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Mr. Shawn Tisdell
Alaska Department of Environmental Conservation (ADEC)
Spill Prevention and Response, Contaminated Sites Program
610 University Avenue
Fairbanks, Alaska 99709

Subject:
2020 Annual Groundwater Monitoring Report

ENVIRONMENT

Dear Mr. Tisdell,

On behalf of Chevron Environmental Management Company (Chevron), Arcadis US, Inc. (Arcadis) has prepared the attached *2020 Annual Groundwater Monitoring Report*. The 2020 annual groundwater sampling events for the following facility:

Date:
August 21, 2020

Contact:
Nicole Monroe

Former Texaco

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

Phone:
503-785-9414

Email:
Nicole.Monroe@arcadis.com

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

Sincerely,

Our ref:
30045470

Arcadis U.S., Inc.



Nicole Monroe, P.E.
Project Manager
P.E.: EV-149409

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

Chevron Environmental Management Company

2020 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

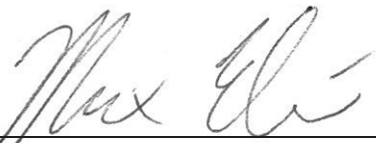
August 21 2020



2020 ANNUAL GROUNDWATER MONITORING REPORT

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Fairbanks, Alaska
ADEC File ID: 100.26.023
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Max Elias
Environmental Scientist

Prepared for:

Chevron Environmental Management
Company

Prepared by:

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2020 ANNUAL STATUS REPORT
August 21, 2020

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

Arcadis Contact Person / Phone No.: Nicole Monroe / (503) 785 9414

Arcadis Project No.: 30045470

Primary Agency/Regulatory ID No.: Alaska Department of Environmental Conservation (ADEC) /
Shawn Tisdell / ADEC File ID 100.26.023

WORK CONDUCTED THIS PERIOD [2020]:

1. Conducted annual groundwater monitoring activities on July 23 and 24, 2020
2. Prepared the *Annual Status Report, 2020*

WORK PROPOSED NEXT PERIOD [2021]:

1. Conduct annual groundwater monitoring activities in 2021
2. Prepare the *Annual Status Report, 2021*

Current Phase of Project:	<u>Monitoring</u>	
Frequency of Monitoring / Sampling:	<u>Annual</u>	
Is Light Non-Aqueous Phase Liquid (LNAPL) Present On-site:	<u>No</u>	
Cumulative LNAPL Recovered to Date:	<u>None</u>	(gallons)
Approximate Depth to Groundwater:	<u>8.94 to 14.44</u>	(feet below top of casing)
Approximate Groundwater Elevation:	<u>425.23 to 425.50</u>	(feet relative to NAVD88)
Groundwater Flow Direction	<u>Southwest</u>	
Groundwater Gradient	<u>0.0006</u>	(feet per foot)
Current Remediation Techniques:	<u>None</u>	

Permits for Discharge:

None

Summary of Unusual Activity:

Monitoring wells G-7 and G-3 contained obstructions within the well casings. Monitoring wells G-8 and MW-305 were unable to be accessed.

Agency Directive Requirements:

None

1 INTRODUCTION

On behalf of Chevron Environmental Management Company (CEMC), Arcadis US, Inc. (Arcadis), has prepared this report to document the annual groundwater sampling events of 2020 for University Car Care Center/former Texaco service station no. 211081 (the 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 2020 annual groundwater gauging event was conducted on July 23, 2020. Site monitoring wells were gauged with an oil/water interface probe to determine depth-to-water and to ascertain if LNAPL was present.

In order 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 2020 annual event, monitoring wells G-1R, G-4, G-5, G-9, MW-301D, MW-301S, MW-304D, MW-304S, MW-306 and MW-307 were scheduled to be gauged for groundwater elevations and the presence of LNAPL. Monitoring well G-3 was not able to be gauged due to an ice obstruction at 7.6 feet below ground surface (bgs); G-7 was not able to be gauged due to an unknown obstruction at 5.7 feet bgs. Monitoring well G-8 could not be opened due to seized bolts, and MW-305 was unable to be opened due to well cover design. The groundwater monitoring event field notes are presented in Appendix B.

The inferred groundwater flow direction for the annual 2020 monitoring events is to the southwest and is consistent with the 2019 groundwater flow data, however the 2019 and 2020 events are not consistent with the overall historic flow direction of north-northwest. This is likely due to the University changing the flow of

their groundwater well. Current and historical groundwater elevation data and analytical data are included in Table 1 and 2 respectively. A groundwater elevation contour map is presented as Figure 3. A rose diagram of historical groundwater flow direction is also included within Figure 3.

2.3 Groundwater Sampling Methods

The annual groundwater monitoring event were conducted on July 24 and 25, 2020. Groundwater samples were collected from monitoring wells G-1R, G-4, G-5, G-9, MW-301D, MW-304D and MW-307 using a low flow purge sampling method. Monitoring wells G-3, G-7, G-8, and MW-305 were unable to be sampled due to reasons mentioned previously.

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 ml/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:

- $\pm 3\%$ for temperature (minimum of $\pm 0.2\text{ C}^\circ$),
- ± 0.1 for pH,
- $\pm 3\%$ for conductivity,
- $\pm 10\text{ mv}$ for redox potential,
- $\pm 10\%$ for dissolved oxygen, and
- $\pm 10\%$ for turbidity.

Sample bottles were labeled, stored in a cooler packed with ice, and submitted to Pace Analytical (National Centre for Testing & Innovation), Mount Juliet, Tennessee, under proper chain-of-custody procedures.

Groundwater samples collected from monitoring wells G-1R, G-4, G-5, 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-Gasoline range organics (TPH-g) by Alaska method AK101
- Total Petroleum Hydrocarbons-Diesel range organics (TPH-d) and Diesel range organics with silica gel cleanup concentrations (TPH-d w/Si gel) by Alaska method AK102/103
- Total Petroleum Hydrocarbons-Residual range organics (TPH-r) by Alaska method AK102/103

A groundwater duplicate sample was collected from monitoring wells G-5 and G-9. The duplicate samples were analyzed for BTEX, TPH-g, TPH-d, TPH-d w/Si Gel and TPH-r. The duplicate samples were submitted blind with the sample set to Pace Analytical.

Prior to the annual sampling event of 2020, groundwater samples were sent to Eurofins Lancaster Laboratory (Eurofins) where the carbon chains analyzed for TPH-g, TPH-d and TPH-r analysis included C6-C10, C13-C22 and C25-C36, respectively. Pace Analytical analyzes the carbon chains C6-C10, C10-C25 and C25-C36 in TPH-g, TPH-d and TPH-r analysis, respectively.

2.4 Groundwater Analytical Results

Routine analytical results for BTEX, TPH-g, TPH-d, TPH-d w/Si Gel and TPH-r obtained from the annual 2020 groundwater monitoring event are summarized in Table 1 and are shown on Figure 4. Historical analytical groundwater data is summarized in Table 2.

3 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 2020 annual event. The laboratory report is included as Appendix C and data review checklist is included as Appendix D. The following quality assurance (QA) summary describes six parameters, related to the quality and usability of the data presented in this report.

