6/30/2008	103.00	18.15	--	84.85	--	--	**0.03**	--	**0.007**	<0.0010	<0.0010	<0.0020	--	
MW-304D	9/9/2008	103.00	16.93	--	86.07	--	--	**0.1**	--	**0.04**	<0.0010	<0.0010	<0.0020	--	
MW-304D	12/12/2008	103.00	--	--	--	--	--	--	--	--	--	--	--	--	
MW-304D	1/13/2009	103.00	19.62	--	83.38	--	--	**0.04**	--	**0.02**	<0.0010	<0.0010	<0.0020	--	
MW-304D	5/12/2009	103.00	19.10	--	83.90	--	--	**0.02**	--	**0.0049**	<0.00050	<0.00050	<0.00150	--	
MW-304D	9/30/2009	439.87	17.95	--	421.92	--	--	**0.015**	--	**0.0026**	<0.00050	<0.00050	<0.00150	--	
MW-304D	6/16/2010	439.87	13.91	--	425.96	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304D	9/25/2010	439.87	17.85	--	422.02	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304D	6/8/2011	439.87	19.12	--	420.75	--	--	--	--	--	--	--	--	--	
MW-304D	6/9/2011	--	--	--	--	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304D	9/19/2011	439.87	16.70	--	423.17	--	--	--	--	--	--	--	--	--	
MW-304D	9/20/2011	--	--	--	--	--	--	--	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304D	6/11/2012	439.87	17.42	--	422.45	--	--	--	--	--	--	--	--	--	
MW-304D	6/12/2012	--	--	--	--	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304D	10/2/2012	439.90	17.61	--	422.29	--	--	--	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304D	6/10/2013	439.90	17.47	--	422.43	--	--	**0.06520 J**	--	**0.0039**	**0.000440J**	<0.000240	<0.000720	--	
MW-304D	10/10/2013	439.90	17.81	--	422.09	--	--	--	--	**0.0042**	<0.00100	<0.00100	<0.00300	--	
MW-304D	6/30/2014	439.90	16.76	--	423.14	--	--	<0.1000	--	**0.002**	<0.00100	<0.00100	<0.00300	--	
MW-304D	9/16/2015	439.90	17.18	--	422.72	--	--	**0.0350 J**	--	**0.00090 J**	<0.00050	<0.00050	<0.00050	--	
MW-304D	8/3/2016	439.90	14.00	--	425.90	--	--	<0.010	--	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-304D	9/19/2017	439.70	14.58	--	425.12	--	--	<0.010	--	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-304D	8/20/2018	439.70	13.42	--	426.28	--	--	<0.014	--	<0.0002	<0.0002	<0.0002	<0.0005	--	
MW-304D	7/10/2019	439.88	16.45	0.00	423.43	--	--	<0.1 J	--	<0.00053 J	< 0.00039 J	< 0.00050 J	**0.00094 J**	--	Depth to water taken from well survey dated July 25, 2019
MW-304D	6/24/2020	439.88	14.44	0.00	425.44	--	--	<0.100	--	<0.00100	<0.00100	<0.00100	<0.00300	--	Depth to water taken during gauging event on 6/23/2020
MW-304D	7/16/2021	439.88	16.02	0.00	423.86	--	--	<0.100	--	<0.00100	<0.00100	<0.00100	<0.00300	--	
MW-304D	7/14/2022	439.88	10.43	0.00	429.45	--	--	<0.100	--	<0.00100	<0.00100	<0.00100	<0.00300 B	--	
MW-304S	3/28/2000	434.51	19.65	--	414.86	--	--	--	--	--	--	--	--	--	
MW-304S	6/28/2000	434.51	16.68	--	417.83	--	--	--	--	--	--	--	--	--	
MW-304S	9/27/2000	434.51	15.54	--	418.97	--	--	--	--	--	--	--	--	--	
MW-304S	12/20/2000	434.51	10.00	--	424.51	--	--	--	--	--	--	--	--	--	
MW-304S	3/30/2001	434.51	18.90	--	415.61	--	--	--	--	--	--	--	--	--	
MW-304S	6/28/2001	434.51	17.57	--	416.94	--	--	--	--	--	--	--	--	--	
MW-304S	3/27/2002	434.51	18.97	--	415.54	--	--	--	--	--	--	--	--	--	
MW-304S	4/7/2003	434.51	16.86	--	417.65	--	--	--	--	--	--	--	--	--	
MW-304S	3/23/2004	434.51	18.58	--	415.93	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304S	4/6/2005	434.51	19.04	--	415.47	<0.0400	--	<0.0100	<0.0400	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304S	3/29/2006	434.51	19.57	--	414.94	--	--	--	--	--	--	--	--	--	
MW-304S	9/26/2006	102.69	--	--	--	--	--	--	--	--	--	--	--	--	
MW-304S	3/28/2007	102.69	19.48	--	83.21	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-304S	5/11/2009	102.69	18.91	--	83.78	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304S	10/1/2009	439.54	17.41	--	422.13	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304S	6/16/2010	439.54	18.65	--	420.89	--	--	--	--	--	--	--	--	--	
MW-304S	9/25/2010	439.54	17.26	--	422.28	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-304S	6/8/2011	439.54	18.43	--	421.11	--	--	--	--	--	--	--	--	--	
MW-304S	9/19/2011	439.54	16.35	--	423.19	--	--	--	--	--	--	--	--	--	
MW-304S	6/11/2012	439.54	17.05	--	422.49	--	--	--	--	--	--	--	--	--	
MW-304S	10/2/2012	439.57	17.25	--	422.32	--	--	--	--	--	--	--	--	--	
MW-304S	6/10/2013	439.57	16.93	--	422.64	--	--	--	--	--	--	--	--	--	
MW-304S	10/10/2013	439.57	17.33	--	422.24	--	--	--	--	--	--	--	--	--	
MW-304S	6/29/2014	439.57	16.31	--	423.26	--	--	--	--	--	--	--	--	--	
MW-304S	9/16/2015	439.57	16.29	--	423.28	--	--	--	--	--	--	--	--	--	
MW-304S	8/3/2016	439.57	13.69	--	425.88	--	--	--	--	--	--	--	--	--	
MW-304S	9/19/2017	439.37	14.59	--	424.78	--	--	--	--	--	--	--	--	--	
MW-304S	8/20/2018	439.37	13.28	--	426.09	--	--	--	--	--	--	--	--	--	
MW-304S	7/10/2019	439.56	16.13	0.00	423.43	--	--	--	--	--	--	--	--	--	Depth to water taken from well survey dated July 25, 2019
MW-304S	6/23/2020	439.56	14.06	0.00	425.50	--	--	--	--	--	--	--	--	--	Depth to water taken during gauging event on 6/23/2020
MW-304S	7/16/2021	439.56	15.67	0.00	423.89	--	--	--	--	--	--	--	--	--	
MW-304S	7/14/2022	439.56	14.10	0.00	425.46	--	--	--	--	--	--	--	--	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
MW-305	3/28/2000	431.81	15.90	--	415.91	--	--	--	--	--	--	--	--	--	
MW-305	9/26/2000	431.81	11.63	--	420.18	--	--	--	--	--	--	--	--	--	
MW-305	3/30/2001	431.81	15.08	--	416.73	--	--	--	--	--	--	--	--	--	
MW-305	3/27/2002	431.81	15.18	--	416.63	--	--	--	--	--	--	--	--	--	
MW-305	4/8/2003	431.81	13.22	--	418.59	--	--	--	--	--	--	--	--	--	
MW-305	3/23/2004	--	--	--	--	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-305	3/24/2004	431.81	15.04	--	416.77	--	--	--	--	--	--	--	--	--	
MW-305	4/6/2005	431.81	15.21	--	416.60	--	--	--	--	--	--	--	--	--	
MW-305	4/7/2005	--	--	--	--	<0.0400	--	<0.0100	**0.056**	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-305	3/30/2006	431.81	16.78	--	415.03	--	--	--	--	--	--	--	--	--	
MW-305	9/26/2006	99.50	--	--	--	--	--	--	--	--	--	--	--	--	
MW-305	3/31/2007	99.50	15.82	--	83.68	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-305	10/1/2009	436.76	13.75	--	423.01	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-305	6/16/2010	436.76	14.45	--	422.31	--	--	--	--	--	--	--	--	--	
MW-305	9/25/2010	436.76	13.37	--	423.39	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-305	6/8/2011	436.76	14.12	--	422.64	--	--	--	--	--	--	--	--	--	
MW-305	9/19/2011	436.76	12.76	--	424.00	--	--	--	--	--	--	--	--	--	
MW-305	6/11/2012	436.76	13.25	--	423.51	--	--	--	--	--	--	--	--	--	
MW-305	10/2/2012	436.38	13.78	--	422.60	--	--	--	--	--	--	--	--	--	
MW-305	6/10/2013	436.38	12.70	--	423.68	--	--	--	--	--	--	--	--	--	
MW-305	10/10/2013	436.38	13.71	--	422.67	--	--	--	--	--	--	--	--	--	
MW-305	6/29/2014	436.38	12.35	--	424.03	--	--	--	--	--	--	--	--	--	
MW-305	8/3/2016	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-305	9/19/2017	436.38	--	--	--	--	--	--	--	--	--	--	--	--	
MW-305	8/20/2018	436.38	--	--	--	--	--	--	--	--	--	--	--	--	
MW-305	7/10/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	Well inaccessible
MW-305	6/23/2020	--	--	--	--	--	--	--	--	--	--	--	--	--	Unable to open due to well cover design
MW-305	7/16/2021	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-305	7/14/2022	436.38	11.06	0.00	425.32	--	--	--	--	--	--	--	--	--	Well vault missing completely. Only PVC and cap remain
MW-306	7/13/2006	--	10.36	--	--	--	--	<0.0100 / <0.0100	--	<0.00050 / <0.00050	<0.00050 / <0.00050	<0.00050 / <0.00050	<0.00150 / <0.00150	--	
MW-306	9/26/2006	97.93	--	--	--	--	--	--	--	--	--	--	--	--	
MW-306	3/31/2007	97.93	14.21	--	83.72	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
MW-306	5/12/2009	97.93	12.58	--	85.35	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-306	10/1/2009	434.35	11.76	--	422.59	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-306	6/16/2010	434.35	12.10	--	422.25	--	--	--	--	--	--	--	--	--	
MW-306	9/25/2010	434.35	11.33	--	423.02	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-306	6/8/2011	434.35	12.01	--	422.34	--	--	--	--	--	--	--	--	--	
MW-306	9/19/2011	434.35	10.80	--	423.55	--	--	--	--	--	--	--	--	--	
MW-306	6/11/2012	434.35	11.13	--	423.22	--	--	--	--	--	--	--	--	--	
MW-306	10/2/2012	434.41	11.82	--	422.59	--	--	--	--	--	--	--	--	--	
MW-306	6/10/2013	434.41	10.45	--	423.96	--	--	--	--	--	--	--	--	--	
MW-306	10/10/2013	434.41	11.87	--	422.54	--	--	--	--	--	--	--	--	--	
MW-306	6/29/2014	434.41	10.12	--	424.29	--	--	--	--	--	--	--	--	--	
MW-306	9/16/2015	434.14	9.89	--	424.25	--	--	--	--	--	--	--	--	--	
MW-306	8/3/2016	434.14	7.31	--	426.83	--	--	--	--	--	--	--	--	--	
MW-306	9/19/2017	433.98	10.52	--	423.46	--	--	--	--	--	--	--	--	--	
MW-306	8/20/2018	433.98	8.82	--	425.16	--	--	--	--	--	--	--	--	--	
MW-306	7/10/2019	434.17	10.81	0.00	423.36	--	--	--	--	--	--	--	--	--	Depth to water taken from well survey dated July 25, 2019
MW-306	6/23/2020	434.17	8.94	0.00	425.23	--	--	--	--	--	--	--	--	--	Depth to water taken during gauging event on 6/23/2020
MW-306	7/16/2021	434.17	10.90	0.00	423.27	--	--	--	--	--	--	--	--	--	
MW-306	7/14/2022	434.17	8.98	0.00	425.19	--	--	--	--	--	--	--	--	--	
MW-307	7/13/2006	--	13.90	--	--	--	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-307	9/26/2006	101.09	--	--	--	--	--	--	--	--	--	--	--	--	
MW-307	3/31/2007	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-307	5/8/2009	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-307	10/1/2009	438.10	15.29	--	422.81	--	--	<0.010	--	<0.00050	<0.00050	<0.00050	<0.00150	--	
MW-307	6/16/2010	438.10	--	--	--	--	--	--	--	--	--	--	--	--	
MW-307	9/25/2010	439.10	--	--	--	--	--	--	--	--	--	--	--	--	
MW-307	6/8/2011	439.10	--	--	--	--	--	--	--	--	--	--	--	--	
MW-307	9/19/2011	439.10	14.38	--	424.72	--	--	--	--	--	--	--	--	--	
MW-307	6/11/2012	439.10	14.80	--	424.30	--	--	--	--	--	--	--	--	--	
MW-307	10/2/2012	438.19	--	--	--	--	--	--	--	--	--	--	--	--	
MW-307	6/10/2013	438.19	14.22	--	423.97	--	--	--	--	--	--	--	--	--	
MW-307	10/10/2013	438.19	--	--	--	--	--	--	--	--	--	--	--	--	
MW-307	6/29/2014	438.19	13.96	--	424.23	--	--	--	--	--	--	--	--	--	
MW-307	6/30/2014	--	--	--	--	<0.42	--	<0.1000	--	<0.00100	<0.00100	<0.00100	<0.00300	--	
MW-307	9/16/2015	438.19	13.60	--	424.59	**0.24**	--	<0.0100	--	<0.00050	<0.00050	<0.00050	<0.00050	--	
MW-307	8/3/2016	438.19	11.42	--	426.77	<0.05	<0.029	<0.010	<0.075	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-307	9/19/2017	438.03	14.39	--	423.64	--	--	--	--	--	--	--	--	--	
MW-307	8/20/2018	437.98	12.70	--	425.28	**0.17 J**	<0.053J	<0.014	**0.21 J**	<0.0002	<0.0002	<0.0002	<0.0005	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
MW-307	7/10/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	Well obstructed at 14.4 ft bTOC
MW-307	6/24/2020	438.11	12.85	0.00	425.26	<0.888 J	<0.888	<0.100	<0.888 J	<0.00100	<0.00100	<0.00100	<0.00300	--	Depth to water taken during gauging event on 6/23/2020
MW-307	7/16/2021	438.11	14.66	0.00	423.45	--	--	--	--	--	--	--	--	--	Not enough water to sample
MW-307	7/14/2022	438.11	12.91	0.00	425.20	<0.800	<0.800	<0.100	<0.800	<0.00100	<0.00100	<0.00100	<0.00300	--	
GW-1B	12/2/2004	--	--	--	--	**0.066**	--	**0.019**	**0.094**	**0.0042**	<0.00050	<0.00050	<0.00150	--	
GW-1B	6/27/2005	--	--	--	--	**0.042 / 0.037**	--	**0.012 / 0.014**	**0.1 / 0.087**	**0.0043 / 0.0043**	<0.00050 / 0.0006	<0.00050 / <0.00050	<0.00150 / <0.00150	--	
GW-1B	9/21/2005	--	--	--	--	<0.0200 / <0.0210	--	**0.02 / 0.017**	<0.0200 / <0.0210	**0.0041 / 0.004**	**0.0013 / 0.0007**	<0.00050 / <0.00050	<0.00150 / <0.00150	--	
GW-1B	12/6/2005	--	--	--	--	--	--	<0.0100 / <0.0100	--	**0.002 / 0.002**	<0.00050 / <0.00050	<0.00050 / <0.00050	<0.00150 / <0.00150	--	
GW-1B	9/26/2006	--	--	--	--	--	--	<0.0100 / <0.0100	--	**0.0013 / 0.0013**	<0.00050 / <0.00050	<0.00050 / <0.00050	<0.00150 / <0.00150	--	
GW-1B	12/19/2006	--	--	--	--	--	--	<0.0100 / <0.0100	--	<0.0010 / <0.0010	<0.0010 / <0.0010	<0.0010 / <0.0010	<0.0020 / <0.0020	--	
GW-1B	3/28/2007	--	--	--	--	--	--	<0.0100 / <0.0100	--	<0.0010 / <0.0010	<0.0010 / <0.0010	<0.0010 / <0.0010	<0.0020 / <0.0020	--	
GW-1B	6/8/2007	--	--	--	--	--	--	<0.0100 / <0.0100	--	<0.0010 / <0.0010	<0.0010 / <0.0010	<0.0010 / <0.0010	<0.0020 / <0.0020	--	
GW-1B	9/14/2007	--	--	--	--	--	--	<0.0100 / <0.0100	--	**0.001 / 0.001**	<0.0010 / <0.0010	<0.0010 / <0.0010	<0.0020 / <0.0020	--	
GW-1B	6/6/2008	--	--	--	--	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030	
GW-1B	6/27/2008	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00100	<0.00100	<0.00200	--	
GW-1B	7/15/2008	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00100	<0.00100	<0.00200	--	
GW-1B	8/5/2008	--	--	--	--	--	--	<0.1000	--	**0.0024**	<0.00100	**0.0022**	<0.00200	--	
GW-1B	9/26/2008	--	--	--	--	--	--	<0.1000	--	**0.0015**	<0.00100	<0.00100	<0.00200	--	
GW-1B	10/28/2008	--	--	--	--	--	--	<0.1000	--	**0.0013**	<0.00100	<0.00100	<0.00200	--	
GW-1B	11/19/2008	--	--	--	--	--	--	<0.1000	--	**0.0018**	<0.00100	<0.00100	<0.00200	--	
GW-1B	12/22/2008	--	--	--	--	--	--	<0.1000	--	**0.0016**	<0.00100	<0.00100	<0.00200	--	
GW-1B	1/29/2009	--	--	--	--	--	--	<0.1000	--	**0.001**	<0.00100	<0.00100	<0.00200	--	
GW-1B	2/26/2009	--	--	--	--	--	--	<0.1000	--	**0.0022**	<0.00100	<0.00100	<0.00200	--	
GW-1B	3/26/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00100	<0.00100	<0.00200	--	
GW-1B	4/21/2009	--	--	--	--	--	--	<0.1000	--	**0.001**	<0.00100	<0.00100	<0.00200	--	
GW-1B	5/8/2009	--	--	--	--	--	--	<0.1000	--	**0.0024**	<0.00120	<0.00150	<0.00200	--	
GW-1B	6/24/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	7/23/2009	--	--	--	--	--	--	<0.1000	--	**0.0011**	<0.00120	<0.00150	<0.00300	--	
GW-1B	8/26/2009	--	--	--	--	--	--	**0.37**	--	**0.0033**	**0.0021**	<0.00150	<0.00300	--	
GW-1B	9/28/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	10/23/2009	--	--	--	--	--	--	<0.1000	--	**0.001**	<0.00120	<0.00150	<0.00300	--	
GW-1B	12/14/2009	--	--	--	--	--	--	<0.1000	--	**0.001**	<0.00120	<0.00150	<0.00300	--	
GW-1B	1/13/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	2/10/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	3/17/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	4/21/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	5/26/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	6/16/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	7/23/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	9/28/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	6/9/2011	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	9/20/2011	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	6/12/2012	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	10/2/2012	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-1B	8/15/2013	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	6/27/2005	--	--	--	--	**0.031**	--	**0.034**	**0.079**	**0.012**	<0.00050	<0.00050	<0.00150	--	
GW-2	9/21/2005	--	--	--	--	<0.0210	--	**0.017**	<0.0210	**0.0052**	<0.00050	<0.00050	<0.00150	--	
GW-2	3/28/2007	--	--	--	--	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	--	
GW-2	6/8/2007	--	--	--	--	--	--	<0.0100	--	**0.001**	<0.0010	<0.0010	<0.0020	--	
GW-2	9/14/2007	--	--	--	--	--	--	<0.0100	--	**0.001**	<0.0010	<0.0010	<0.0020	--	
GW-2	6/6/2008	--	--	--	--	--	--	<0.0100	--	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030	
GW-2	6/27/2008	--	--	--	--	--	--	<0.1000	--	**0.0079**	<0.00100	<0.00100	<0.00200	--	
GW-2	7/15/2008	--	--	--	--	--	--	<0.1000	--	**0.0039**	<0.00150	<0.00120	<0.00300	--	
GW-2	8/5/2008	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00100	<0.00100	<0.00200	--	
GW-2	9/26/2008	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00100	<0.00100	<0.00200	--	
GW-2	10/28/2008	--	--	--	--	--	--	<0.1000	--	**0.0011**	<0.00100	<0.00100	<0.00200	--	
GW-2	11/19/2008	--	--	--	--	--	--	<0.1000	--	**0.0017**	<0.00100	<0.00100	<0.00200	--	
GW-2	12/22/2008	--	--	--	--	--	--	<0.1000	--	**0.0015**	<0.00100	<0.00100	<0.00200	--	
GW-2	1/29/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00100	<0.00100	<0.00200	--	
GW-2	2/26/2009	--	--	--	--	--	--	<0.1000	--	**0.0016**	<0.00100	<0.00100	<0.00200	--	
GW-2	3/26/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00100	<0.00100	<0.00200	--	
GW-2	4/21/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00100	<0.00100	<0.00200	--	
GW-2	5/8/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	6/24/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	7/23/2009	--	--	--	--	--	--	<0.1000	--	**0.0013**	<0.00120	<0.00150	<0.00300	--	
GW-2	8/26/2009	--	--	--	--	--	--	**0.38**	--	**0.0036**	<0.00120	<0.00150	<0.00300	--	
GW-2	9/28/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	10/23/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	12/14/2009	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	1/13/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	2/10/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	3/17/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	4/21/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 2000 to Current
University Car Care Center / Former Texaco 211081
4103 Geist Road, Anchorage, Alaska