3.1 Precision

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

The compounds ethylbenzene and total xylenes were exceeded the field duplicate (FD) RPD in field duplicate pair G-5-W-200625 / BD-2-W-200625. These compound results were qualified as estimated. The precision of the data, as measured by laboratory quality control (QC) indicators, suggest that the Data Quality Objectives (DQOs) were met.

3.2 Accuracy

The MS/MSD analysis was performed using sample G-1R-W-200624. The MS/MSD and LCS/LCSD recoveries were within the control limits.

The low surrogate recoveries were observed for method AK102/103 and associated results were qualified as estimated. The accuracy of the data, as measured by laboratory quality control (QC) indicators, suggest that the DQOs were met.

3.3 Representativeness

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

3.4 Comparability

The laboratory results are presented in the same units as previous reports to allow comparison.

3.5 Completeness

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

3.6 Sensitivity

Total Petroleum Hydrocarbon (TPH-d and TPH-g) results were exceeded the ADEC GCL in sample G-4-W-200625.

Benzene result was exceeded the ADEC GCL in samples G-1R-W-200624 and G-4-W-200625.

Ethylbenzene and total xylene results were exceeded the ADEC GCL in samples G-4-W-200625 and G-5-W-200625.

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

4 CONCLUSIONS AND RECOMMENDATIONS

The groundwater data collected during the annual 2020 groundwater monitoring event indicates groundwater flow direction is to the southwest, consistent with 2019 flow data but inconsistent with historical groundwater flow direction, likely due to the University changing the flow of their groundwater well. Groundwater samples were collected for analysis from monitoring wells G-1R, G-4, G-5, 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 2021.

5 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 ¹ (ft bTOC)	LNAPL thickness (ft)	GW Elev (ft)	TPH-d (mg/L)	TPH-d w/Si Gel (mg/L)	TPH-g (mg/L)	TPH-r (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	6/24/2020	435.66	NAVD88	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	
G-3	6/23/2020	434.73	NAVD88	--	--	--	--	--	--	--	--	--	--	--	Ice obstruction at 7.6 ft
G-4	6/25/2020	436.81	NAVD88	11.55	0.00	425.26	1.56	1.16	7.52	<0.888	2.65	0.382	0.624	2.01	
G-5	6/25/2020	435.28	NAVD88	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 [0.000590 J]	0.0617 J [0.0322 J]	0.529 J [0.335 J]		
G-7	6/23/2020	436.58	NAVD88	--	--	--	--	--	--	--	--	--	--	--	Obstructed at 5.7 ft. Unknown obstruction
G-8	6/23/2020	436.03	NAVD88	--	--	--	--	--	--	--	--	--	--	--	Could not open due to seized bolts
G-9	6/24/2020	435.64	NAVD88	10.40	0.00	425.24	<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]	
MW-301D	6/24/2020	437.87	NAVD88	12.55	0.00	425.32	--	--	<0.100	--	0.000144 J	<0.00100	<0.00100	<0.00300	
MW-301S	6/23/2020	437.51	NAVD88	12.19	0.00	425.32	--	--	--	--	--	--	--	--	
MW-304D	6/24/2020	439.88	NAVD88	14.44	0.00	425.44	--	--	<0.100	--	<0.00100	<0.00100	<0.00100	<0.00300	
MW-304S	6/23/2020	439.56	NAVD88	14.06	0.00	425.50	--	--	--	--	--	--	--	--	
MW-305	6/23/2020	436.38	NAVD88	--	--	--	--	--	--	--	--	--	--	--	Unable to open due to well cover design
MW-306	6/23/2020	434.17	NAVD88	8.94	0.00	425.23	--	--	--	--	--	--	--	--	
MW-307	6/24/2020	438.11	NAVD88	12.85	0.00	425.26	<0.888 J	<0.888	<0.100	<0.888 J	<0.00100	<0.00100	<0.00100	<0.00300	
QA (TB)	6/24/2020	--	--	--	--	--	--	--	<0.100	--	<0.00100	<0.00100	<0.00100	<0.00300	
QA (EQB)	6/25/2020	--	--	--	--	--	<0.840	<0.840	<0.100	<0.840	<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 method detection limit (MDL)

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 compound was positively identified; however, the associated numerical value is an estimated concentration only.

TPH-d = Total petroleum hydrocarbons, diesel range by LUFT GC/MS according to Alaska Series Method AK102/103
TPH-d w/Si Gel = Total petroleum hydrocarbons, diesel range with silica gel by LUFT GC/MS according to Alaska Series Method AK102
TPH-g = Total petroleum hydrocarbons, gasoline range by LUFT GC/MS according to Alaska Series Method AK101
TPH-r = Total petroleum hydrocarbons, residual range organics 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 Spec
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)
¹ = Depth to water taken during gauging event on 6/23/2020

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 200 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)	TPH-d (mg/L)	TPH-d w/Si gel (mg/L)	TPH-g (mg/L)	TPH-r (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-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	12.50	--	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	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 200 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)	TPH-d (mg/L)	TPH-d w/Si gel (mg/L)	TPH-g (mg/L)	TPH-r (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (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	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	--	
G-3	6/29/2014	434.42	10.20	--	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-4	3/28/2000	431.62	--	--	--	--	--	--	--	--	--	--	--	--	
G-4	6/27/2000	431.62	13.10	--	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	15.30	--	416.32	--	--	--	--	--	--	--	--	--	
G-4	3/27/2002	431.62	15.59	--	416.03	--	--	--	--	--	--	--	--	--	
G-4	6/25/2002	431.62	12.90	--	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	12.90	--	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	13.70	--	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	14.00	--	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	13.50	--	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-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	--	--	--	--	--	--	--	--	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 200 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)	TPH-d (mg/L)	TPH-d w/Si gel (mg/L)	TPH-g (mg/L)	TPH-r (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (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	6/27/2001	430.19	12.43	--	417.76	--	--	--	--	--	--	--	--	--	
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	<0.00240 / <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-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	--	--	--	--	--	--	--	--	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 200 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)	TPH-d (mg/L)	TPH-d w/Si gel (mg/L)	TPH-g (mg/L)	TPH-r (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
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	--	

Table 2. Historical Groundwater Gauging and Analytical Results
First Quarter 200 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)	TPH-d (mg/L)	TPH-d w/Si gel (mg/L)	TPH-g (mg/L)	TPH-r (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (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	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	--	
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 (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

Notes:

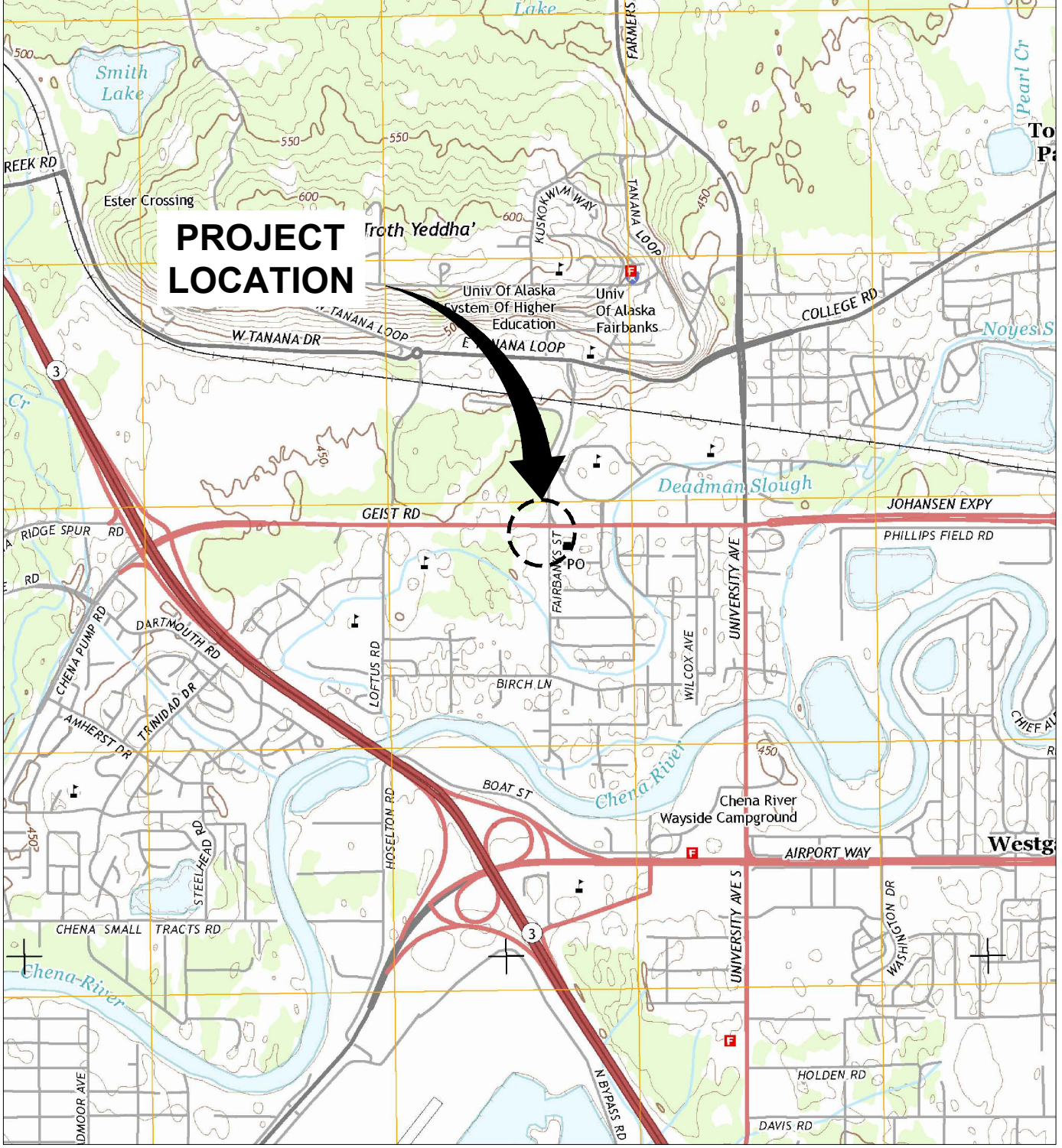
MW = Groundwater monitoring well
 TOC = Top of casing
 DTW = Depth to groundwater
 ft bTOC = Feet below top of casing
 ft = Feet relative to NAVD88
 BD= Duplicate Sample
 GW Elev = Groundwater elevation
 mg/L = Milligrams per liter
 LNAPL = Light non-aqueous phase liquid
 -- = Not analyzed/ Not available
 <0.800 = Not detected at or above the reported detection limit (RDL)
MDL = Value exceeds method detection limit (MDL)
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 compound was positively identified; however, the associated numerical value is an estimated concentration only.
 D = The sample result reported from dilution

TPH-d = Total petroleum hydrocarbons, diesel range by LUFT GC/MS according to Alaska Series Method AK102/103
 TPH-d w/Si Gel = Total petroleum hydrocarbons, diesel range with silica gel by LUFT GC/MS according to Alaska Series Method AK102
 TPH-g = Total petroleum hydrocarbons, gasoline range by LUFT GC/MS according to Alaska Series Method AK101
 TPH-r = Total petroleum hydrocarbons, residual range organics 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

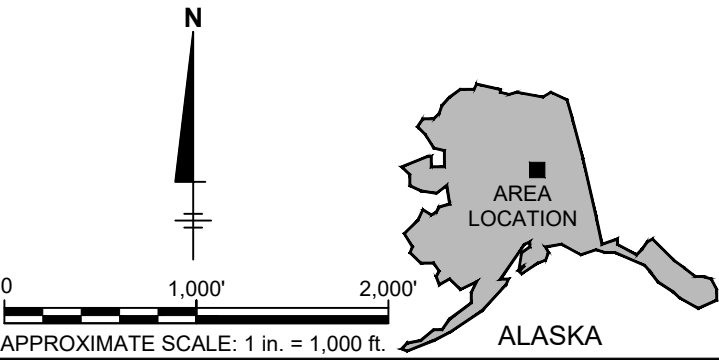
FIGURES




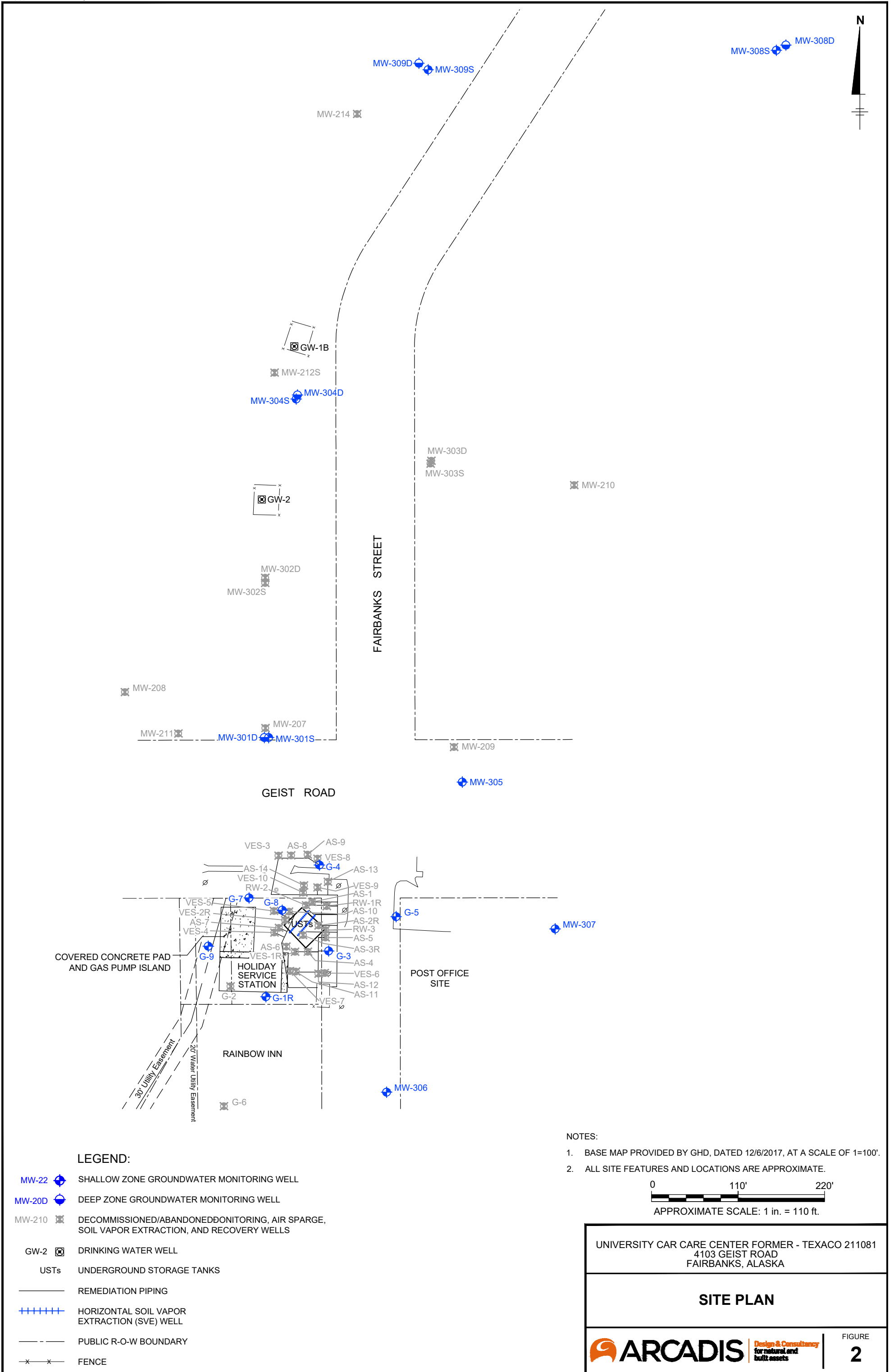
CITY: BANGALORE, INDIA DIV/ GROUP: ENVCAD DB: P KUMAR LD: PIC: PM: TM: ES:
 C:\Users\nadigerc8191\BIM 360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\ASR AK 2110812019\GWPRAK000.1081101-DWG\211081 Fig-1 SLM.dwg LAYOUT: 1 SAVED: 9/23/2019 3:37 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 9/24/2019 5:45 PM BY: NADIGERA, CHIDAMBARA