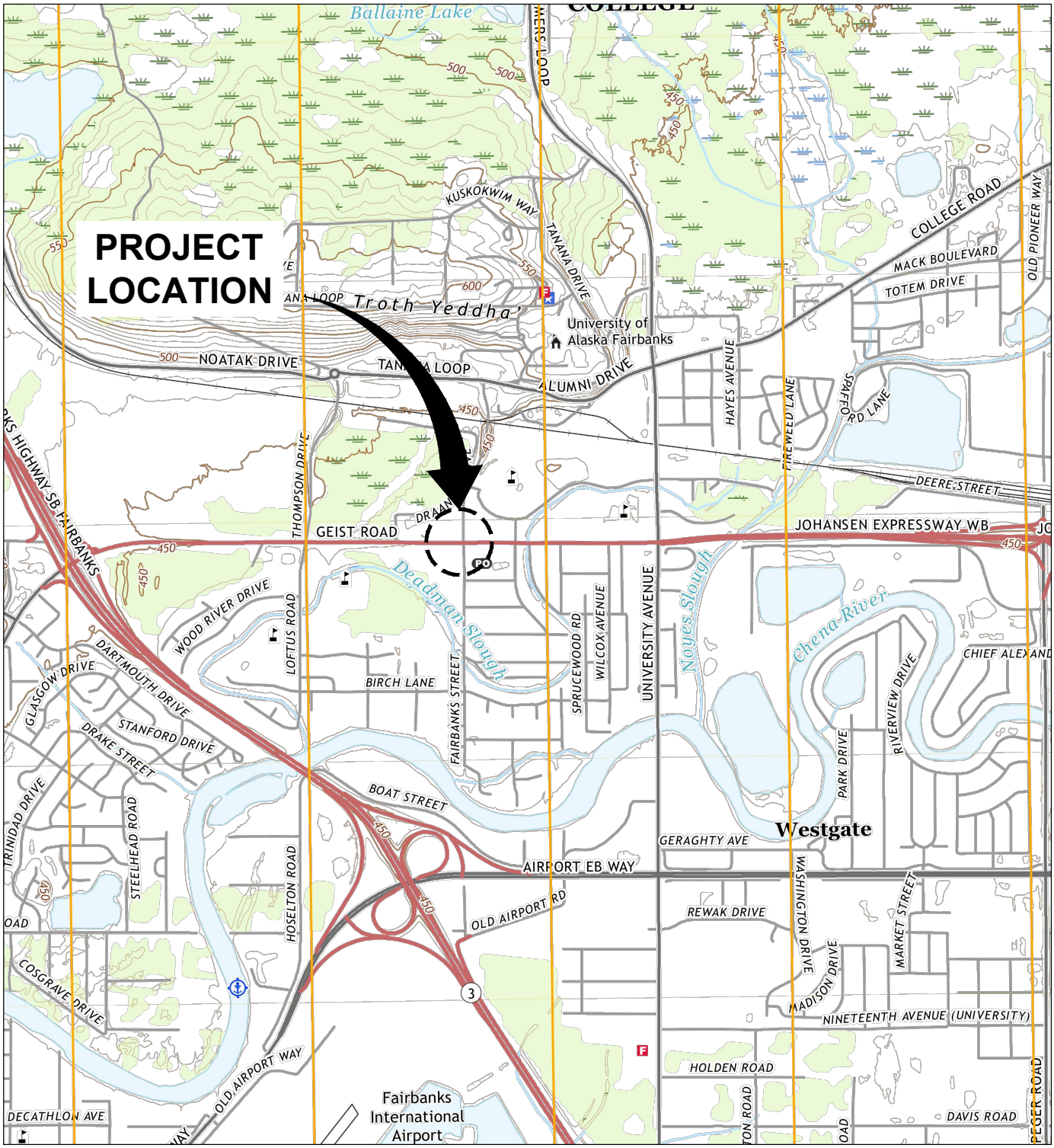
Well ID	Sample Date	TOC (ft amsl)	DTW (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft amsl)	DRO (mg/L)	DRO w/Si gel (mg/L)	GRO (mg/L)	RRO (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethybenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels [a]						**1.5**	**1.5**	**2.2**	**1.1**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**	
GW-2	5/26/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	6/16/2010	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	8/17/2010	--	--	--	--	--	--	<0.1000	--	**0.0021**	<0.00120	<0.00150	<0.00300	--	
GW-2	6/9/2011	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	9/19/2011	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	6/12/2012	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	10/2/2012	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
GW-2	8/15/2013	--	--	--	--	--	--	<0.1000	--	<0.00100	<0.00120	<0.00150	<0.00300	--	
QA (TB)	8/3/2016	--	--	--	--	--	--	<0.010	--	<0.0005	<0.0005	<0.0005	<0.0005	--	
QA (TB)	9/19/2017	--	--	--	--	--	--	<0.010	--	<0.0005	<0.0005	<0.0005	<0.0005	--	
QA (TB)	8/20/2018	--	--	--	--	--	--	<0.014	--	<0.0002	<0.0002	<0.0002	<0.0005	--	
QA (TB)	6/24/2020	--	--	--	--	--	--	<0.100	--	<0.00100	<0.00100	<0.00100	<0.00300	--	Depth to water taken during gauging event on 6/23/2020
QA (TB)	7/16/2021	--	--	--	--	--	--	**0.0488 J**	--	<0.00100	<0.00100	<0.00100	<0.00300	--	
QA (TB)	7/14/2022	--	--	--	--	--	--	**0.0307 J**	--	<0.00100	<0.00100	<0.00100	**0.000266 J**	--	
QA (EQB)	6/25/2020	--	--	--	--	<0.840	<0.840	<0.100	<0.840	<0.00100	<0.00100	<0.00100	<0.00300	--	Depth to water taken during gauging event on 6/23/2020
QA (EQB)	7/16/2021	--	--	--	--	**0.385 J**	**0.385 J**	**0.0297 J**	<0.800	**0.000265 J**	<0.00100	**0.000314 J**	**0.000854 J**	--	
QA (EQB)	7/14/2022	--	--	--	--	<0.800	<0.800	<0.100	<0.800	<0.00100	<0.00100	<0.00100	<0.00300	--	

Notes:

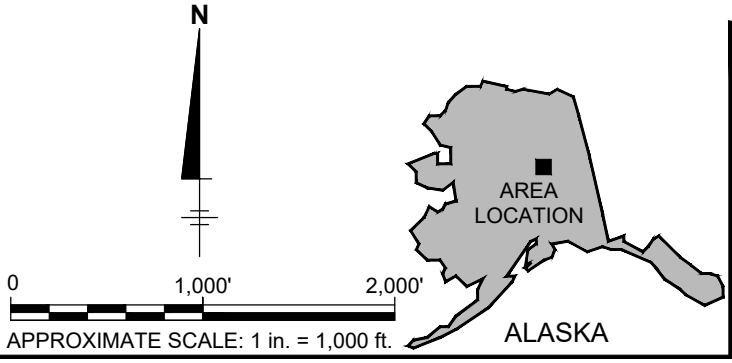
MW = Groundwater monitoring well
TOC = Top of casing
DTW = Depth to groundwater
ft bTOC = Feet below top of casing
ft = Feet relative to NAVD88
BD= Duplicate Sample
GW Elev = Groundwater elevation
mg/L = Milligrams per liter
LNAPL = Light non-aqueous phase liquid
-- = Not analyzed/ Not available
<0.800 = Not detected at or above the reported detection limit (RDL)
Bold = Value exceeds Reported detection limit (RDL)
Bold and Shaded = Value exceeds ADEC Groundwater Cleanup Level
Bold and Italicized : Constituent considered non-detect, however Laboratory RDL is greater than the ADEC Groundwater Cleanup Level
J = The associated numerical value is an estimated concentration only
B = The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
D = The sample result reported from dilution

DRO = Total petroleum hydrocarbons, diesel range by LUFT GC/MS according to Alaska Series Method AK102/103
DRO w/Si Gel = Total petroleum hydrocarbons, diesel range with silica gel by LUFT GC/MS according to Alaska Series Method AK102
GRO = Total petroleum hydrocarbons, gasoline range by LUFT GC/MS according to Alaska Series Method AK101
RRO = Total petroleum hydrocarbons, residual range oraganics by LUFT GC/MS according to Alaska Series Method AK102/103
Analytes by United States Environmental Protection Agency (USEPA) Method 8260D:
Benzene, Toluene, Ethylbenzene, and Total Xylenes (collectively called BTEX)
Total Xylenes = Sum of m-, o-, and p-xylenes
MTBE = Methyl Tertiary-Butyl Ether
ADEC = Alaska Department of Environmental Conservation
[a] = Levels established in ADEC Table C Groundwater Cleanup Levels (18 AAC 75.345)
[ ] = Blank Duplicate Sample Result
NAVD88 = The North American Vertical Datum of 1988
LUFT = Leaking Underground Fuel Tank
GC/MS = Gas chromatography/Mass Spectrometry

FIGURES



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. FAIRBANKS D-2 SE AND SW, ALASKA, 2021.

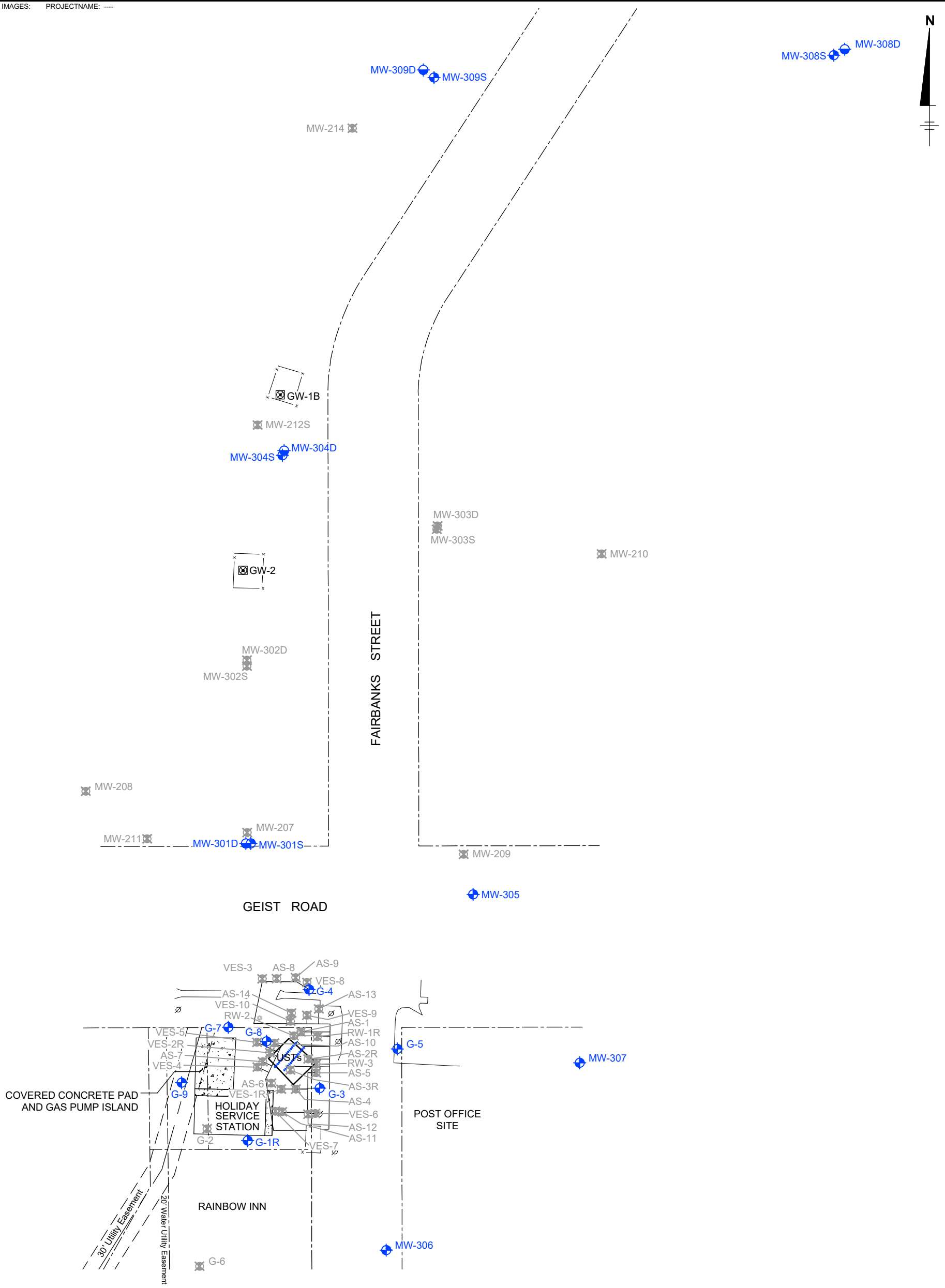


UNIVERSITY CAR CARE CENTER FORMER - TEXACO 211081
4103 GEIST ROAD
FAIRBANKS, ALASKA

SITE LOCATION MAP

ARCADIS

FIGURE 1



LEGEND:

- MW-22 — SHALLOW ZONE GROUNDWATER MONITORING WELL
- MW-20D — DEEP ZONE GROUNDWATER MONITORING WELL
- MW-210 — DECOMMISSIONED/ABANDONEDÐONITORING, AIR SPARGE, SOIL VAPOR EXTRACTION, AND RECOVERY WELLS
- GW-2 — DRINKING WATER WELL
- USTs — UNDERGROUND STORAGE TANKS
- REMEDIATION PIPING
- HORIZONTAL SOIL VAPOR EXTRACTION (SVE) WELL
- PUBLIC R-O-W BOUNDARY
- FENCE

NOTES:

1. BASE MAP PROVIDED BY GHD, DATED 12/6/2017, AT A SCALE OF 1=100'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 110' 220'

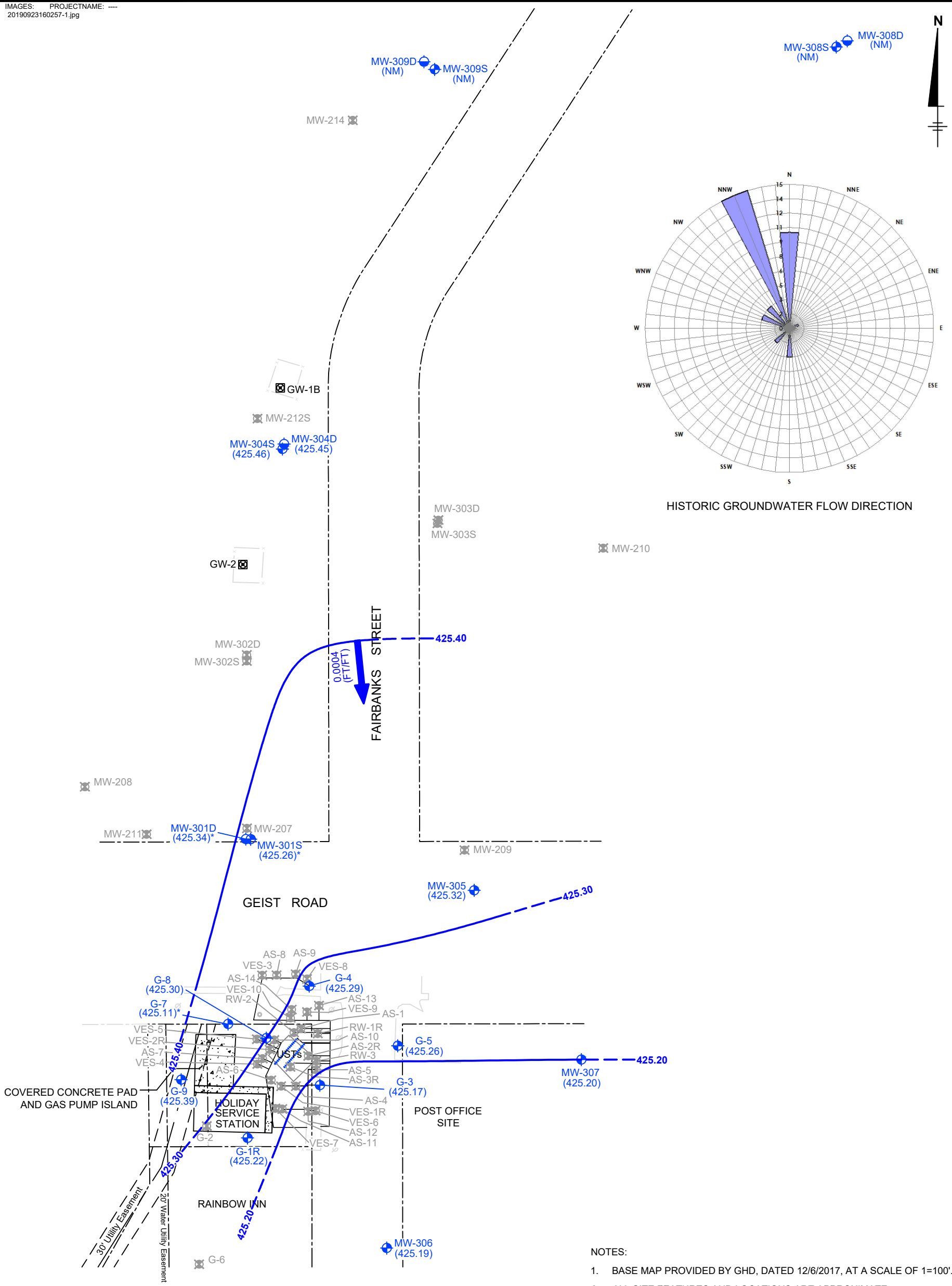
APPROXIMATE SCALE: 1 in. = 110 ft.

UNIVERSITY CAR CARE CENTER FORMER - TEXACO 211081
4103 GEIST ROAD
FAIRBANKS, ALASKA

SITE PLAN

ARCADIS

FIGURE
2



LEGEND:

- MW-22 — SHALLOW ZONE GROUNDWATER MONITORING WELL
- MW-20D — DEEP ZONE GROUNDWATER MONITORING WELL
- MW-210 — DECOMMISSIONED/ABANDONEDÐONITORING, AIR SPARGE SOIL VAPOR EXTRACTION, AND RECOVERY WELLS
- GW-2 — DRINKING WATER WELL
- USTs — UNDERGROUND STORAGE TANKS
- HORIZONTAL SOIL VAPOR EXTRACTION (SVE) WELL
- (425.46) — GROUNDWATER ELEVATION IN FEET RELATIVE TO NAVD88
- 423.80 — GROUNDWATER ELEVATION CONTOUR (FEET; DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- 0.0004 FT/FT — APPROXIMATE GROUNDWATER GRADIENT FT/FT
- (NM) — NOT MEASURED
- NAVD88 — NORTH AMERICAN VERTICAL DATUM OF 1988
- * — WELL NOT USED IN CONTOURING

NOTES:

1. BASE MAP PROVIDED BY GHD, DATED 12/6/2017, AT A SCALE OF 1=100'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 110' 220'

APPROXIMATE SCALE: 1 in. = 110 ft.

UNIVERSITY CAR CARE CENTER FORMER - TEXACO 211081
4103 GEIST ROAD
FAIRBANKS, ALASKA

GROUNDWATER ELEVATION CONTOUR MAP JULY 14, 2022

ARCADIS

FIGURE 3

N

MW-309D (NS)
MW-309S (NS)
MW-308S (NS)
MW-308D (NS)
MW-214
MW-212S
GW-1B
MW-304D
MW-304S (NS)
MW-303D
MW-303S
MW-210
GW-2
MW-302D
MW-302S
FAIRBANKS STREET
MW-208
MW-211
MW-207
MW-301S (NS)
MW-301D
MW-209
MW-305 (NS)
GEIST ROAD
VES-8
AS-9
VES-3
AS-8
G-4 (NS)
AS-13
G-7 (NS)
AS-14
VES-10
VES-9
AS-1
G-8
RW-2
RW-1R
VES-5
AS-10
VES-2R
AS-7
AS-2R
USTs
RW-3
VES-4
AS-5
G-9
AS-6
AS-3R
G-3
VES-1R
AS-4
HOLIDAY SERVICE STATION
VES-6
G-2
G-1R
AS-12
AS-11
VES-7
G-5
MW-307
POST OFFICE SITE
RAINBOW INN
20' Utility Easement
20' Water Utility E
MW-306
G-6

MW-304D	
Date	7/14/2022
DRO	--
DRO w/Si Gel	--
GRO	<0.100
RRO	--
Benzene	<0.00100
Toulene	<0.00100
Ethylbenzene	<0.00100
Total Xylenes	<0.00300 B

MW-301D	
Date	7/14/2022
DRO	--
DRO w/Si Gel	--
GRO	<0.100
RRO	--
Benzene	<0.00100
Toulene	<0.00100
Ethylbenzene	<0.00100
Total Xylenes	<0.00300

G-9	
Date	7/14/2022
DRO	<0.800
DRO w/Si Gel	<0.800
GRO	<0.100
RRO	<0.800 B
Benzene	<0.00100
Toulene	<0.00100
Ethylbenzene	<0.00100
Total Xylenes	<0.00300 B

G-1R	
Date	7/14/2022
DRO	**0.242 J**
DRO w/Si Gel	<0.800
GRO	<0.100
RRO	<0.800 B
Benzene	<0.00100
Toulene	<0.00100
Ethylbenzene	<0.00100
Total Xylenes	<0.00300

G-8	
Date	7/14/2022
DRO	**0.322 J [0.452 J]**
DRO w/Si Gel	**0.322 J [0.452 J]**
GRO	<0.100 B [<0.112 B]
RRO	<0.800 B [<0.800 B]
Benzene	**0.000715 J [0.000831 J]**
Toulene	<0.00100 [<0.00100]
Ethylbenzene	**0.00215 [0.00305]**
Total Xylenes	<0.00300 J [0.00363]

G-5	
Date	7/14/2022
DRO	**7.58**
DRO w/Si Gel	**3.42**
GRO	**13.1**
RRO	<0.800
Benzene	**0.0464 J**
Toulene	**0.0608 J**
Ethylbenzene	**0.351**
Total Xylenes	**3.79**

G-3	
Date	7/14/2022
DRO	**2.59**
DRO w/Si Gel	**0.986**
GRO	**5.37**
RRO	<0.800 B
Benzene	**0.672**
Toulene	**0.00323 J**
Ethylbenzene	**0.430**
Total Xylenes	**1.13**

MW-307	
Date	7/14/2022
DRO	<0.800
DRO w/Si Gel	<0.800
GRO	<0.100
RRO	<0.800
Benzene	<0.00100
Toulene	<0.00100
Ethylbenzene	<0.00100
Total Xylenes	<0.00300

Analyte	ADEC Groundwater Cleanup Levels
DRO	1.5
DRO w/Si Gel	1.5
GRO	2.2
RRO	1.1
Benzene	0.0046
Toluene	1.1
Ethylbenzene	0.015
Total Xylenes	0.19

Concentration in mg/L

LEGEND:

- MW-22 — SHALLOW ZONE GROUNDWATER MONITORING WELL
- MW-20D — DEEP ZONE GROUNDWATER MONITORING WELL
- MW-210 — DECOMMISSIONED/ABANDONEDÐONITORING, AIR SPARGE, SOIL VAPOR EXTRACTION AND RECOVERY WELLS
- GW-2 — DRINKING WATER WELL
- USTs — UNDERGROUND STORAGE TANKS
- HORIZONTAL SOIL VAPOR EXTRACTION (SVE) WELL
- DRO — TOTAL PETROLEUM HYDROCARBON DIESEL RANGE
- DRO w/ Si Gel — TOTAL PETROLEUM HYDROCARBONS DIESEL RANGE WITH SILICA GEL
- GRO — TOTAL PETROLEUM HYDROCARBONS GASOLINE RANGE
- RRO — TOTAL PETROLEUM HYDROCARBONS RESIDUAL RANGE ORGANICS

- <0.100 — NOT DETECTED AT OR ABOVE THE REPORTED DETECTION LIMIT (RDL)
- **BOLD** — VALUE EXCEED ADEC GROUNDWATER CLEANUP LEVEL
- **BOLD** — VALUE EXCEEDS METHOD DETECTION LIMIT
- J — THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY
- B — COMPOUND REPORTED AT THE LISTED VALUE DUE TO ASSOCIATED BLANK CONTAMINATION
- -- — NOT ANALYZED
- (NS) — NOT SAMPLED
- mg/L — MILLIGRAMS PER LITER
- [ ] — DUPLICATE SAMPLE

ADEC — ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

NOTES:

1. BASE MAP PROVIDED BY GHD, DATED 12/6/2017, AT A SCALE OF 1=100'.
2. ALL SITE FEATURES AND LOCATIONS ARE APPROXIMATE.

0 110' 220'

APPROXIMATE SCALE: 1 in. = 110 ft.

UNIVERSITY CAR CARE CENTER FORMER - TEXACO 211081
4103 GEIST ROAD
FAIRBANKS, ALASKA

GROUNDWATER ANALYTICAL RESULTS MAP JULY 14, 2022

ARCADIS

FIGURE 4

APPENDIX A

Site Background and History

ARCADIS Design & Consultancy for natural and built assets

Chevron Environmental Management Company

Appendix A:

Site History and Background

Former Texaco Facility 211081
4103 Geist Road
Fairbanks, Alaska
ADEC File No: 100.26.063
HAZARD ID No: 23798

August 21, 2020

Appendix A: 211081 Site Description and Background

1 211081 SITE BACKGROUND AND HISTORY

1.1 Site Description and Vicinity

Former Texaco Facility 211081 is located at 4103 Geist Road, in Fairbanks, Alaska, in a mixed commercial and residential area south of the University of Alaska, Fairbanks. The site currently consists of a service station operated by Holiday Companies, with three underground storage tanks (USTs), four dispensers, and a station building.

1.2 Site History

The site was formerly a University Car Care Center/Texaco service station that was decommissioned in 1992. At the time of decommissioning, all station facilities were removed. The location of the former USTs is approximately the same as the existing USTs. Petroleum impacts on the site were first identified in 1988. In 1996, the site was redeveloped by MAPCO Petroleum Company, at which time the current facilities were installed.

2 SITE CHARACTERIZATION

There are currently six groundwater monitoring wells onsite, and fifteen groundwater monitoring wells offsite. Samples from well G-5 have indicated petroleum impacts on a drainage swale running beneath Fairbanks Street, west of the site.

3 CURRENT SITE MONITORING ACTIVITIES

The site currently has a network of six onsite and fifteen offsite groundwater monitoring wells, which are monitored annually. Offsite well MW-305 was reported inaccessible during sampling in September 2017. In recent historical sampling, COPCs have exceeded their respective ADEC Method 2 groundwater cleanup levels in wells near the source area and within a drainage swale west of the site.

4 GEOLOGY AND HYDROGEOLOGY

4.1 Site Hydrogeology

The site is in the Tanana River Valley in central Alaska, and is north of the Chena River and west of the Noyes Slough. From 2000 until present, static groundwater depths at the site have ranged between 7.31 to 20.95 feet below top of casing (ft btoc). Historic ground water flow is to the north. The UAF domestic water supply wells are 450-600 feet north (downgradient) of the site, and Deadman Slough is approximately 600 feet to the southeast (upgradient).