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. FAIRBANKS D-2 SE AND SW, ALASKA, 2017.



UNIVERSITY CAR CARE CENTER FORMER - TEXACO 211081 4103 GEIST ROAD FAIRBANKS, ALASKA	
SITE LOCATION MAP	
 ARCADIS <small>Design & Consultancy for natural and built assets</small>	FIGURE 1

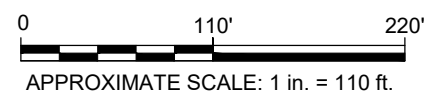


LEGEND:

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



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

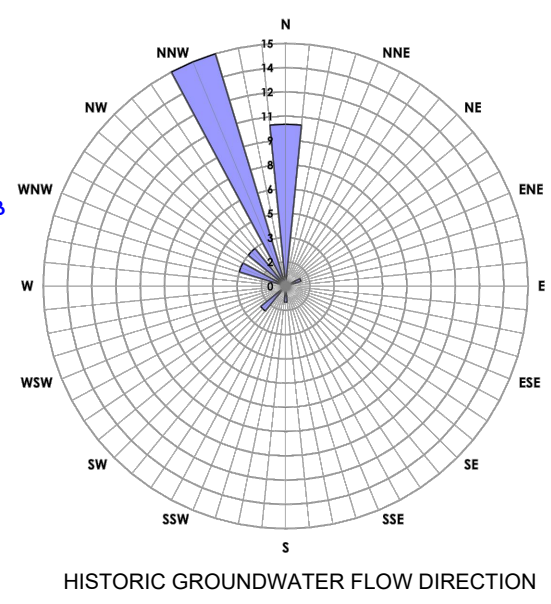
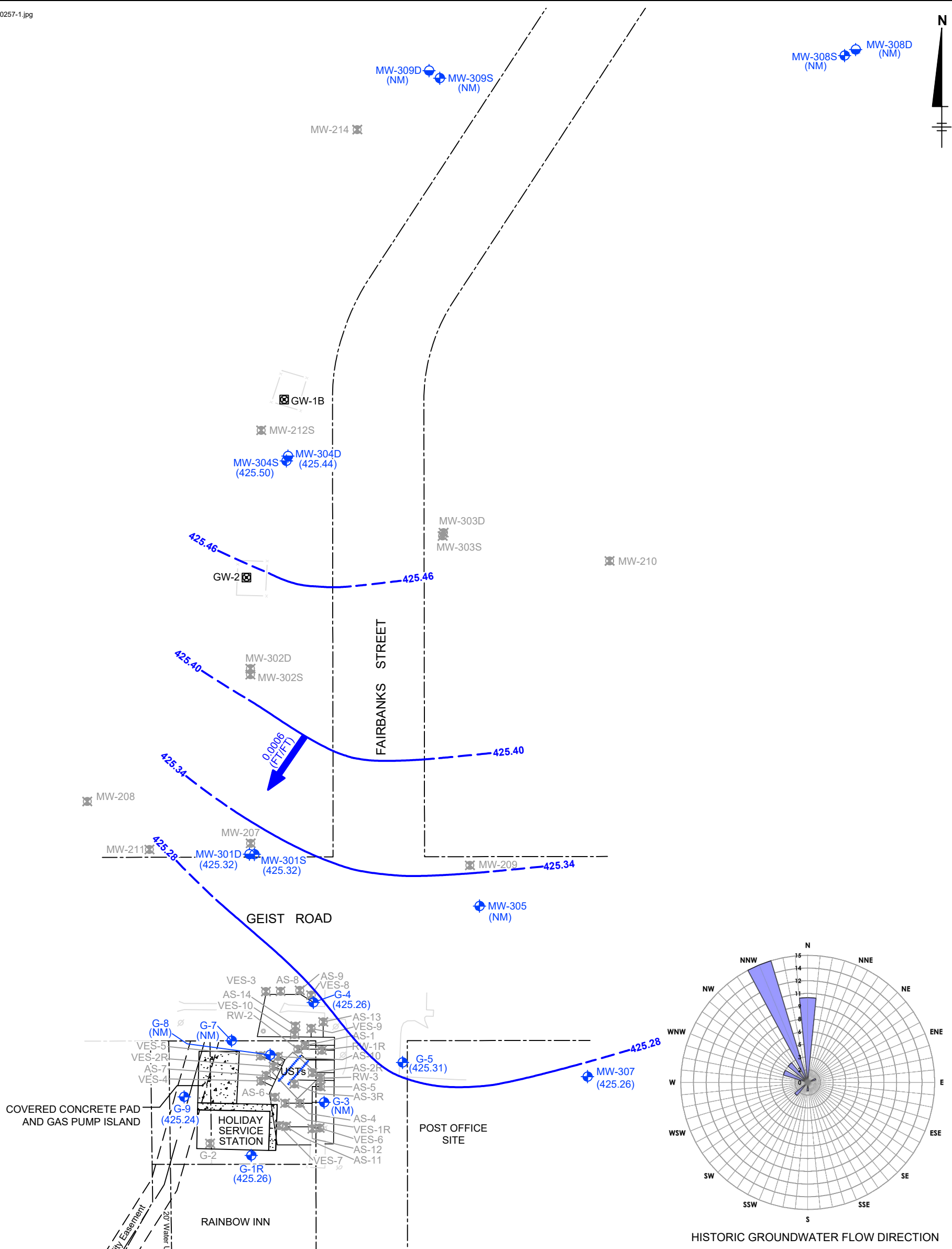
SITE PLAN



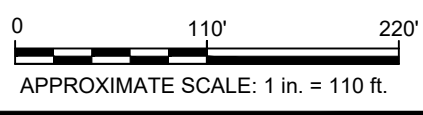
FIGURE

2

IMAGES:
 20190923160257-1.jpg



- 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.



LEGEND:

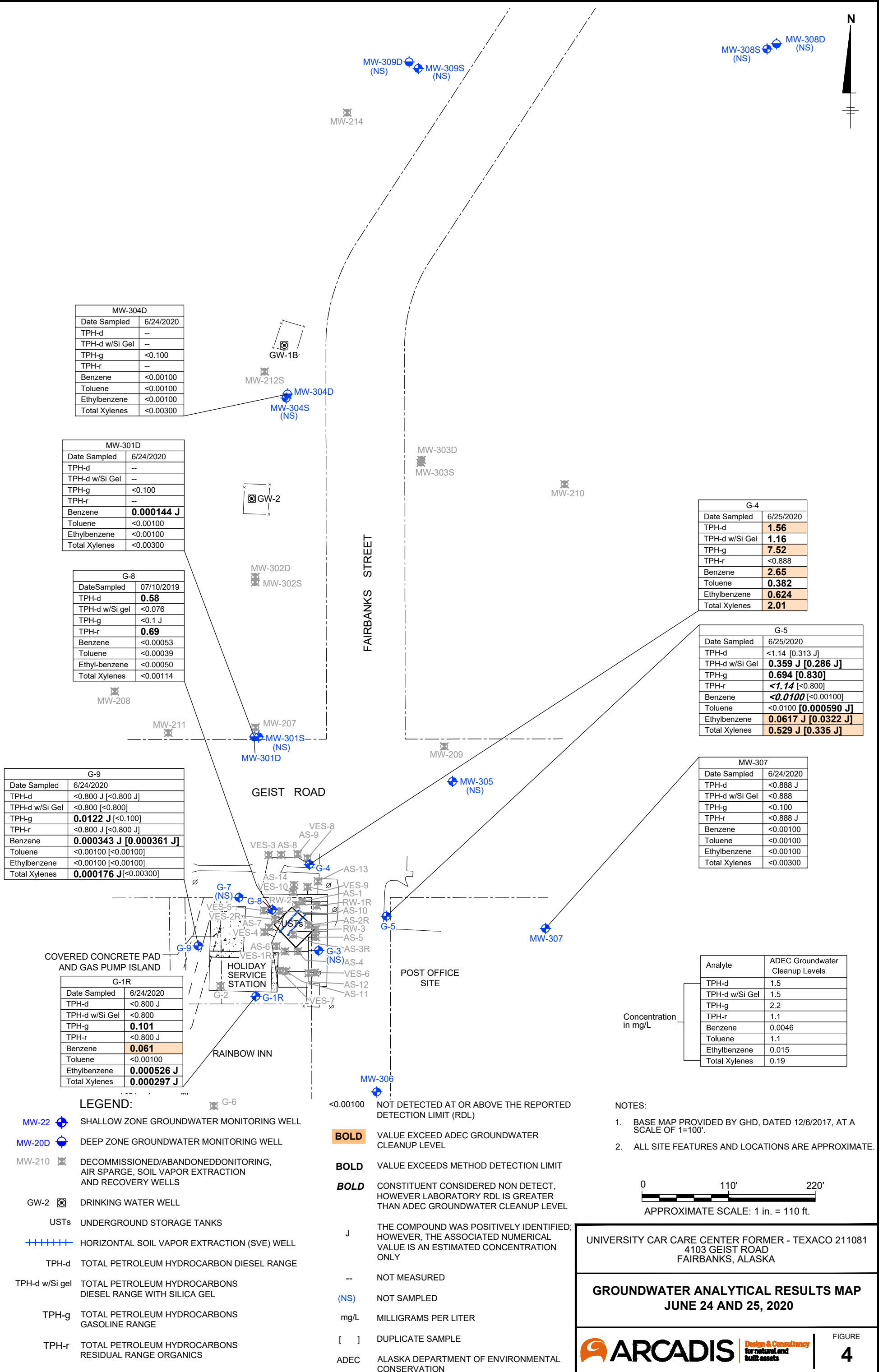
- | | | | |
|--------------|---|--------|--|
| MW-22 | SHALLOW ZONE GROUNDWATER MONITORING WELL | (NM) | NOT MEASURED |
| MW-20D | DEEP ZONE GROUNDWATER MONITORING WELL | ** | DATA ANOMALOUS NOT USED FOR CONTOURING |
| MW-210 | DECOMMISSIONED/ABANDONED MONITORING, AIR SPARGE SOIL VAPOR EXTRACTION, AND RECOVERY WELLS | NAVD88 | NORTH AMERICAN VERTICAL DATUM OF 1988 |
| GW-2 | DRINKING WATER WELL | | |
| USTs | UNDERGROUND STORAGE TANKS | | |
| +++++ | HORIZONTAL SOIL VAPOR EXTRACTION (SVE) WELL | | |
| (425.50) | GROUNDWATER ELEVATION IN FEET RELATIVE TO NAVD88 | | |
| 425.46 | GROUNDWATER ELEVATION CONTOUR (FEET; DASHED WHERE INFERRED) | | |
| ← | GROUNDWATER FLOW DIRECTION | | |
| 0.0006 FT/FT | APPROXIMATE GROUNDWATER GRADIENT FT/FT | | |
| * | DEEP ZONE WELL NOT USED FOR CONTOURING | | |

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

GROUNDWATER ELEVATION CONTOUR MAP
 JUNE 23, 2020

ARCADIS Design & Consultancy for natural and built assets

FIGURE **3**



MW-304D	
Date Sampled	6/24/2020
TPH-d	--
TPH-d w/Si Gel	--
TPH-g	<0.100
TPH-r	--
Benzene	<0.00100
Toluene	<0.00100
Ethylbenzene	<0.00100
Total Xylenes	<0.00300

MW-301D	
Date Sampled	6/24/2020
TPH-d	--
TPH-d w/Si Gel	--
TPH-g	<0.100
TPH-r	--
Benzene	0.000144 J
Toluene	<0.00100
Ethylbenzene	<0.00100
Total Xylenes	<0.00300

G-8	
Date Sampled	07/10/2019
TPH-d	0.58
TPH-d w/Si gel	<0.076
TPH-g	<0.1 J
TPH-r	0.69
Benzene	<0.00053
Toluene	<0.00039
Ethylbenzene	<0.00050
Total Xylenes	<0.00114

G-4	
Date Sampled	6/25/2020
TPH-d	1.56
TPH-d w/Si Gel	1.16
TPH-g	7.52
TPH-r	<0.888
Benzene	2.65
Toluene	0.382
Ethylbenzene	0.624
Total Xylenes	2.01