5 REFERENCES

GHD Inc. 2017. Annual 2017 Groundwater Monitoring Report: University Car Care Center/Former Texaco 211081, 4103 Geist Road, Fairbanks, AK. December 6

APPENDIX B

Field Data Sheets

Daily Log

Project Number : 30064221

Prepared By: Evan Wujcik

Site ID: 211081

Site Name: University Car Care Center

City: Fairbanks

State: Alaska

Project Manager: Wood, Nicholas

Portfolio: COP 5.0

Subportfolio: West

Inside Chevron Operational Control? Yes ☐ No ☑

Staff on Site
Evan Wujcik

Weather(°F)	PPE	Equipment
Clear		Water Quality Meter (i.e. YSI), Water Level Meter (WLM), Bladder Pump, Photoionization Detector (PID)

Date	Time	Description of Activities
07/14/2022	09:15	Arrive on site McLane on site Locate wells
07/14/2022	10:00	Sample MW301D Decon equipment See COC for analysis
07/14/2022	10:45	Sample MW304D Decon equipment See COC for analysis
07/14/2022	11:30	Sample Mw307 Decon equipment See COC for analysis
07/14/2022	12:15	Sample G5 MS/MSD samples collected at this location Decon equipment See COC for analysis
07/14/2022	13:00	Sample G8 Blind duplicate samples collected at this location Decon equipment See COC for analysis
07/14/2022	13:45	Sample G9 Decon equipment See COC for analysis
07/14/2022	14:30	Sample G1R Decon equipment See COC for analysis
07/14/2022	15:15	Sample G3 Decon equipment See COC for analysis

Daily Log

07/14/2022	15:45	G4 and G7 obstructed. Could not sample. MW305 well vault gone. Only PVC and cap remain.
07/14/2022	16:00	Load vehicle Mobilize offsite
07/14/2022	21:30	Complete tailgate meeting and site walk Open wells for survey

Equipment and Calibration Information:

Supplier: Pine

Model:

Rental Number:

Calibrated:

Bump Checked:

Calibration Passed: yes

Water Quality Meter SN:

Date	Time	Calibrated Fulid and Value	Lot #	Expiration Date	Initial Reading	Final Reading
07/14/2022	18:41:00					

Equipment and Calibration Information:

Supplier: Pine

Model:

Rental Number:

Calibrated:

Bump Checked:

Calibration Passed: yes

PIDSN:

Date	Time	Calibrated Fulid and Value	Lot #	Expiration Date	Initial Reading	Final Reading
07/14/2022	18:41					

End of Day Questions	Yes	No	Comments	
Was waste generated?	☐	☑	Approximate volume of waste	
			Container type	
			Confirm container is not leaking	Yes ☐ No ☐
Have you performed work in accordance with the applicable QP/TGI?	☑	☐		
Change in plans (project delays)?	☐	☑		
Discovery of significant new site characteristics?	☐	☑		
Upcoming regulatory, community, or other stakeholder views change?	☐	☑		
Incident at the site?	☐	☑		

Daily Log

End of Day Questions	Yes	No	Comments
Is there a potential dispute?	☐	☐	
Identification of strategic opportunity?	☐	☑	
New application, renewal, or permit modifcation?	☐	☑	

Signature

Groundwater Gauging Log

Project Number	30064221
Client:	Chevron
Site ID:	211081
Site Location:	Fairbanks, Alaska
Measuring Point:	Top of Casing
Date(s):	07/14/2022
Sampler(s):	Evan Wujcik
Gauging Equipment:	Water Level Meter

Well ID	Date	Gauging Time	Static Water Level (ft bmp)	Depth to Product (ft bmp)	Total Depth (ft bmp)	PID Reading (ppm)	LNAPL Removed (gal)	Comments
G-4	07/14/2022	11:38	11.52	ND	16.30	0	--	Well obstructed. Could not sample.
G-7	07/14/2022	13:15	11.28	ND	17.80	0	--	Well obstructed. Could not sample.
MW-301S	07/14/2022	09:35	12.25	ND	19.00	0	--	--
MW-304S	07/14/2022	09:59	14.1	ND	21.20	0	--	--
MW-305	07/14/2022	10:26	11.06	ND	15.50	0	--	Well vault missing completely. Only PVC and cap remain
MW-306	07/14/2022	06:32	8.98	ND	14.00	0	--	--

ft-bmp = feet below measuring point ND = Not Detected PID = Photoionization Detector Reading

ppm = parts per million -- = Not Recorded

Chevron Groundwater Sampling Form

ARCADIS

Project Number	30064221	**Well ID**	G-1R	**Date**	7/14/2022		
Site Location	Fairbanks, Alaska	**Site ID**	211081	**Weather (°F)**	Clear	**Sampled by**	Evan Wujcik
Measuring Point Description	Top of Casing	**Screen Depth Interval (ft-bmp)**	-- to --	**Casing Diameter (in.)**	4	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.44	**Total Depth (ft-bmp)**	17.7	**Water Column (ft)**	7.26	**Gallons in Well**	4.72
Water Quality Meter Make/Model	Horiba U-52	**Purge Method**	Low-Flow	**Sample Method**			Grab
Sample Time	14:30	**Well Volumes Purged**	0.13	**Sample ID**	G-1R-W-20220714	**Evacuation Equipment**	Bladder
Purge Start	14:00	**Gallons Purged**	0.63	**Duplicate ID**	--		
Purge End	14:20	**Total Purge Time (h:m)**	0:20				

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
14:03	200	10.44	7.40	1.02	116	0.00	8.46	26	--	--
14:06	200	10.44	7.40	1.04	101	0.00	8.14	26	--	--
14:09	200	10.44	7.43	1.04	96.0	0.00	7.88	25	--	--
14:12	200	10.44	7.39	1.05	94.7	0.00	7.81	25	--	--

Comments: None

Well Casing Volume Conversion

Well diameter (in.) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Sample Information

Sample ID: G-1R-W-20220714 Sample Time: 14:30 Sample Depth (ft-bmp): 11

Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
PVC = Polyvinyl Chloride

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
-- = Not Recorded

Chevron Groundwater Sampling Form

ARCADIS

Project Number	30064221	**Well ID**	G-3	**Date**	7/14/2022		
Site Location	Fairbanks, Alaska	**Site ID**	211081	**Weather (°F)**	Clear	**Sampled by**	Evan Wujcik
Measuring Point Description	Top of Casing	**Screen Depth Interval (ft-bmp)**	-- to --	**Casing Diameter (in.)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	9.56	**Total Depth (ft-bmp)**	18.8	**Water Column (ft)**	9.24	**Gallons in Well**	1.5
Water Quality Meter Make/Model	Horiba U-52	**Purge Method**	Low-Flow	**Sample Method**			Grab
Sample Time	15:15	**Well Volumes Purged**	0.42	**Sample ID**	G-3-W-20220714	**Evacuation Equipment**	Bladder
Purge Start	14:50	**Gallons Purged**	0.63	**Duplicate ID**	--		
Purge End	15:10	**Total Purge Time (h:m)**	0:20				

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
14:53	200	9.57	7.30	1.19	32.4	10.87	8.20	9	--	--
14:56	200	9.57	7.34	1.23	17.3	10.67	6.99	-6	--	--
14:59	200	9.57	7.37	1.25	14.3	10.27	6.28	-17	--	--
15:02	200	9.57	7.39	1.27	12.3	10.22	6.04	-21	--	--
15:05	200	9.57	7.40	1.26	11.1	10.16	5.84	-27	--	--

Comments: None

Well Casing Volume Conversion

Well diameter (in.) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Sample Information

Sample ID: G-3-W-20220714 Sample Time: 15:15 Sample Depth (ft-bmp): 10

Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
PVC = Polyvinyl Chloride

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
-- = Not Recorded

Chevron Groundwater Sampling Form

ARCADIS

Project Number	30064221	**Well ID**	G-5	**Date**	7/14/2022		
Site Location	Fairbanks, Alaska	**Site ID**	211081	**Weather (°F)**	Clear	**Sampled by**	Evan Wujcik
Measuring Point Description	Top of Casing	**Screen Depth Interval (ft-bmp)**	-- to --	**Casing Diameter (in.)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.02	**Total Depth (ft-bmp)**	18.9	**Water Column (ft)**	8.88	**Gallons in Well**	1.44
Water Quality Meter Make/Model	Horiba U-52	**Purge Method**	Low-Flow	**Sample Method**			Grab
Sample Time	12:15	**Well Volumes Purged**	0.55	**Sample ID**	G-5-W-20220714	**Evacuation Equipment**	Bladder
Purge Start	11:50	**Gallons Purged**	0.79	**Duplicate ID**	MS/MSD		
Purge End	12:10	**Total Purge Time (h:m)**	0:20				

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
11:53	200	10.04	7.60	1.11	14.5	0.00	5.06	65	--	--
11:56	200	10.04	7.62	1.13	12.7	0.00	4.15	37	--	--
11:59	200	10.04	7.59	1.13	11.8	0.00	3.96	21	--	--
12:02	200	10.04	7.61	1.13	11.2	0.00	3.80	8	--	--
12:05	200	10.04	7.57	1.13	10.8	0.00	3.77	3	--	--

Comments: None

Well Casing Volume Conversion

Well diameter (in.) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Sample Information

Sample ID: G-5-W-20220714 Sample Time: 12:15 Sample Depth (ft-bmp): 10.5

Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
PVC = Polyvinyl Chloride

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
-- = Not Recorded

Chevron Groundwater Sampling Form

ARCADIS

Project Number	30064221	**Well ID**	G-8	**Date**	7/14/2022		
Site Location	Fairbanks, Alaska	**Site ID**	211081	**Weather (°F)**	Clear	**Sampled by**	Evan Wujcik
Measuring Point Description	Top of Casing	**Screen Depth Interval (ft-bmp)**	-- to --	**Casing Diameter (in.)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.73	**Total Depth (ft-bmp)**	19.9	**Water Column (ft)**	9.17	**Gallons in Well**	1.49
Water Quality Meter Make/Model	Horiba U-52	**Purge Method**	Low-Flow	**Sample Method**			Grab
Sample Time	13:00	**Well Volumes Purged**	0.43	**Sample ID**	G-8-W-20220714	**Evacuation Equipment**	Bladder
Purge Start	12:30	**Gallons Purged**	0.63	**Duplicate ID**	BD		
Purge End	12:50	**Total Purge Time (h:m)**	0:20				

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
12:33	200	10.75	7.51	1.31	159	0.00	7.12	16	--	--
12:36	200	10.75	7.50	1.31	132	0.00	6.94	17	--	--
12:39	200	10.75	7.47	1.30	113	0.00	6.92	18	--	--
12:42	200	10.75	7.45	1.30	102	0.00	6.77	19	--	--

Comments: None

Well Casing Volume Conversion

Well diameter (in.) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Sample Information

Sample ID: G-8-W-20220714 Sample Time: 13:00 Sample Depth (ft-bmp): 11

Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
PVC = Polyvinyl Chloride

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
-- = Not Recorded

Chevron Groundwater Sampling Form

ARCADIS

Project Number	30064221	**Well ID**	G-9	**Date**	7/14/2022		
Site Location	Fairbanks, Alaska	**Site ID**	211081	**Weather (°F)**	Clear	**Sampled by**	Evan Wujcik
Measuring Point Description	Top of Casing	**Screen Depth Interval (ft-bmp)**	-- to --	**Casing Diameter (in.)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	10.45	**Total Depth (ft-bmp)**	18.9	**Water Column (ft)**	8.45	**Gallons in Well**	1.37
Water Quality Meter Make/Model	Horiba U-52	**Purge Method**	Low-Flow	**Sample Method**			Grab
Sample Time	13:45	**Well Volumes Purged**	0.46	**Sample ID**	G-9-W-20220714	**Evacuation Equipment**	Bladder
Purge Start	13:20	**Gallons Purged**	0.63	**Duplicate ID**	--		
Purge End	13:40	**Total Purge Time (h:m)**	0:20				

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
13:23	200	10.46	7.39	0.968	372	11.63	8.03	63	--	--
13:26	200	10.46	7.40	0.922	397	11.46	7.19	57	--	--
13:29	200	10.46	7.49	0.894	384	10.98	6.68	52	--	--
13:32	200	10.46	7.48	0.881	375	10.73	6.42	49	--	--

Comments: None

Well Casing Volume Conversion

Well diameter (in.) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Sample Information

Sample ID: G-9-W-20220714 Sample Time: 13:45 Sample Depth (ft-bmp): 11

Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
PVC = Polyvinyl Chloride

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
-- = Not Recorded

Chevron Groundwater Sampling Form

ARCADIS

Project Number	30064221	**Well ID**	MW-301D	**Date**	7/14/2022		
Site Location	Fairbanks, Alaska	**Site ID**	211081	**Weather (°F)**	Clear	**Sampled by**	Evan Wujcik
Measuring Point Description	Top of Casing	**Screen Depth Interval (ft-bmp)**	-- to --	**Casing Diameter (in.)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.53	**Total Depth (ft-bmp)**	32.1	**Water Column (ft)**	19.57	**Gallons in Well**	3.18
Water Quality Meter Make/Model	Horiba U-52	**Purge Method**	Low-Flow	**Sample Method**			Grab
Sample Time	10:00	**Well Volumes Purged**	0.20	**Sample ID**	MW-301D-W-20220714	**Evacuation Equipment**	Bladder
Purge Start	09:30	**Gallons Purged**	0.63	**Duplicate ID**	--		
Purge End	09:50	**Total Purge Time (h:m)**	0:20				

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
09:33	200	12.55	8.24	0.731	4.1	0.68	7.86	81	--	--
09:36	200	12.55	8.29	0.742	3.4	0.15	6.18	52	--	--
09:39	200	12.55	8.28	0.746	3.3	0.00	6.32	28	--	--
09:42	200	12.55	8.23	0.749	3.2	0.00	6.11	14	--	--

Comments: None

Well Casing Volume Conversion

Well diameter (in.) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Sample Information

Sample ID: MW-301D-W-20220714 Sample Time: 10:00 Sample Depth (ft-bmp): 13

Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
PVC = Polyvinyl Chloride

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
-- = Not Recorded

Chevron Groundwater Sampling Form

ARCADIS

Project Number	30064221	**Well ID**	MW-304D	**Date**	7/14/2022		
Site Location	Fairbanks, Alaska	**Site ID**	211081	**Weather (°F)**	Clear	**Sampled by**	Evan Wujcik
Measuring Point Description	Top of Casing	**Screen Depth Interval (ft-bmp)**	-- to --	**Casing Diameter (in.)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	14.43	**Total Depth (ft-bmp)**	60	**Water Column (ft)**	45.57	**Gallons in Well**	7.4
Water Quality Meter Make/Model	Horiba U-52	**Purge Method**	Low-Flow	**Sample Method**			Grab

Sample Time	10:45	**Well Volumes Purged**	0.09	**Sample ID**	MW-304D-W-20220714	**Evacuation Equipment**	Bladder
Purge Start	10:20	**Gallons Purged**	0.63	**Duplicate ID**	--		
Purge End	10:40	**Total Purge Time (h:m)**	0:20				

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
10:23	200	14.45	8.11	0.781	5.8	11.32	8.48	8	--	--
10:26	200	14.45	8.18	0.784	5.5	11.11	8.27	10	--	--
10:29	200	14.45	8.21	0.786	5.3	10.96	8.19	12	--	--
10:32	200	14.45	8.19	0.787	5.5	10.80	8.08	17	--	--

Comments: None

Well Casing Volume Conversion

Well diameter (in.) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Sample Information

Sample ID: MW-304D-W-20220714 Sample Time: 10:45 Sample Depth (ft-bmp): 15

Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
PVC = Polyvinyl Chloride

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
-- = Not Recorded

Chevron Groundwater Sampling Form

ARCADIS

Project Number	30064221	**Well ID**	MW-307	**Date**	7/14/2022		
Site Location	Fairbanks, Alaska	**Site ID**	211081	**Weather (°F)**	Clear	**Sampled by**	Evan Wujcik
Measuring Point Description	Top of Casing	**Screen Depth Interval (ft-bmp)**	-- to --	**Casing Diameter (in.)**	2	**Well Casing Material**	PVC
Static Water Level (ft-bmp)	12.91	**Total Depth (ft-bmp)**	14.4	**Water Column (ft)**	1.49	**Gallons in Well**	0.24
Water Quality Meter Make/Model	Horiba U-52	**Purge Method**	Low-Flow	**Sample Method**			Grab
Sample Time	11:30	**Well Volumes Purged**	3.96	**Sample ID**	MW-307-W-20220714	**Evacuation Equipment**	Bladder
Purge Start	11:00	**Gallons Purged**	0.95	**Duplicate ID**	--		
Purge End	11:20	**Total Purge Time (h:m)**	0:20				

Time	Rate (ml/min)	Depth to Water (ft)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
									Color	Odor
11:03	200	13.00	7.91	0.831	151	12.66	7.82	84	--	--
11:06	200	13.00	7.75	0.836	140	12.79	6.79	86	--	--
11:09	200	13.00	7.81	0.817	130	11.54	7.07	88	--	--
11:12	200	13.00	7.76	0.800	122	10.42	8.40	91	--	--
11:15	200	13.00	7.69	0.832	129	11.28	7.35	95	--	--
11:18	200	13.00	7.66	0.824	126	11.62	6.78	96	--	--

Comments: None

Well Casing Volume Conversion

Well diameter (in.) = gallons per foot
1 = 0.04 1.5 = 0.09 2.5 = 0.26 3.5 = 0.50 6 = 1.47
1.25 = 0.06 2 = 0.16 3 = 0.37 4 = 0.65

Sample Information

Sample ID: MW-307-W-20220714 Sample Time: 11:30 Sample Depth (ft-bmp): 13.5

Analytes and Methods: See Chain-of-Custody.

ft-bmp = feet below measuring point
in. = inches
ft = feet
mL/min = milliliters per minute

mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit
mg/L = milligrams per liter
PVC = Polyvinyl Chloride

mV = millivolts
°F = degrees Fahrenheit
°C = degrees Celsius
-- = Not Recorded

APPENDIX C

Technical Guidance Instructions for Investigation Derived Waste Treatment Utilizing Granular Activated Carbon

SOP – Investigation Derived Waste (IDW) Treatment Utilizing Granular Activated Carbon (GAC)

Rev: 0

Rev Date: May 24, 2022

Version Control

Issue	Revision No.	Date Issued	Page No.	Description	Reviewed By

Approval Signatures

Prepared by:

Elysha Nygaard — 5/24/2022
Elysha Nygaard — Date

Reviewed by:

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Gerald Robinson — 5/24/2022
Gerald Robinson — Date

1 Introduction

The objective of this Standard Operating Procedure (SOP) is to describe methods and procedures utilizing granular activated carbon (GAC) for treatment of purged groundwater produced during groundwater monitoring and sampling activities. This SOP is only applicable to impacted groundwater considered to be non-hazardous by the Resource Conservation and Recovery Act (RCRA) regulations. The United States Environmental Protection Agency (USEPA) Operating Procedure for the Management of Investigation Derived Waste (IDW), states that non-hazardous liquids may be discharged to the ground surface as long as doing so does not endanger human health, the environment, or violate state or federal regulations. Management and transportation of purged groundwater may have project, client and/or agency specific requirements and may require approval prior to initiating GAC treatment.