G-5	
Date Sampled	6/25/2020
TPH-d	<1.14 [0.313 J]
TPH-d w/Si Gel	0.359 J [0.286 J]
TPH-g	0.694 [0.830]
TPH-r	<1.14 [<0.800]
Benzene	<0.0100 [<0.00100]
Toluene	<0.0100 [0.000590 J]
Ethylbenzene	0.0617 J [0.0322 J]
Total Xylenes	0.529 J [0.335 J]

G-9	
Date Sampled	6/24/2020
TPH-d	<0.800 J [<0.800 J]
TPH-d w/Si Gel	<0.800 [<0.800]
TPH-g	0.0122 J [<0.100]
TPH-r	<0.800 J [<0.800 J]
Benzene	0.000343 J [0.000361 J]
Toluene	<0.00100 [<0.00100]
Ethylbenzene	<0.00100 [<0.00100]
Total Xylenes	0.000176 J [<0.00300]

MW-307	
Date Sampled	6/24/2020
TPH-d	<0.888 J
TPH-d w/Si Gel	<0.888
TPH-g	<0.100
TPH-r	<0.888 J
Benzene	<0.00100
Toluene	<0.00100
Ethylbenzene	<0.00100
Total Xylenes	<0.00300

G-1R	
Date Sampled	6/24/2020
TPH-d	<0.800 J
TPH-d w/Si Gel	<0.800
TPH-g	0.101
TPH-r	<0.800 J
Benzene	0.061
Toluene	<0.00100
Ethylbenzene	0.000526 J
Total Xylenes	0.000297 J

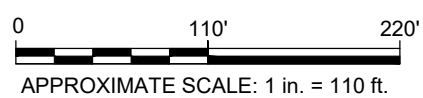
Analyte	ADEC Groundwater Cleanup Levels
TPH-d	1.5
TPH-d w/Si Gel	1.5
TPH-g	2.2
TPH-r	1.1
Benzene	0.0046
Toluene	1.1
Ethylbenzene	0.015
Total Xylenes	0.19

LEGEND:

- MW-22 SHALLOW ZONE GROUNDWATER MONITORING WELL
- MW-20D DEEP ZONE GROUNDWATER MONITORING WELL
- MW-210 DECOMMISSIONED/ABANDONED MONITORING, AIR SPARGE, SOIL VAPOR EXTRACTION AND RECOVERY WELLS
- GW-2 DRINKING WATER WELL
- USTs UNDERGROUND STORAGE TANKS
- HORIZONTAL SOIL VAPOR EXTRACTION (SVE) WELL
- TPH-d TOTAL PETROLEUM HYDROCARBON DIESEL RANGE
- TPH-d w/Si gel TOTAL PETROLEUM HYDROCARBONS DIESEL RANGE WITH SILICA GEL
- TPH-g TOTAL PETROLEUM HYDROCARBONS GASOLINE RANGE
- TPH-r TOTAL PETROLEUM HYDROCARBONS RESIDUAL RANGE ORGANICS
- <0.00100 NOT DETECTED AT OR ABOVE THE REPORTED DETECTION LIMIT (RDL)
- VALUE EXCEED ADEC GROUNDWATER CLEANUP LEVEL**
- VALUE EXCEEDS METHOD DETECTION LIMIT**
- CONSTITUENT CONSIDERED NON DETECT, HOWEVER LABORATORY RDL IS GREATER THAN ADEC GROUNDWATER CLEANUP LEVEL**
- J THE COMPOUND WAS POSITIVELY IDENTIFIED, HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY
- NOT MEASURED
- (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.



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

GROUNDWATER ANALYTICAL RESULTS MAP
 JUNE 24 AND 25, 2020

APPENDIX A

Site Background and History



**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 Name : 211081 **Weather(°F) :** Clear
Project Number : 30043323 **Prepared By:** Michael MacDaniel
Purpose : Groundwater monitoring
PPE : Level D
Equipment: Interface Probe (IP)

Date	Time	Description of Activities
6/23/2020	08:30	Conduct health and safety tailgate meeting. Review scope of work and hazards. Prep coolers, mobilize to FedEx to ship summa samples from 306456 and soil samples from 381811. Also shipped back pine equipment.
6/23/2020	11:50	Arrived on site and begin gauging wells.
6/23/2020	15:41	Completed gauging on site. Mobilize offsite to purchase supplies. (Spare bolts, gloves, wrench) A summary of issues encountered while gauging is below— G-7: obstructed at 5.7'. Unknown obstruction. MW-305: Unable to open due to well cover design. G-3: ice obstruction at 7.6' G-8: could not open due to seized bolts.
6/23/2020	16:00	Air monitoring was conducted throughout the day while sampling wells. No exceedances above action levels were observed. Mobilized off to prep samples for shipping and purchase other supplies.

Michael MacDaniel

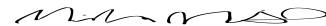
Daily Log

Waste Management:										
Drums On Site										
Date	Are there any waste drums on site?	Number of Drums upon Arrival	Size of Drums	Type of Drums	Condition of Drums	Waste Drumm ed Today?	Number of drums Created	Size of drums	Condition of Drums	General Waste Comments
6/23/2020	yes	10	(7)55 gallon in overpacks, 3 drums not in an overpack.	Stainless Steel		no				

Daily Log

Project Name : 211081 **Weather(°F) :** Clear
Project Number : 30043323 **Prepared By:** Michael MacDaniel
Purpose : Groundwater monitoring
PPE : Level D
Equipment: Photoionization Detector (PID)

Date	Time	Description of Activities
6/24/2020	07:30	Conduct health and safety tailgate meeting. Review scope of work and hazards. Prep coolers, mobilize to Arctic fire and safety to purchase delineators.
6/24/2020	08:40	Arrived on site and begin sampling wells
6/24/2020	09:25	Sampled MW-304D
6/24/2020	10:25	Sampled MW-301D
6/24/2020	11:45	Sampled MW-307
6/24/2020	13:10	Sampled G-1R
6/24/2020	15:25	Sampled G-9
6/24/2020	15:50	Attempted to sample G-4. Unable to sample well with 1.75" bladder pump due to bend in PVC casing. Will return and attempt to sample with smaller bladder pump.
6/24/2020	16:20	Air monitoring was conducted throughout the day while sampling wells. No exceedances above action levels were observed. Mobilized off to prep samples for shipping and purchase other supplies.



Waste Management:										
Drums On Site										
Date	Are there any waste drums on site?	Number of Drums upon Arrival	Size of Drums	Type of Drums	Condition of Drums	Waste Drumm ed Today?	Number of drums Created	Size of drums	Condition of Drums	General Waste Comments
6/24/2020	no					no				Purge water was filtered through GAC and discharged onsite.