2 Intended Use and Responsibilities

This document describes general and/or specific procedures, methods, actions, steps, and considerations to be used and observed by Arcadis staff when performing work, tasks, or actions under the scope and relevancy of this document. This document may describe expectations, requirements, guidance, recommendations, and/or instructions pertinent to the service, work task, or activity it covers.

It is the responsibility of the Arcadis Certified Project Manager (CPM) to provide this document to the persons conducting services that fall under the scope and purpose of this procedure, instruction, and/or guidance. The Arcadis CPM will also ensure that the persons conducting the work falling under this document are appropriately trained and familiar with its content. The persons conducting the work under this document are required to meet the minimum competency requirements outlined herein, and inquire to the CPM regarding any questions, misunderstanding, or discrepancy related to the work under this document.

This document is not considered to be all inclusive nor does it apply to all projects. It is the CPM's responsibility to determine the proper scope and personnel required for each project. There may be project- and/or client- and/or state-specific requirements that may be more or less stringent than what is described herein. The CPM is responsible for informing Arcadis and/or Subcontractor personnel of omissions and/or deviations from this document that may be required for the project. In turn, project staff are required to inform the CPM if or when there is a deviation or omission from work performed as compared to what is described herein.

In following this document to execute the scope of work for a project, it may be necessary for staff to make professional judgment decisions to meet the project's scope of work based upon site conditions, staffing expertise, regulation-specific requirements, health and safety concerns, etc. Staff are required to consult with the CPM when or if a deviation or omission from this document is required that has not already been previously approved by the CPM. Upon approval by the CPM, the staff can perform the deviation or omission as confirmed by the CPM.

3 Scope and Application

Activated carbon is one of the most commonly used treatment methodologies for groundwater extraction and treatment remediation systems (USEPA, 2012) and is proven to be a safe engineering practice to remove organic constituents from waste waters. (USEPA, 1991). GAC media can remove petroleum and solvent volatile organic

compounds (VOCs) and other compounds such as per- and polyfluoroalkyl substances (PFAS), chloramines and trihalomethanes from water.

Groundwater wells are purged and treated with GAC media provided that no measurable non-aqueous phase liquid (NAPL) is present. As purge water is passed through the activated carbon contained in a portable vessel, constituents of potential concern (COPCs) adsorb on the surface area of the carbon granules and the treated water passes through the carbon matrix and is discharged to ground surface.

Estimation of the usage rate of GAC to predict breakthrough values relies on site and media specific data. For large scale GAC treatment systems, pilot testing may be conducted to obtain these values. For small scale portable GAC treatment systems across various sites, pilot testing may be cost and time prohibitive, as well as potentially inaccurate due to the variability in concentrations of COPCs. Therefore, Freundlich Isotherm modeling is commonly used to calculate breakthrough estimates of target COPCs.

Use of a portable GAC vessels effectively treats COPCs in generated purge water to desired concentrations applicable to regulatory criteria. Use of a GAC vessels also reduces the overall operational impact to the site and removes the need for drumming, storage, characterization and disposal of purged groundwater.

4 Personnel Qualifications

Arcadis field personnel will have completed site-specific training as well as have current health and safety training as required by Arcadis, client, or regulations such as the 40-hour HAZWOPER training and annual 8-hour HAZWOPER refresher. Arcadis personnel will also have up to date training as specified in the Health and Safety Plan (HASP) which may include first aid, fire extinguisher use or COPC specific trainings as needed. In addition, Arcadis personnel conducting work will be knowledgeable in the relevant processes, procedures, scope of work (SOW), standard operating procedures (SOPs) and Technical Guidance Instruction (TGIs), and possess the required skills and experience necessary to successfully and safely complete the work. The HASP and other site-specific SOW documentation will identify other training or work requirements.

5 Equipment List

The following field equipment is suggested for treating purged groundwater utilizing a portable GAC vessel:

- Appropriate personal protective equipment (PPE) as specified in the HASP
- Electronic oil-water interface probe and water level indicator with 0.01-foot increments
- Photoionization detector (PID) and/or other air quality measurement equipment as required by the HASP
- Non-phosphate laboratory soap (Alconox® or equivalent)
- Distilled, de-ionized, or potable water for equipment decontamination
- GAC media and portable vessel, including valves and fittings
- 5-gallon buckets
- Tubing
- Groundwater purge equipment such as submersible pumps or bailers
- Plastic drop cloth (e.g. Visqueen) to place beneath portable GAC vessel to reduce potential contamination from spills
- Tools and/or keys for accessing and opening wells
- FieldNow capable device or field logs

- GAC Volume Tracking Form

6 Cautions

Electronic water-level indicators and interface probes may sometimes produce false-positive readings. For accuracy, the probe should be raised and lowered several times to verify consistent, repeatable results. Ensure that the type of indicator or probe is compatible with the depth and diameter of the wells to be measured. If the presence of NAPL is suspected, do not use a water level indicator, use an oil-water interface probe. Purge water containing NAPL should not be treated using GAC methods.

Minimize the amount of sediment in purge water by pre-filtering, this will ensure GAC media filters impacted water efficiently.

7 Health and Safety Considerations

The site-specific HASP will be followed to ensure the safety of Arcadis field personnel. Access to groundwater wells may expose personnel to hazardous materials such as contaminated groundwater or petroleum compounds. Other potential hazards include pressurized wells, insects or animals that may inhabit the wells, other biological or environmental hazards in the vicinity of the well (e.g. dense vegetation and slope) and potentially the use of sharp tools (e.g. scissors or safety blade). Appropriate PPE will be worn and control measures taken while conducting these activities. Proper lifting and handling techniques will be used when moving portable GAC vessels and related materials.

8 Procedure

Background

Portable vessels containing GAC media are utilized as on-site treatment of impacted purge water during groundwater monitoring and sampling activities. As purge water passes through the carbon granules, VOCs adsorb to the surface area, allowing treated water to pass through and allow for discharge and disposal to ground surface.

Maximum concentrations of site-specific COPCs are utilized to calculate carbon usage rates. To calculate the volume of water that can be treated during purging before breakthrough occurs, Freundlich Isotherm equations are used. The Freundlich Isotherm is an empirically derived adsorption equation relating the concentration of a COPC within the impacted purge water to the concentration of the COPC on the surface of the adsorption material (GAC) (USEPA, 1980). Using these parameters for a given COPC concentration, carbon usage rates can be calculated for the rate and volume of purge water that can be treated per weight of GAC material in a single portable vessel as well as breakthrough estimates. The USEPA provides a free download of the Environmental Technologies Design Option Tool (ETDOT), which includes the Adsorption Design Software (AdDesignS™) to model groundwater treatment with GAC using Freundlich Isotherms. Software can be downloaded from the link below:

https://github.com/USEPA/Environmental-Technologies-Design-Option-Tool

While this document is intended as general guidance for Arcadis use, a model using the Chevron Environmental Company (CEMC) Alaska Portfolio of Sites is provided in Attachment A as a specific example utilizing the

AdDesignS™ isotherm software to calculate GAC breakthrough to meet the Alaska Department of Environmental Preservation (ADEP) criteria.

General Assumptions for GAC Usage

- GAC adsorbs uniformly, entire capacity is utilized prior to breakthrough
- Virgin granular activated carbon produced from coconut shell
- Disregard minor losses due to environmental factors such as ambient temperature (not including extreme temperatures)
- Neutral pH of groundwater (increase carbon bed by 20% per every unit above a pH of 7.0)
- COPCs are dissolved phase; no free product
- Typical density for GAC media is approximately 0.50 – 0.80 g/mL
- Suspended solids are not inhibiting adsorption
- Assume general background concentrations of non-COPCs that may affect COPC adsorption (fluoride, nitrate, phosphate, etc.)
- GAC media can immobilize 4% – 10% of its total mass (DeSilva, 2000)
- Volume of GAC vessel sufficient to ensure adequate contact time between untreated water and GAC media

Field Procedures

Prior to each use of the GAC vessel, the carbon material will be saturated with potable water and allowed to sit for 24 hours. Saturating the carbon opens pore space and increases surface area of the granules, reducing the potential formation of preferential pathways and resulting in optimal performance of the GAC material each time it is used.

Groundwater wells containing measurable NAPL will not be purged or treated through the portable GAC vessel. The presence of NAPL reduces the adsorption capacity and clogs pore space of the carbon media.

Purged groundwater will be pumped through the portable GAC vessel (Attachment C) at no more than the established flow rate (typically 200 to 300 milliliters per minute [mL/min]) to allow for adequate treatment time. As the untreated water begins to purge through the GAC vessel, the valve is opened to allow the treated water to discharge into a labeled waste container prior to discharge. Locations of discharged GAC treated water will be pre-determined and will not be in the immediate vicinity of any surface water, stormwater drains or any other sensitive receptors. After completing discharge of treated purge water, the portable GAC vessel valve will be closed.

Following the completion of groundwater monitoring and sampling activities, field personnel will record the total volume of purged water that has been treated on the GAC Tracking Log (Attachment B), which will remain with the portable GAC vessel until disposal. The following procedure should be followed when using a portable GAC vessel:

- Connect pump or evacuation equipment to well and a portable GAC vessel
- Connect portable GAC vessel outlet to a separate labeled waste container for treated purge water
- Purge impacted groundwater through the portable GAC vessel

- Discharge treated purge water from the GAC vessel into a identified waste container
- Document volume purged on GAC Tracking Log

- Discharge the treated purge water to pre-identified location onsite away from any sensitive receptors
- Replace GAC media prior to reaching calculated breakthrough values
- Store GAC in appropriate labeled container for staging and/or transportation and removal

9 Waste Management

Decontamination fluids, used PPE, and other disposable equipment will be properly stored on site in labeled containers and disposed of properly. Used GAC material will be containerized and labeled for transportation off site for re-use, disposal or regeneration. Ensure all waste is properly stored, labeled and documented in field logs. Review the *TGI – Investigation Derived Waste Handling and Storage* for additional information and refer to agency and/or client specific requirements.

10 Data Recording and Management

Digital data collection is the Arcadis standard using available FieldNow® applications that enable real-time, paperless data collection, entry, and automated reporting. Paper forms should only be used as backup to FieldNow® digital data collection and/or as necessary to collect data not captured by available FieldNow® applications. The Field Now® digital form applications follow a standardized approach, correlate to most TGIs and are available to all projects accessible with a PC or capable mobile device. Once the digital forms are saved within FieldNow®, the data is instantly available for review on a web interface. This facilitates review by project management team members and SMEs enabling error or anomalous data detection for correction while the staff are still in the field. Continual improvements of FieldNow® applications are ongoing, and revisions are made as necessary in response to feedback from users and subject matter experts.

11 Quality Assurance

Conducting sampling of GAC treated effluent purge water may be required to demonstrate that treatment is effective.

12 References

DeSilva, Frank. 2000. Activated Carbon Filtration. Water Quality Products Magazine. January

USEPA. 1980. Carbon Adsorption Isotherms for Toxic Organics. Wastewater Research Division. Municipal Environmental Research Laboratory, Cincinnati, Ohio. EPA-600/08-80-23. April.

USEPA. 1991. Engineering Bulletin, Granular Activated Carbon Treatment. Superfund EPA-540/02-91/024. October.

USEPA 2012. A Citizens Guide to Activated Carbon Treatment. Office of Solid Waste and Emergency Response. September.

Attachments

Attachment A	Chevron Environmental Management Company – Alaska Portfolio Isotherm Model
Attachment B	GAC Tracking Log
Attachment C	Portable GAC Vessel Diagram

Attachment A

Chevron Environmental Management Company – Alaska Portfolio Isotherms

Attachment A Chevron Environmental Management Company – Alaska Portfolio Isotherm Model

On behalf of Chevron Environmental Management Company (CEMC), Arcadis prepared conservative GAC breakthrough estimates for COPCs observed at Sites located across Anchorage and Fairbanks at the request of the Alaska Department of Environmental Preservation (ADEP). The USEPA recommended AdDesignS™ isotherm software was utilized to model the time until breakthrough is first observed.

Site Specific Modeling Parameters

To demonstrate the effective treatment of petroleum constituents in groundwater via GAC without confirmation samples, Arcadis has applied conservative parameters to the calculations for GAC breakthrough. The following parameters and conditions have been applied:

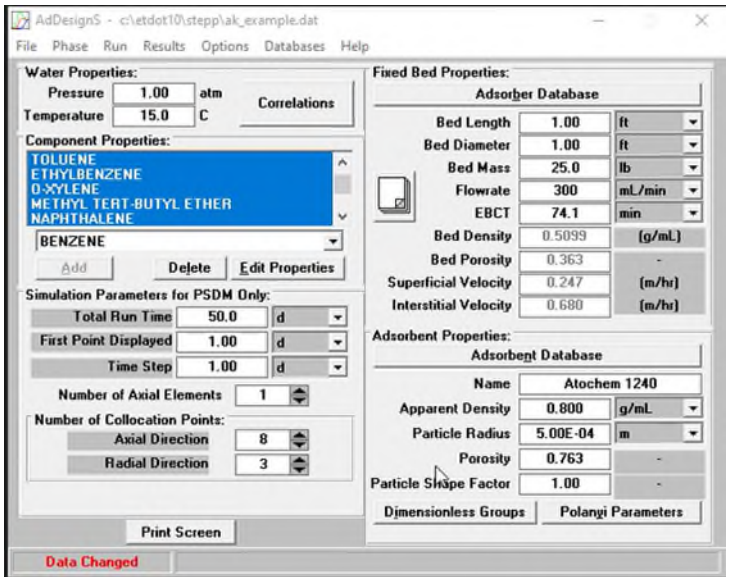
- 26 Sites in Arcadis' Chevron Alaska Portfolio are sampled utilizing portable GAC vessels to purge treated groundwater to surface. There are 18 Sites across Anchorage that utilize one portable GAC vessel and 8 Sites across Fairbanks that utilize a second portable GAC vessel. For the purpose of applying the most conservative parameters, the model assumed one portable GAC unit was utilized for all 26 Sites.
- The COPCs that have been detected in approximately half of the 26 Sites were selected to be utilized in the AdDesignS™ software. The highest observed concentration at any of the 26 Sites for each constituent was applied for the duration of the model. Therefore, the model assumes the GAC is exposed to the highest concentration of each COPC for the duration of the modeled run time. The constituents selected were benzene, toluene, ethylbenzene, o-xylene, and naphthalene. Methyl tert-butyl ether (MTBE) was also included in the model scenario, despite detections in only 4 of the 26 Sites due to its impact on carbon adsorption.
- A maximum low-flow methodology flowrate of 300 mL/min per ADEP guidance was utilized in the model, despite the majority of the 26 Sites conducting low-flow purging at a flowrate between 200 and 250 mL/min. Lower flowrates increase the empty bed contact time (EBCT), which increases the time to breakthrough. Sufficient EBCT ensures adequate contact time between the influent untreated groundwater and the GAC media. The maximum low-flow methodology flowrate was selected to provide the most conservative breakthrough estimates.

AdDesignS™ Modeling Parameters

- Freundlich constants (1/n and K) used for individual isotherm models were selected in the software's database using the maximum concentration range observed for that constituent across the 26 Sites.
- Models based on a single 5-gallon capacity portable GAC vessel (Figure A-1, Attachment B).
- To account for potential fouling of the GAC media, default groundwater conditions were selected.
- Pore-surface diffusion model (PSDM) was utilized.
- Adsorbent properties were selected using the software's database similar to the GAC media commonly used across the 26 sites (virgin GAC produced from coconut shell char).

AdDesignS™ Models

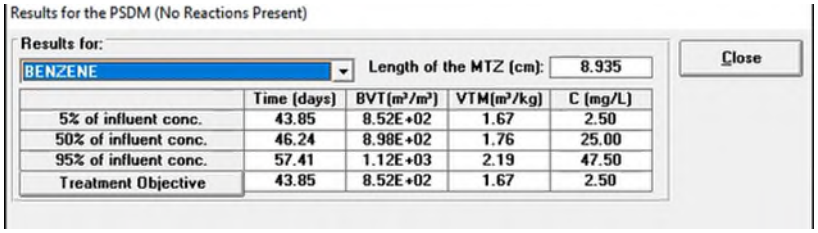
Figure A-1 PDSM Parameters, Fixed Bed and Adsorbent Properties



Alaska Chevron Site Modeling Results

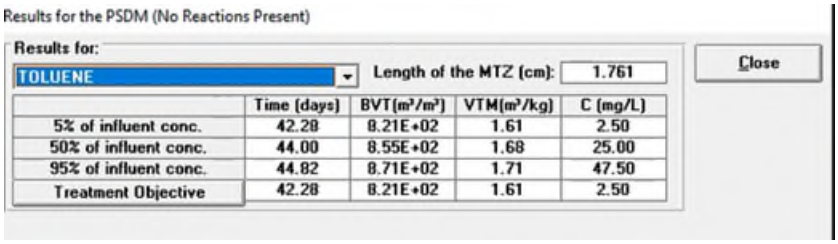
- As the most conservative parameters were input in the model, virtually no breakthrough of any COPCs was observed until over 3 weeks of continuous run time. As expected, MTBE was the first constituent to show breakthrough, at approximately 24 days. While MTBE was included in the model due to its effect on carbon adsorption, it was only detected at 4 of the 26 Sites in which GAC is utilized.
- Arcadis' typical purge volume for all 26 Sites for one event is approximately 225 gallons of purge water, which at 300 mL/min is approximately 2.37 days. Even with the most conservative parameters applied to the model, this equates to more than 2,000 gallons of purge water at 300 mL/min before any breakthrough is observed and more than 2,300 gallons of purge water at 300 mL/min before 5% of the influent concentration of MTBE is observed breaking through.
- Additional breakthrough estimates are detailed in Figures A-2 through A-9.

Figure A-2 Benzene Breakthrough



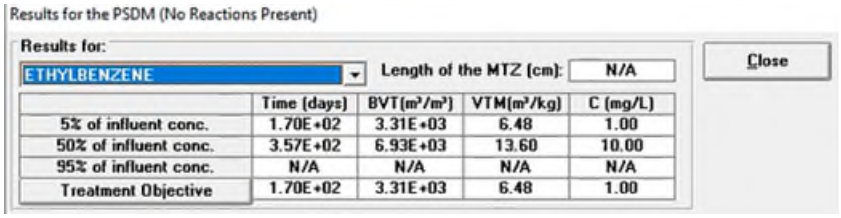
	Time (days)	BVT(m³/m³)	VTM(m³/kg)	C (mg/L)
5% of influent conc.	43.85	8.52E+02	1.67	2.50
50% of influent conc.	46.24	8.98E+02	1.76	25.00
95% of influent conc.	57.41	1.12E+03	2.19	47.50
Treatment Objective	43.85	8.52E+02	1.67	2.50

Figure A-3 Toluene Breakthrough



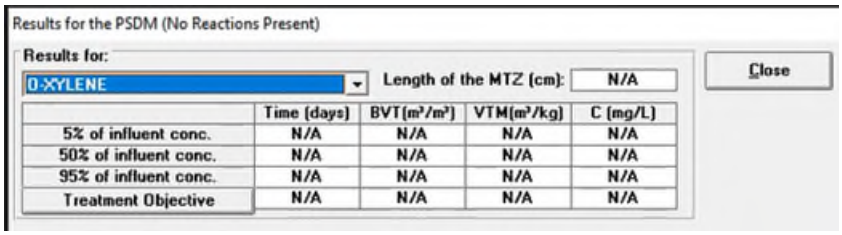
	Time (days)	BVT(m³/m³)	VTM(m³/kg)	C (mg/L)
5% of influent conc.	42.28	8.21E+02	1.61	2.50
50% of influent conc.	44.00	8.55E+02	1.68	25.00
95% of influent conc.	44.82	8.71E+02	1.71	47.50
Treatment Objective	42.28	8.21E+02	1.61	2.50

Figure A-4 Ethylbenzene Breakthrough



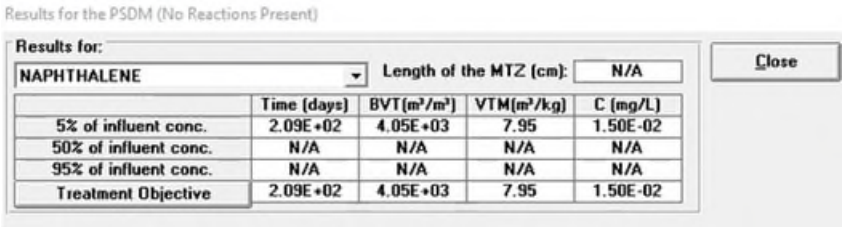
	Time (days)	BVT(m³/m³)	VTM(m³/kg)	C (mg/L)
5% of influent conc.	1.70E+02	3.31E+03	6.48	1.00
50% of influent conc.	3.57E+02	6.93E+03	13.60	10.00
95% of influent conc.	N/A	N/A	N/A	N/A
Treatment Objective	1.70E+02	3.31E+03	6.48	1.00

Figure A-5 o-Xylene Breakthrough



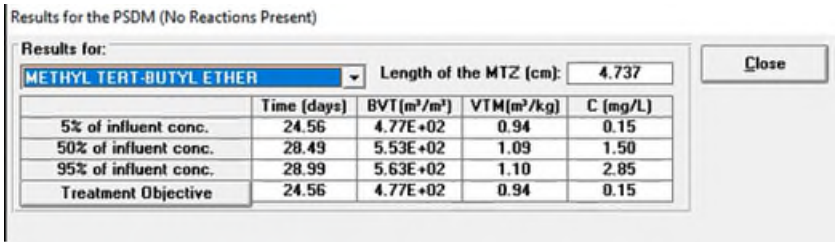
	Time (days)	BVT(m³/m³)	VTM(m³/kg)	C (mg/L)
5% of influent conc.	N/A	N/A	N/A	N/A
50% of influent conc.	N/A	N/A	N/A	N/A
95% of influent conc.	N/A	N/A	N/A	N/A
Treatment Objective	N/A	N/A	N/A	N/A

Figure A-6 Naphthalene Breakthrough



	Time (days)	BVT(m³/m³)	VTM(m³/kg)	C (mg/L)
5% of influent conc.	2.09E+02	4.05E+03	7.95	1.50E-02
50% of influent conc.	N/A	N/A	N/A	N/A
95% of influent conc.	N/A	N/A	N/A	N/A
Treatment Objective	2.09E+02	4.05E+03	7.95	1.50E-02

Figure A-7 MTBE Breakthrough



	Time (days)	BVT(m³/m³)	VTM(m³/kg)	C (mg/L)
5% of influent conc.	24.56	4.77E+02	0.94	0.15
50% of influent conc.	28.49	5.53E+02	1.09	1.50
95% of influent conc.	28.99	5.63E+02	1.10	2.85
Treatment Objective	24.56	4.77E+02	0.94	0.15

Figure A-8 COPC Breakthrough (Annual)

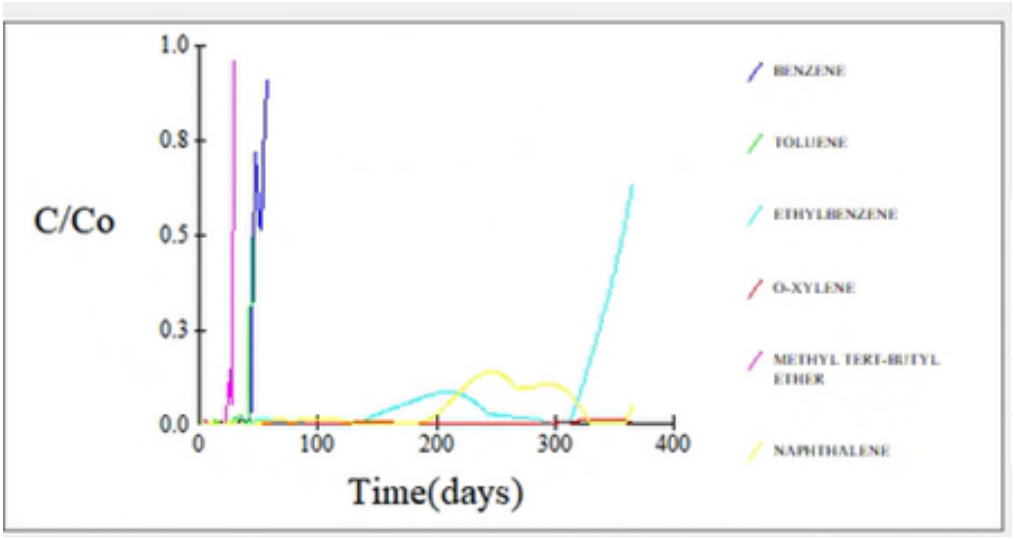
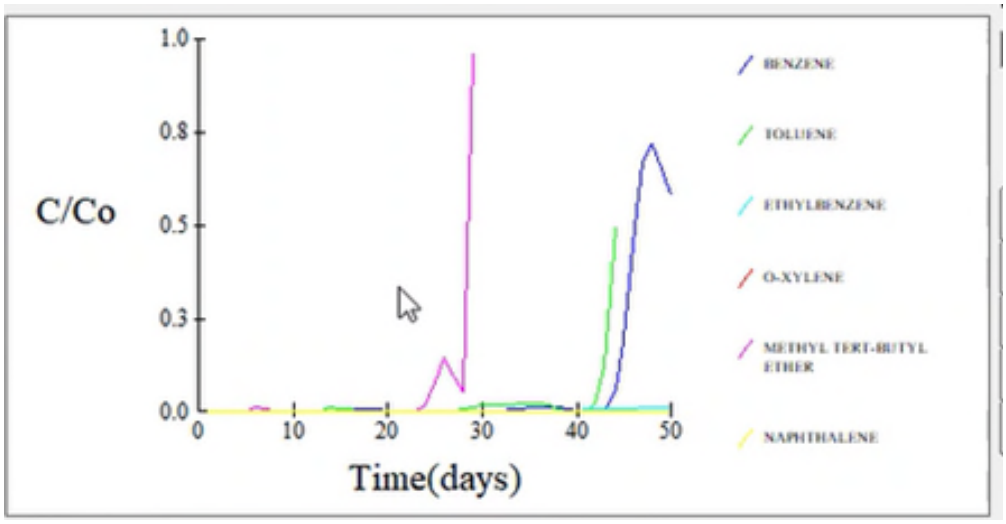


Figure A-9 COPC Breakthrough (Monthly)



Alaska Chevron Site Proposed Path Forward

Based on the models above, the most conservative breakthrough estimates are much longer than the period of routine GAC utilization activities conducted across the 26 Sites. However, Arcadis plans to replace the GAC media in each portable vessel after each round of sampling to ensure fresh carbon is utilized for each reporting period to prevent any fouling from occurring between events. If site conditions change such as significant increases to observed COPC concentrations, the isotherm model will be re-run to determine new breakthrough estimates.

Attachment B

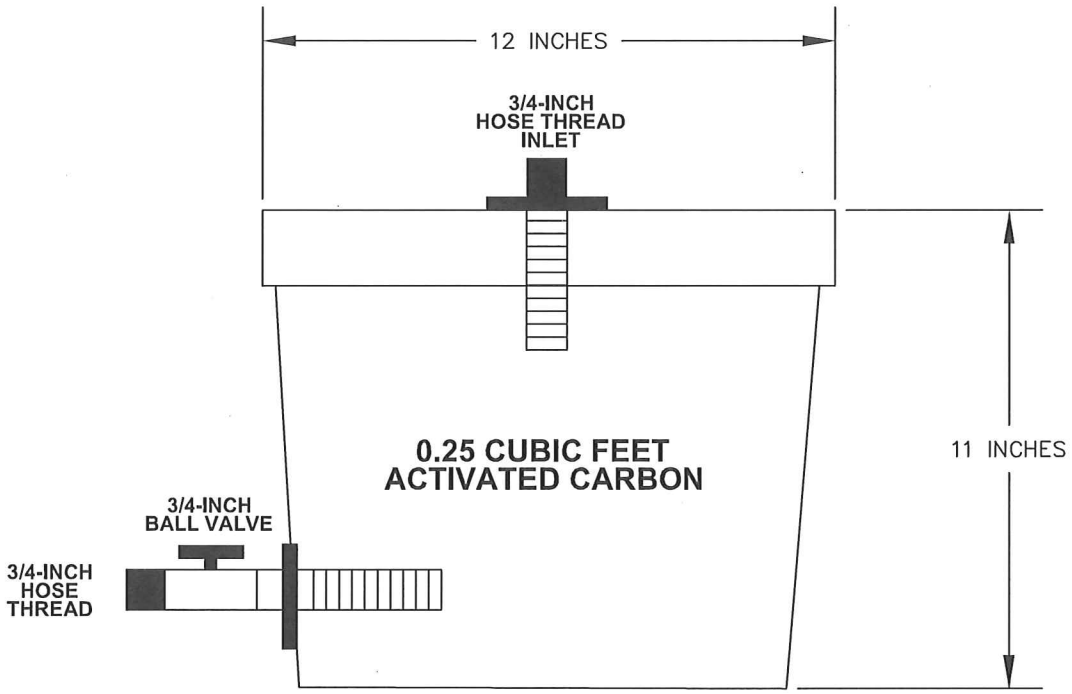
GAC Tracking Log

Granular Activated Carbon (GAC) Volume Tracking Log

Site ID	Date	Well ID	Flow Rate (mL/min)	Volume Per Individual Well Treated by GAC Vessel (gallons)	Total Cumulative Volume Treated by GAC Vessel (gallons)	Comments

Attachment C

Portable GAC Vessel Diagram



PORTABLE LIQUID-PHASE GRANULAR ACTIVATED CARBON (LGAC) VESSEL

ATLANTIC RICHFIELD COMPANY
FORMER AND CURRENT ARCO STATION
WASHINGTON STATE

TYPICAL PORTABLE LGAC VESSEL

ARCADIS

FIGURE
1

Arcadis U.S., Inc.
630 Plaza Drive, Suite 200
Highlands Ranch
Colorado 80129
Phone: 720 344 3500
Fax: 720 344 3535
www.arcadis.com

APPENDIX D

Laboratory Analytical Report

ANALYTICAL REPORT

August 01, 2022

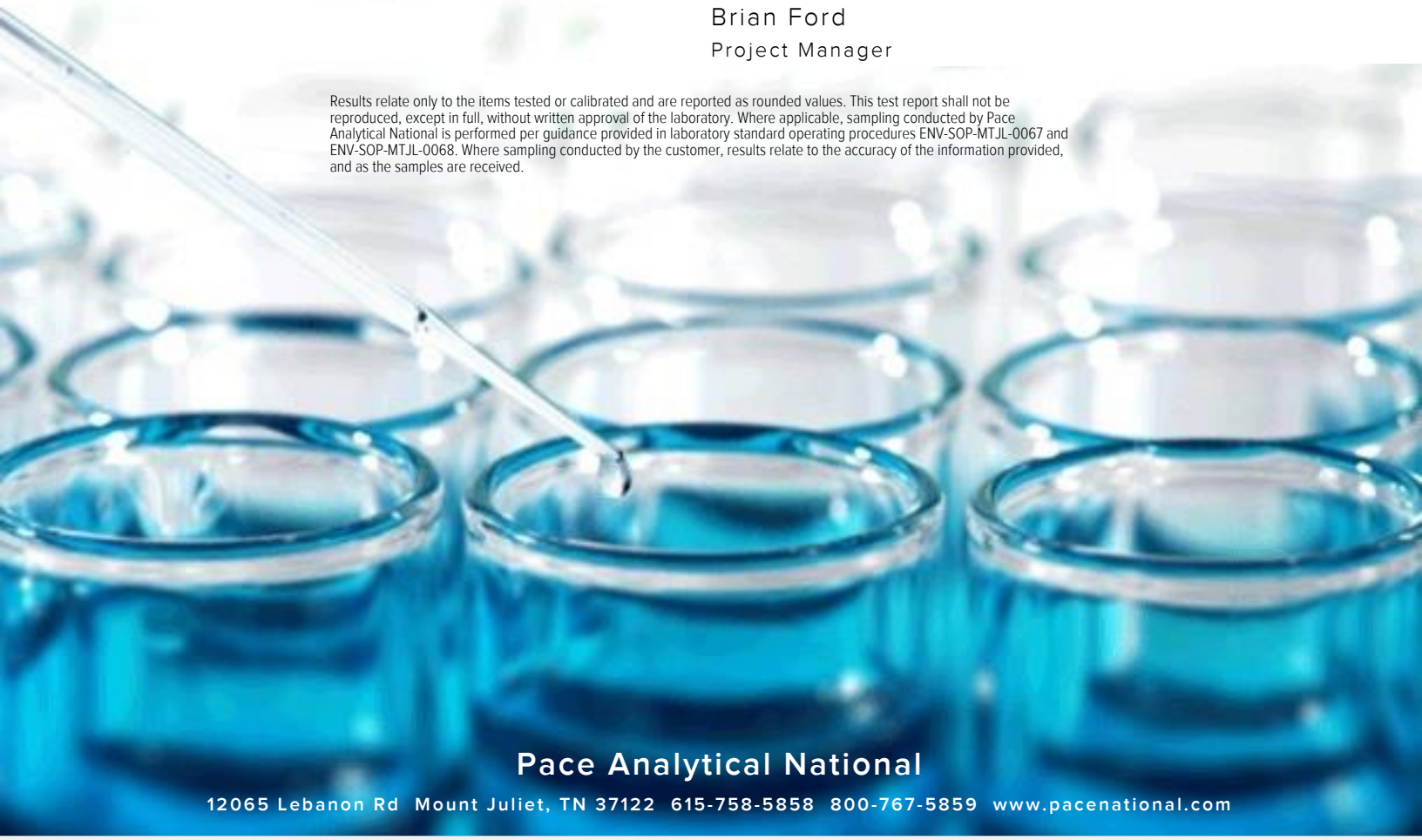
Arcadis - Chevron - AK

Sample Delivery Group:	L1515770
Samples Received:	07/16/2022
Project Number:	30064221.19.21
Description:	211081
Site:	4103 GEIST RD, FAIRBANKS, AK
Report To:	Nicole Monroe/Sydney Clark/Erika Midkiff 880 H St. Anchorage, AK 99501

Entire Report Reviewed By:

Brian Ford

Project Manager



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

MW-301D-W-20220714 L1515770-01 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 10:00 | Received date/time: 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	1	07/21/22 09:27	07/21/22 09:27	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	1	07/22/22 01:50	07/22/22 01:50	JAH	Mt. Juliet, TN

MW-304D-W-20220714 L1515770-02 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 10:45 | Received date/time: 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	1	07/21/22 09:53	07/21/22 09:53	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	1	07/22/22 02:09	07/22/22 02:09	JAH	Mt. Juliet, TN

MW-307-W-20220714 L1515770-03 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 11:30 | Received date/time: 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	1	07/21/22 10:20	07/21/22 10:20	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	1	07/22/22 02:28	07/22/22 02:28	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1899415	1	07/25/22 06:15	07/27/22 01:59	MWS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG1899417	1	07/25/22 06:15	07/27/22 01:59	TJD	Mt. Juliet, TN

G-5-W-20220714 L1515770-04 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 12:15 | Received date/time: 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	10	07/21/22 12:59	07/21/22 12:59	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	100	07/22/22 04:28	07/22/22 04:28	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1899415	1	07/25/22 06:15	07/27/22 02:19	MWS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1899415	1	07/25/22 06:15	07/28/22 12:11	TJD	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG1899417	1	07/25/22 06:15	07/27/22 14:25	MWS	Mt. Juliet, TN

G-8-W-20220714 L1515770-05 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 13:00 | Received date/time: 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	1	07/21/22 10:46	07/21/22 10:46	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	1	07/22/22 03:12	07/22/22 03:12	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1899415	1	07/25/22 06:15	07/28/22 13:32	MWS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG1899417	1	07/25/22 06:15	07/28/22 13:32	TJD	Mt. Juliet, TN

G-9-W-20220714 L1515770-06 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 13:45 | Received date/time: 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	1	07/21/22 11:13	07/21/22 11:13	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	1	07/22/22 03:31	07/22/22 03:31	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1899415	1	07/25/22 06:15	07/28/22 13:53	MWS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG1899417	1	07/25/22 06:15	07/28/22 13:53	TJD	Mt. Juliet, TN

G-1R-W-20220714 L1515770-07 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 14:30 | Received date/time: 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	1	07/21/22 11:39	07/21/22 11:39	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	1	07/22/22 03:50	07/22/22 03:50	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1899415	1	07/25/22 06:15	07/27/22 04:41	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG1899417	1	07/25/22 06:15	07/28/22 12:52	MWS	Mt. Juliet, TN

G-3-W-20220714 L1515770-08 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 15:15 | Received date/time: 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	1	07/21/22 12:06	07/21/22 12:06	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	10	07/22/22 04:47	07/22/22 04:47	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1899415	1	07/25/22 06:15	07/27/22 05:01	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG1899417	1	07/25/22 06:15	07/28/22 12:32	TJD	Mt. Juliet, TN

BD-1-W-20220714 L1515770-09 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 00:00 | Received date/time: 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	1	07/21/22 12:32	07/21/22 12:32	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	1	07/22/22 04:09	07/22/22 04:09	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1899415	1	07/25/22 06:15	07/27/22 16:07	MWS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG1899417	1	07/25/22 06:15	07/27/22 16:07	TJD	Mt. Juliet, TN

EQB-1-W-20220714 L1515770-10 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 16:00 | Received date/time: 07/16/22 09:00

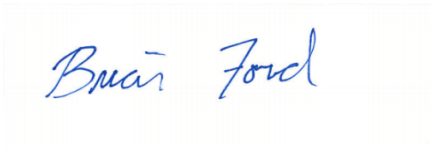
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	1	07/21/22 09:01	07/21/22 09:01	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	1	07/22/22 01:31	07/22/22 01:31	JAH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1899415	1	07/25/22 06:15	07/28/22 14:13	MWS	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG1899417	1	07/25/22 06:15	07/28/22 14:13	TJD	Mt. Juliet, TN

TRIP BLANK-20220714 L1515770-11 GW

Collected by: E Wujcik | Collected date/time: 07/14/22 00:00 | Received date/time: 07/16/22 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1898518	1	07/21/22 08:34	07/21/22 08:34	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1898478	1	07/22/22 01:12	07/22/22 01:12	JAH	Mt. Juliet, TN

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford
Project Manager

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Surrogate recovery limits have been exceeded; values are outside upper control limits.

Batch	Analyte	Lab Sample ID
WG1899415	n-Triacontane d62	(BLANK) R3819601-1, (LCS) R3819601-2, (LCS) R3819601-4, (LCSD) R3819601-3

The same analyte is found in the associated blank.

Batch	Analyte	Lab Sample ID
WG1899415	AK103 RRO C25-C36	L1515770-05, 06, 07, 08, 09

The associated batch QC was above the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG1899415	(LCS) R3819601-4, (LCSD) R3819601-5, L1515770-03, 04, 05, 06, 07, 08, 09, 10	AK103 RRO C25-C36

The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Batch	Lab Sample ID	Analytes
WG1899415	(MS) R3819601-8	AK102 DRO C10-C25

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPHGAK C6 to C10	U		28.7	100	1	07/21/2022 09:27	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*96.1*			*50.0-150*		*07/21/2022 09:27*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.0941	1.00	1	07/22/2022 01:50	WG1898478
Toluene	U		0.278	1.00	1	07/22/2022 01:50	WG1898478
Ethylbenzene	U		0.137	1.00	1	07/22/2022 01:50	WG1898478
Total Xylenes	U		0.174	3.00	1	07/22/2022 01:50	WG1898478
(S) Toluene-d8	*103*			*80.0-120*		*07/22/2022 01:50*	WG1898478
(S) 4-Bromofluorobenzene	*95.9*			*77.0-126*		*07/22/2022 01:50*	WG1898478
(S) 1,2-Dichloroethane-d4	*89.9*			*70.0-130*		*07/22/2022 01:50*	WG1898478

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPHGAK C6 to C10	U		28.7	100	1	07/21/2022 09:53	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*95.4*			*50.0-150*		*07/21/2022 09:53*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.0941	1.00	1	07/22/2022 02:09	WG1898478
Toluene	U		0.278	1.00	1	07/22/2022 02:09	WG1898478
Ethylbenzene	U		0.137	1.00	1	07/22/2022 02:09	WG1898478
Total Xylenes	0.180	J	0.174	3.00	1	07/22/2022 02:09	WG1898478
(S) Toluene-d8	*101*			*80.0-120*		*07/22/2022 02:09*	WG1898478
(S) 4-Bromofluorobenzene	*94.4*			*77.0-126*		*07/22/2022 02:09*	WG1898478
(S) 1,2-Dichloroethane-d4	*87.7*			*70.0-130*		*07/22/2022 02:09*	WG1898478

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	U		28.7	100	1	07/21/2022 10:20	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*94.0*			*50.0-150*		*07/21/2022 10:20*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	U		0.0941	1.00	1	07/22/2022 02:28	WG1898478
Toluene	U		0.278	1.00	1	07/22/2022 02:28	WG1898478
Ethylbenzene	U		0.137	1.00	1	07/22/2022 02:28	WG1898478
Total Xylenes	U		0.174	3.00	1	07/22/2022 02:28	WG1898478
(S) Toluene-d8	*102*			*80.0-120*		*07/22/2022 02:28*	WG1898478
(S) 4-Bromofluorobenzene	*95.6*			*77.0-126*		*07/22/2022 02:28*	WG1898478
(S) 1,2-Dichloroethane-d4	*90.4*			*70.0-130*		*07/22/2022 02:28*	WG1898478

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/27/2022 01:59	WG1899415
AK103 RRO C25-C36	U	J4	403	800	1	07/27/2022 01:59	WG1899415
(S) o-Terphenyl	*91.1*			*50.0-150*		*07/27/2022 01:59*	WG1899415
(S) n-Triacontane d62	*106*			*50.0-150*		*07/27/2022 01:59*	WG1899415

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/27/2022 01:59	WG1899417
(S) o-Terphenyl	*91.1*			*50.0-150*		*07/27/2022 01:59*	WG1899417

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	13100		287	1000	10	07/21/2022 12:59	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*97.8*			*50.0-150*		*07/21/2022 12:59*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	46.4	J	9.41	100	100	07/22/2022 04:28	WG1898478
Toluene	60.8	J	27.8	100	100	07/22/2022 04:28	WG1898478
Ethylbenzene	351		13.7	100	100	07/22/2022 04:28	WG1898478
Total Xylenes	3790		17.4	300	100	07/22/2022 04:28	WG1898478
(S) Toluene-d8	*102*			*80.0-120*		*07/22/2022 04:28*	WG1898478
(S) 4-Bromofluorobenzene	*98.8*			*77.0-126*		*07/22/2022 04:28*	WG1898478
(S) 1,2-Dichloroethane-d4	*92.7*			*70.0-130*		*07/22/2022 04:28*	WG1898478

Sample Narrative:

L1515770-04 WG1898478: Non-target compounds too high to run at a lower dilution.

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	7580		229	800	1	07/27/2022 02:19	WG1899415
AK103 RRO C25-C36	U	J4	403	800	1	07/28/2022 12:11	WG1899415
(S) o-Terphenyl	*98.9*			*50.0-150*		*07/28/2022 12:11*	WG1899415
(S) o-Terphenyl	*98.8*			*50.0-150*		*07/27/2022 02:19*	WG1899415
(S) n-Triacontane d62	*122*			*50.0-150*		*07/28/2022 12:11*	WG1899415
(S) n-Triacontane d62	*115*			*50.0-150*		*07/27/2022 02:19*	WG1899415

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	3420		229	800	1	07/27/2022 14:25	WG1899417
(S) o-Terphenyl	*82.6*			*50.0-150*		*07/27/2022 14:25*	WG1899417

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	59.6	J	28.7	100	1	07/21/2022 10:46	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*90.2*			*50.0-150*		*07/21/2022 10:46*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	0.715	J	0.0941	1.00	1	07/22/2022 03:12	WG1898478
Toluene	U		0.278	1.00	1	07/22/2022 03:12	WG1898478
Ethylbenzene	2.15		0.137	1.00	1	07/22/2022 03:12	WG1898478
Total Xylenes	2.95	J	0.174	3.00	1	07/22/2022 03:12	WG1898478
(S) Toluene-d8	*102*			*80.0-120*		*07/22/2022 03:12*	WG1898478
(S) 4-Bromofluorobenzene	*98.9*			*77.0-126*		*07/22/2022 03:12*	WG1898478
(S) 1,2-Dichloroethane-d4	*90.0*			*70.0-130*		*07/22/2022 03:12*	WG1898478

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	322	J	229	800	1	07/28/2022 13:32	WG1899415
AK103 RRO C25-C36	407	B J J4	403	800	1	07/28/2022 13:32	WG1899415
(S) o-Terphenyl	*94.5*			*50.0-150*		*07/28/2022 13:32*	WG1899415
(S) n-Triacontane d62	*109*			*50.0-150*		*07/28/2022 13:32*	WG1899415

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	322	J	229	800	1	07/28/2022 13:32	WG1899417
(S) o-Terphenyl	*94.5*			*50.0-150*		*07/28/2022 13:32*	WG1899417

Sample Narrative:

L1515770-05 WG1899417: Reporting from non-silica gel data due to non-detect to the RDL.

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	U		28.7	100	1	07/21/2022 11:13	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*91.2*			*50.0-150*		*07/21/2022 11:13*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	U		0.0941	1.00	1	07/22/2022 03:31	WG1898478
Toluene	U		0.278	1.00	1	07/22/2022 03:31	WG1898478
Ethylbenzene	U		0.137	1.00	1	07/22/2022 03:31	WG1898478
Total Xylenes	0.346	J	0.174	3.00	1	07/22/2022 03:31	WG1898478
(S) Toluene-d8	*99.0*			*80.0-120*		*07/22/2022 03:31*	WG1898478
(S) 4-Bromofluorobenzene	*97.8*			*77.0-126*		*07/22/2022 03:31*	WG1898478
(S) 1,2-Dichloroethane-d4	*92.4*			*70.0-130*		*07/22/2022 03:31*	WG1898478

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/28/2022 13:53	WG1899415
AK103 RRO C25-C36	556	B J J4	403	800	1	07/28/2022 13:53	WG1899415
(S) o-Terphenyl	*88.8*			*50.0-150*		*07/28/2022 13:53*	WG1899415
(S) n-Triacontane d62	*101*			*50.0-150*		*07/28/2022 13:53*	WG1899415

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/28/2022 13:53	WG1899417
(S) o-Terphenyl	*88.8*			*50.0-150*		*07/28/2022 13:53*	WG1899417

Sample Narrative:

L1515770-06 WG1899417: Reporting from non-silica gel data due to non-detect to the RDL.

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	U		28.7	100	1	07/21/2022 11:39	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*91.8*			*50.0-150*		*07/21/2022 11:39*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	U		0.0941	1.00	1	07/22/2022 03:50	WG1898478
Toluene	U		0.278	1.00	1	07/22/2022 03:50	WG1898478
Ethylbenzene	U		0.137	1.00	1	07/22/2022 03:50	WG1898478
Total Xylenes	U		0.174	3.00	1	07/22/2022 03:50	WG1898478
(S) Toluene-d8	*102*			*80.0-120*		*07/22/2022 03:50*	WG1898478
(S) 4-Bromofluorobenzene	*94.7*			*77.0-126*		*07/22/2022 03:50*	WG1898478
(S) 1,2-Dichloroethane-d4	*84.1*			*70.0-130*		*07/22/2022 03:50*	WG1898478

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	242	J	229	800	1	07/27/2022 04:41	WG1899415
AK103 RRO C25-C36	415	B J J4	403	800	1	07/27/2022 04:41	WG1899415
(S) o-Terphenyl	*100*			*50.0-150*		*07/27/2022 04:41*	WG1899415
(S) n-Triacontane d62	*117*			*50.0-150*		*07/27/2022 04:41*	WG1899415

Sample Narrative:

L1515770-07 WG1899415: reported outside of the normal 24 hours from carbon locator. locator verified at end of data run.

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/28/2022 12:52	WG1899417
(S) o-Terphenyl	*84.9*			*50.0-150*		*07/28/2022 12:52*	WG1899417

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	5370		28.7	100	1	07/21/2022 12:06	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*96.2*			*50.0-150*		*07/21/2022 12:06*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	672		0.941	10.0	10	07/22/2022 04:47	WG1898478
Toluene	3.23	J	2.78	10.0	10	07/22/2022 04:47	WG1898478
Ethylbenzene	430		1.37	10.0	10	07/22/2022 04:47	WG1898478
Total Xylenes	1130		1.74	30.0	10	07/22/2022 04:47	WG1898478
(S) Toluene-d8	*99.9*			*80.0-120*		*07/22/2022 04:47*	WG1898478
(S) 4-Bromofluorobenzene	*99.0*			*77.0-126*		*07/22/2022 04:47*	WG1898478
(S) 1,2-Dichloroethane-d4	*90.8*			*70.0-130*		*07/22/2022 04:47*	WG1898478

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	2590		229	800	1	07/27/2022 05:01	WG1899415
AK103 RRO C25-C36	418	B J J4	403	800	1	07/27/2022 05:01	WG1899415
(S) o-Terphenyl	*102*			*50.0-150*		*07/27/2022 05:01*	WG1899415
(S) n-Triacontane d62	*117*			*50.0-150*		*07/27/2022 05:01*	WG1899415

Sample Narrative:

L1515770-08 WG1899415: reported outside of the normal 24 hours from carbon locator. locator verified at end of data run.

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	986		229	800	1	07/28/2022 12:32	WG1899417
(S) o-Terphenyl	*80.6*			*50.0-150*		*07/28/2022 12:32*	WG1899417

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	112		28.7	100	1	07/21/2022 12:32	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*91.6*			*50.0-150*		*07/21/2022 12:32*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	0.831	J	0.0941	1.00	1	07/22/2022 04:09	WG1898478
Toluene	U		0.278	1.00	1	07/22/2022 04:09	WG1898478
Ethylbenzene	3.05		0.137	1.00	1	07/22/2022 04:09	WG1898478
Total Xylenes	3.63		0.174	3.00	1	07/22/2022 04:09	WG1898478
(S) Toluene-d8	*99.3*			*80.0-120*		*07/22/2022 04:09*	WG1898478
(S) 4-Bromofluorobenzene	*93.9*			*77.0-126*		*07/22/2022 04:09*	WG1898478
(S) 1,2-Dichloroethane-d4	*94.3*			*70.0-130*		*07/22/2022 04:09*	WG1898478

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	452	J	229	800	1	07/27/2022 16:07	WG1899415
AK103 RRO C25-C36	507	B J J4	403	800	1	07/27/2022 16:07	WG1899415
(S) o-Terphenyl	*100*			*50.0-150*		*07/27/2022 16:07*	WG1899415
(S) n-Triacontane d62	*120*			*50.0-150*		*07/27/2022 16:07*	WG1899415

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	452	J	229	800	1	07/27/2022 16:07	WG1899417
(S) o-Terphenyl	*100*			*50.0-150*		*07/27/2022 16:07*	WG1899417

Sample Narrative:

L1515770-09 WG1899417: Reporting from non-silica gel data due to non-detect to the RDL.

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	U		28.7	100	1	07/21/2022 09:01	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*96.0*			*50.0-150*		*07/21/2022 09:01*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Benzene	U		0.0941	1.00	1	07/22/2022 01:31	WG1898478
Toluene	U		0.278	1.00	1	07/22/2022 01:31	WG1898478
Ethylbenzene	U		0.137	1.00	1	07/22/2022 01:31	WG1898478
Total Xylenes	U		0.174	3.00	1	07/22/2022 01:31	WG1898478
(S) Toluene-d8	*103*			*80.0-120*		*07/22/2022 01:31*	WG1898478
(S) 4-Bromofluorobenzene	*95.7*			*77.0-126*		*07/22/2022 01:31*	WG1898478
(S) 1,2-Dichloroethane-d4	*88.9*			*70.0-130*		*07/22/2022 01:31*	WG1898478

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/28/2022 14:13	WG1899415
AK103 RRO C25-C36	U	J4	403	800	1	07/28/2022 14:13	WG1899415
(S) o-Terphenyl	*92.9*			*50.0-150*		*07/28/2022 14:13*	WG1899415
(S) n-Triacontane d62	*101*			*50.0-150*		*07/28/2022 14:13*	WG1899415

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/28/2022 14:13	WG1899417
(S) o-Terphenyl	*92.9*			*50.0-150*		*07/28/2022 14:13*	WG1899417

Sample Narrative:

L1515770-10 WG1899417: Reporting from non-silica gel data due to non-detect to the RDL.

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPHGAK C6 to C10	30.7	J	28.7	100	1	07/21/2022 08:34	WG1898518
(S) a,a,a-Trifluorotoluene(FID)	*95.9*			*50.0-150*		*07/21/2022 08:34*	WG1898518

Volatile Organic Compounds (GC/MS) by Method 8260D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Benzene	U		0.0941	1.00	1	07/22/2022 01:12	WG1898478
Toluene	U		0.278	1.00	1	07/22/2022 01:12	WG1898478
Ethylbenzene	U		0.137	1.00	1	07/22/2022 01:12	WG1898478
Total Xylenes	0.266	J	0.174	3.00	1	07/22/2022 01:12	WG1898478
(S) Toluene-d8	*101*			*80.0-120*		*07/22/2022 01:12*	WG1898478
(S) 4-Bromofluorobenzene	*94.7*			*77.0-126*		*07/22/2022 01:12*	WG1898478
(S) 1,2-Dichloroethane-d4	*89.1*			*70.0-130*		*07/22/2022 01:12*	WG1898478

Method Blank (MB)

(MB) R3818803-3 07/21/22 05:45

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TPHGAK C6 to C10	U		28.7	100
(S) a,a,a-Trifluorotoluene(FID)	*95.9*			*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3818803-1 07/21/22 04:21 • (LCSD) R3818803-2 07/21/22 04:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPHGAK C6 to C10	5000	4690	5260	93.8	105	60.0-120			11.5	20
(S) a,a,a-Trifluorotoluene(FID)				*111*	*110*	*60.0-120*				

L1515770-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1515770-04 07/21/22 12:59 • (MS) R3818803-4 07/21/22 13:25 • (MSD) R3818803-5 07/21/22 14:18

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPHGAK C6 to C10	50000	13100	60600	60900	95.0	95.6	10	70.0-130			0.494	20
(S) a,a,a-Trifluorotoluene(FID)					*108*	*103*		*50.0-150*				

Method Blank (MB)

(MB) R3819162-3 07/22/22 00:43

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.0941	1.00
Toluene	U		0.278	1.00
Ethylbenzene	U		0.137	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	*102*			*80.0-120*
(S) 4-Bromofluorobenzene	*94.2*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*86.9*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3819162-1 07/21/22 23:46 • (LCSD) R3819162-2 07/22/22 00:05

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Benzene	5.00	4.53	4.80	90.6	96.0	70.0-123			5.79	20
Toluene	5.00	4.52	4.96	90.4	99.2	79.0-120			9.28	20
Ethylbenzene	5.00	4.67	5.55	93.4	111	79.0-123			17.2	20
Xylenes, Total	15.0	15.2	16.8	101	112	79.0-123			10.0	20
(S) Toluene-d8				*98.0*	*103*	*80.0-120*				
(S) 4-Bromofluorobenzene				*96.3*	*94.8*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*85.6*	*84.4*	*70.0-130*				

L1515770-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1515770-04 07/22/22 04:28 • (MS) R3819162-4 07/22/22 07:56 • (MSD) R3819162-5 07/22/22 08:15

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
Benzene	500	46.4	554	555	102	102	100	17.0-158			0.180	27
Toluene	500	60.8	556	548	99.0	97.4	100	26.0-154			1.45	28
Ethylbenzene	500	351	912	896	112	109	100	30.0-155			1.77	27
Xylenes, Total	1500	3790	5650	5680	124	126	100	29.0-154			0.530	28
(S) Toluene-d8					*102*	*98.8*		*80.0-120*				
(S) 4-Bromofluorobenzene					*99.0*	*95.2*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*89.3*	*89.9*		*70.0-130*				

Sample Narrative:

OS: Non-target compounds too high to run at a lower dilution.

Method Blank (MB)

(MB) R3819601-1 07/26/22 05:15

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
AK102 DRO C10-C25	U		229	800
AK103 RRO C25-C36	492	J	403	800
(S) o-Terphenyl	*117*			*60.0-120*
(S) n-Triacontane d62	*128*	J1		*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3819601-2 07/26/22 05:35 • (LCSD) R3819601-3 07/26/22 05:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
AK102 DRO C10-C25	6000	7390	7050	123	118	75.0-125			4.71	20
(S) o-Terphenyl				*119*	*111*	*60.0-120*				
(S) n-Triacontane d62				*141*	*132*	*60.0-120*	J1	J1		

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3819601-4 07/26/22 06:17 • (LCSD) R3819601-5 07/26/22 06:37

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
AK103 RRO C25-C36	6000	7640	7520	127	125	60.0-120	J4	J4	1.58	20
(S) o-Terphenyl				*114*	*111*	*60.0-120*				
(S) n-Triacontane d62				*151*	*118*	*60.0-120*	J1			

L1515010-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1515010-05 07/26/22 18:10 • (MS) R3819601-8 07/26/22 20:12 • (MSD) R3819601-9 07/26/22 20:32

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
AK102 DRO C10-C25	6000	2280	11300	9360	150	118	1	75.0-125	J5		18.8	20
(S) o-Terphenyl					*111*	*106*		*50.0-150*				
(S) n-Triacontane d62					*131*	*129*		*50.0-150*				

L1515010-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1515010-05 07/26/22 18:10 • (MS) R3819601-10 07/26/22 20:52 • (MSD) R3819601-13 07/26/22 21:13

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
AK103 RRO C25-C36	6000	1130	7910	8060	113	116	1	60.0-120			1.88	20
(S) o-Terphenyl					*109*	*113*		*50.0-150*				
(S) n-Triacontane d62					*115*	*119*		*50.0-150*				

L1515770-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1515770-04 07/27/22 02:19 • (MS) R3819601-11 07/27/22 02:39 • (MSD) R3819601-12 07/27/22 03:00

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
AK102 DRO C10-C25	6000	7580	14300	14300	112	112	1	75.0-125			0.000	20
(S) o-Terphenyl					*109*	*110*		*50.0-150*				
(S) n-Triacontane d62					*131*	*129*		*50.0-150*				

L1515770-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1515770-04 07/27/22 14:25 • (MS) R3819795-1 07/27/22 10:35 • (MSD) R3819795-2 07/27/22 10:56

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
AK103 RRO C25-C36	6000		7070	6280	118	105	1	60.0-120			11.8	20
(S) o-Terphenyl					*114*	*101*		*50.0-150*				
(S) n-Triacontane d62					*119*	*123*		*50.0-150*				

Method Blank (MB)

(MB) R3819602-1 07/26/22 08:39

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
AK102 DRO C10-C25	U		229	800
(S) o-Terphenyl	*88.6*			*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3819602-2 07/26/22 08:59 • (LCSD) R3819602-3 07/26/22 09:19

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
AK102 DRO C10-C25	6000	6050	5470	101	91.2	75.0-125			10.1	20
(S) o-Terphenyl				*98.1*	*87.4*	*60.0-120*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Arcadis - Chevron - AK

880 H St.
Anchorage, AK 99501

Billing Information:
Attn: Acounts Payable
630 Plaza Dr Ste 600
Highlands Ranch, CO 80129

Pres Chk

Report to:
Nicole Monroe/Sydney Clark/Erika Midkiff

Email To: environmentDM-India@arcadis.com;Sydney.Clark@arcadis.com;

Project Description: 211081

City/State Collected: Fairbanks, AK

Please Circle: PT MT CT ET

Phone: 907-276-8095

Client Project # 30064221.19.21

Lab Project # CHEVARCAK-211081 AKSST

Collected by (print): E. Wujcik

Site/Facility ID # 4103 GEIST RD, FAIRBANKS,

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day X Standard

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	AK101 40mlAmb HCl	AK102 w/SGT 100ml Amb HCl	AK102/103 no SGT 100ml Amb HCl	BTEX 8260D 40mlAmb-HCl							Remarks	Sample # (lab only)
								18	12									
MW-301D-W-20220714	Grab	GW	—	7.14.22	1000	6	X			X								01
MW-304D-W-20220714		GW	—		1045	6	X			X								02
MW-307-W-20220714		GW	—		1130	10	X	X	X	X								03
G-5-W-20220714		GW	—		1215	30	X	X	X	X							MS/MSD	04
G-8-W-20220714		GW	—		1300	10	X	X	X	X								05
G-9-W-20220714		GW	—		1345	10	X	X	X	X								06
G-1R-W-20220714		GW	—		1430	10	X	X	X	X								07
G-3-W-20220714		GW	—		1515	10	X	X	X	X								08
BD-1-W-20220714		GW	—		—	10	X	X	X	X								09
EQB-1-W-20220714	↓	GW	—	↓	1600	10	X	X	X	X								10

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: __ UPS X FedEx __ Courier _____

Tracking #

Relinquished by : (Signature) | Date: 7.15.22 | Time: 0860 | Received by: (Signature)

Relinquished by : (Signature) | Date: | Time: | Received by: (Signature)

Relinquished by : (Signature) | Date: | Time: | Received for lab by: (Signature) Caleb Tapp

Trip Blank Received: Yes / No HCL / MeoH TBR — 6

Temp: °C Bottles Received: 12

Date: 7/16/22 Time: 09:00

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Chain of Custody Page 1 of 2

Pace PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L151570

Table E107

Acctnum: CHEVARCAK

Template: T212014

Prelogin: P935154

PM: 110 - Brian Ford

PB: 6/27/22 ER

Shipped Via:

Company Name/Address:
Arcadis - Chevron - AK

880 H St.
Anchorage, AK 99501

Billing Information:
Attn: Acounts Payable
630 Plaza Dr Ste 600
Highlands Ranch, CO 80129

Pres Chk

Report to:
Nicole Monroe/Sydney Clark/Erika Midkiff

Email To: **environmentDM-India@arcadis.com;Sydney.Clark@arcadis.com;**

Project Description:
211081

City/State Collected: Fairbanks, AK

Please Circle: PT MT CT ET (AK ST)

Phone: **907-276-8095**

Client Project #
30064221.19.21

Lab Project #
CHEVARCAK-211081

Collected by (print):
E. Wujcik

Site/Facility ID #
4103 GEIST RD, FAIRBANKS,

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day X Standard

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	AK101 40mlAmb HCl	AK102 w/SGT 100ml Amb HCl	AK102/103 no SGT 100ml Amb HCl	BTEX 8260D 40mlAmb-HCl							Remarks	Sample # (lab only)
Trip Blank	-	GW	-	-	-	6	X			X								-11
		GW																
		GW																
		GW																
		GW																

Analysis / Container / Preservative

Chain of Custody Page 2 of 2

Pace PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1515770

Table #

Acctnum: **CHEVARCAK**
Template: **T212014**
Prelogin: **P935154**
PM: **110 - Brian Ford**
PB: 6/27/22 ER

Shipped Via:

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier _____

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	If preservation required by Login: Date/Time
	7.15.22	0800		6	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 12	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Caleb Tapp	Date: 7/16/22 Time: 09:00	Hold: Condition: NCF / OK

U515770

Tracking Numbers	Temperature
5829 6697 1818	RR#7 2.7+0=2.7
5829 6697 2223	RR#7 2.4+0=2.4

APPENDIX E

ADEC Data Review Checklist

Laboratory Data Review Checklist

Completed By:

Bhagyashree A Fulzele

Title:

Project Chemist

Date:

August 05, 2022

Consultant Firm:

ARCADIS U.S., Inc

Laboratory Name:

Pace Analytical

Laboratory Report Number:

L1515770

Laboratory Report Date:

08/01/2022

CS Site Name:

Annual 2022 Groundwater Monitoring Report

ADEC File Number:

100.26.023

Hazard Identification Number:

23798

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

Yes.

   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☐ N/A☒ Comments:

Not applicable.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

Yes.

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

Yes.

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

Yes.

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

Yes.

   c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

   Yes☒ No☐ N/A☐ Comments:

Yes.

   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☐ N/A☐ Comments:

Yes, no discrepancies.

e. Data quality or usability affected?

Comments:

Data quality/usability was not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

Yes.

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

Yes☒ No☐ N/A☐ Comments:

Yes.

c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

Yes.

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

Comments:

Data quality/usability was not affected.

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

Yes.

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

Yes.

c. All soils reported on a dry weight basis?

Yes☐ No☒ N/A☐ Comments:

No soil samples were submitted for analysis.

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

Yes☒ No☐ N/A☐ Comments:

Yes.

e. Data quality or usability affected?

Data quality/usability was not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

Yes.

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☐ No☒ N/A☐ Comments:

No.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Method AK102/103: Compound AK102 DRO C10-C25 (492 J ug/L) was detected below the reporting limit in method blank batch WG1899415. A blank action level was established at five times of the reported blank concentration. Compound result in sample IDs G-8-W-20220714, G-9-W-20220714, G-1R-W-20220714, G-3-W-20220714 and BD-1-W-20220714 was qualified as non-detect (UB) at reporting limit.

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

Yes☒ No☐ N/A☐ Comments:

Yes.

v. Data quality or usability affected?

Comments:

The method blank contamination considered as minor and would result in the non-detect of the associated data. The reported data should still consider as usable.

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☐ N/A☐ Comments:

Yes.

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

Yes☐ No☒ N/A☐ Comments:

Metals/inorganic analysis was not requested for submitted samples.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☒ N/A☐ Comments:

Method AK102/103: LCS/LCSD recoveries were greater than the control limit for compound AK103 RRO C25-C36 in preparation batch WG1899415. Compound was non-detected in any of the associated samples hence no other qualification of the data was required.

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

Yes☒ No☒ N/A☐ Comments:

Yes.

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

Comments:

None of the samples were affected.

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

Yes☒ No☐ N/A☐ Comments:

Yes.

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

Comments:

Data quality/usability was not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

The MS/MSD analysis was performed on sample G-5-W-20220714 for method AK101, SW846 8260D and AK102/103.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Not applicable.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

Yes.

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

Yes☒ No☐ N/A☐ Comments:

Yes.

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

Comments:

None of the samples were affected.

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

Yes☐ No☒ N/A☐ Comments:

No.

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

Comments:

Data quality/usability was not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

Yes.

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

Yes☒ No☐ N/A☐ Comments:

Yes.

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

Yes☐ No☐ N/A☒ Comments:

Not applicable.

iv. Data quality or usability affected?

Comments:

Data quality or usability was not affected.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

Trip blank sample was collected as TRIP BLANK-20220714.

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☐ N/A☐ Comments:

Yes.

iii. All results less than LOQ and project specified objectives?

Yes☐ No☒ N/A☐ Comments:

No.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

Method AK101: Compound TPHGAK C6 to C10 (30.7 J ug/L) was detected below the reporting limit in TRIP BLANK-20220714. A blank action level was established at five times of the reported blank concentration. Compound result in sample ID G-8-W-20220714 was qualified as non-detect (UB) at reporting limit and in sample ID BD-1-W-20220714 was qualified as non-detect (UB) at sample detection. Method SW846 8260D: Compound total, xylenes (0.266 J ug/L) was detected below the reporting limit in TRIP BLANK-20220714. A blank action level was established at five times of the reported blank concentration. Compound result in sample IDs MW-304D-W-20220714, G-8-W-20220714, G-9-W-20220714 was qualified as non-detect (UB) at reporting limit.

v. Data quality or usability affected?

Comments:

The trip blank contamination considered as minor and would result in the non-detect of the associated data. The reported data should still consider as usable.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

Yes.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

Field duplicate BD-1-W-20220714 was collected from sample G-8-W-20220714.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (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☐ N/A☐ Comments:

Yes.

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

Data quality or usability was not affected.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☒ No☐ N/A☐ Comments:

Equipment blank sample was collected as EQB-1-W-20220714.

i. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

Yes.

ii. If above LOQ or project specified objectives, what samples are affected?
Comments:

None of the samples were affected.

iii. Data quality or usability affected?
Comments:

Data quality or usability was not affected.

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

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

Yes.