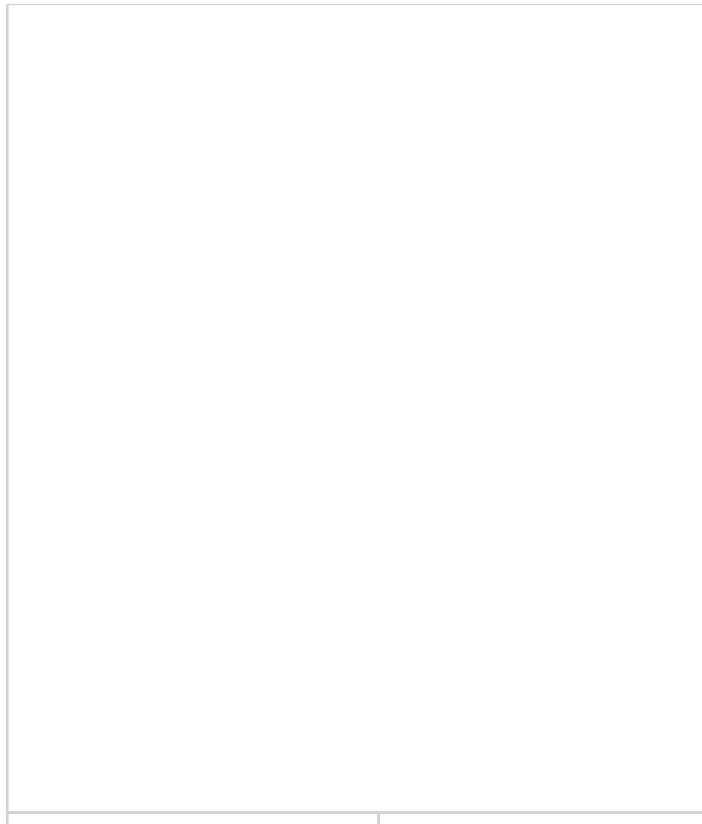
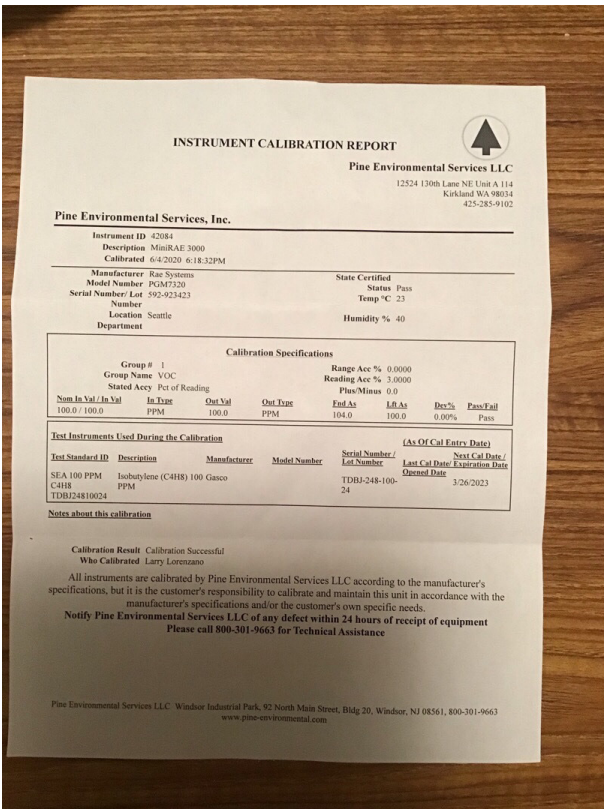
Daily Log

Equipment and Calibration Information:

Supplier: Pine Model: PGM7320
 Rental Number: Calibrated: yes
 Bump Checked: yes Calibration Passed: yes

PID SN: 592923423						
Date	Time	Calibration Gas Type and Value (ppm)	Lot #	Expiration Date	Initial Reading	Final Reading
06/24/2020	08:45	Isobutylene-100	305-401707081-1	01/24/2024	100.2	100.1
06/24/2020	07:45	-				
06/24/2020	--	-				
06/24/2020	--	-				

Calibration Documents



Daily Log

Project Name : 211081 **Weather(°F) :** Clear
Project Number : 30043323 **Prepared By:** Michael MacDaniel
Purpose : Groundwater monitoring
PPE : Level D
Equipment: Photoionization Detector (PID)

Date	Time	Description of Activities
6/25/2020	07:30	Conduct health and safety tailgate meeting. Review scope of work and hazards. Prep coolers and calibrated equipment. Mobilized to Arcadis office for supplies.
6/25/2020	08:45	Arrive on site and begin setting up equipment at G-5.
6/25/2020	10:10	Sampled G-5
6/25/2020	10:31	YSI flow through cell O-ring is damaged and causing the cell to leak. Mobilized offsite to the hotel to get back up YSI
6/25/2020	11:05	Return to site. Begin sampling at G-4.
6/25/2020	12:30	Sampled Equipment blank
6/25/2020	12:45	Air monitoring was conducted throughout the day while sampling wells. No exceedances above action levels were observed. Mobilized off to prep samples for shipping.
6/25/2020	13:45	Discussed schedule with M. Elias. Began prepping containers for 1001430 and 211815 sampling and moving some equipment back to the arcadis storage unit.

Michael MacDaniel

Waste Management:

Drums On Site										
Date	Are there any waste drums on site?	Number of Drums upon Arrival	Size of Drums	Type of Drums	Condition of Drums	Waste Drumm ed Today?	Number of drums Created	Size of drums	Condition of Drums	General Waste Comments
6/25/2020	no					no				Purge water was filtered through GAC and discharged onsite.

Daily Log

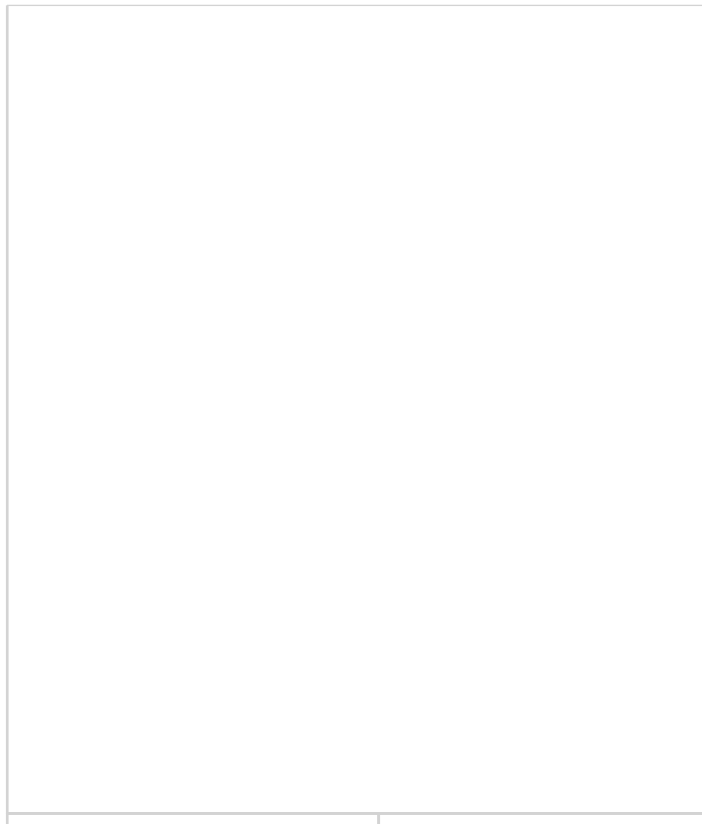
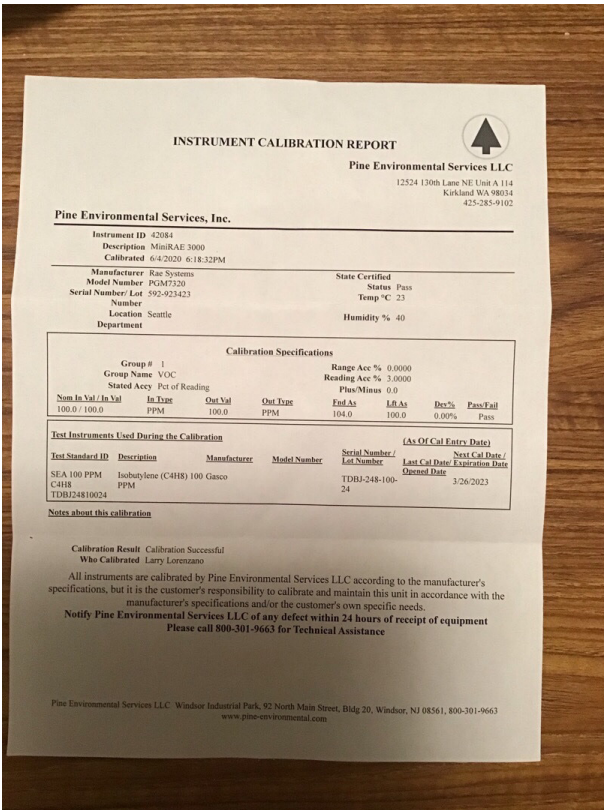
Equipment and Calibration Information:

Supplier: Pine Model: PGM7320
 Rental Number: Calibrated: yes
 Bump Checked: yes Calibration Passed: yes

PID SN: 592923423

Date	Time	Calibration Gas Type and Value (ppm)	Lot #	Expiration Date	Initial Reading	Final Reading
06/25/2020	08:45	Isobutylene-100	305-401707081-1	01/24/2024	100.2	100.1
06/25/2020	07:45	-				
06/25/2020	--	-				
06/25/2020	--	-				

Calibration Documents



Groundwater Gauging Log

Client:		Chevron					
Site ID:		211081					
Site Location:		4103 Geist Road, Fairbanks, AK 99709					
Date(s):		06/23/2020, 06/24/2020, 06/25/2020					
Sampler(s):		Michael MacDaniel					
Well ID	Date	Gauging Time	Static Water Level (ft bmp)	Depth to Product (ft bmp)	Total Depth (ft bmp)	PID Reading (ppm)	Comments
G-4	06/23/2020	13:55	11.55	--	16.26	0	--
G-5	06/23/2020	15:00	9.97	--	19.00	0	Bolt holes are stripped. Unable to secure well cover.
G-9	06/23/2020	13:44	10.4	--	18.62	0	Missing bolts
G1-R	06/23/2020	14:16	10.4	--	18.25	0	--
MW-301D	06/23/2020	12:40	12.55	--	62.00	0	--
MW-301S	06/23/2020	12:45	12.19	--	0.00	0	Did not measure total depth.
MW-304D	06/23/2020	12:24	14.44	--	60.00	0	--
MW-304S	06/23/2020	12:30	14.06	--	60.00	0	--
MW-306	06/23/2020	13:00	8.94	--	0.00	0	--
MW-307	06/23/2020	13:20	12.85	--	14.56	0	--

ft-bmp = feet below measuring point
ppmv = parts per million volume

PID = Photoionization Detector Reading
-- = Not Recorded

Project Number	30043323	Well ID	G1-R	Date	6/24/2020		
Site Location	4103 Geist Road, Fairbanks, AK 99709	Site ID	211081	Weather (°F)	Cloudy	Sampled by	Michael MacDaniel
Measuring Point Description	--	Screen Depth Interval (ft-bmp)	-- to --	Casing Diameter (in.)	4	Well Casing Material	PVC
Static Water Level (ft-bmp)	10.24	Total Depth (ft-bmp)	18.25	Water Column (ft)	8.01	Gallons in Well	5.21
Water Quality Meter Make/Model	Horiba U-52	Purge Method	Low-Flow	Sample Method	Low-Flow		
Sample Time	13:10	Volumes Purged	0.11	Sample ID	G-1R-W-200624	Evacuation Equipment	Bladder
Purge Start	12:39	Gallons Purged	0.58	Duplicate ID	--		
Purge End	13:03	Total Purge Time (h:m)	0:24				

Time	Rate (mL/min)	Depth to Water (ft)	Total Volume purged (ml)	Total Volume purged (gal)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
12:39	100	10.24	0	--	7.54	0.723	49.2	0.33	11.88	30	Clear	None
12:47	100	10.24	800	--	7.47	0.725	44.0	0.00	11.52	-18	Clear	None
12:53	100	10.24	1400	--	7.49	0.723	40.9	0.00	11.43	-28	Clear	None
12:57	100	10.24	1800	--	7.47	0.724	39.4	0.00	11.37	-31	Clear	None
13:01	100	10.24	2200	--	7.47	0.722	37.8	0.00	11.38	-34	Clear	None

Comments: None

Well Casing Volume Conversion

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

Sample Information

Sample ID: G-1R-W-200624 Sample Time: 13:10 Sample Depth (ft-bmp): 11
Analytes and Methods: See sample 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

Project Number	30043323	Well ID	G-4	Date	6/25/2020		
Site Location	4103 Geist Road, Fairbanks, AK 99709	Site ID	211081	Weather (°F)	Clear	Sampled by	Michael MacDaniel
Measuring Point Description	--	Screen Depth Interval (ft-bmp)	-- to --	Casing Diameter (in.)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	11.21	Total Depth (ft-bmp)	16.26	Water Column (ft)	5.05	Gallons in Well	0.82
Water Quality Meter Make/Model	Horiba U-52	Purge Method	Low-Flow	Sample Method	Low-Flow		
Sample Time	12:15	Volumes Purged	0.40	Sample ID	G-4-W-200625	Evacuation Equipment	Bladder
Purge Start	11:28	Gallons Purged	0.33	Duplicate ID	--		
Purge End	12:07	Total Purge Time (h:m)	0:39				

Time	Rate (mL/min)	Depth to Water (ft)	Total Volume purged (ml)	Total Volume purged (gal)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temper ature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:41	50	11.21	0	--	7.18	1.00	0.0	0.48	15.76	-79	Clear	None
11:53	50	11.21	600	--	7.12	1.03	0.0	0.00	12.90	-85	Clear	None
11:56	50	11.21	750	--	7.13	1.04	0.0	0.00	12.00	-86	Clear	None
11:59	50	11.21	900	--	7.13	1.05	0.0	0.00	11.20	-87	Clear	None
12:02	50	11.21	1050	--	7.10	1.06	0.0	0.00	11.09	-88	Clear	None
12:06	50	11.21	1250	--	7.11	1.06	0.0	0.00	10.88	-89	Clear	None

Comments: Unable to sample well with 1.75 inch bladder pump.

Well Casing Volume Conversion

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

Sample Information

Sample ID: G-4-W-200625 Sample Time: 12:15 Sample Depth (ft-bmp): 12
Analytes and Methods: See sample 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

Project Number	30043323	Well ID	G-5	Date	6/25/2020		
Site Location	4103 Geist Road, Fairbanks, AK 99709	Site ID	211081	Weather (°F)	Clear	Sampled by	Michael MacDaniel
Measuring Point Description	--	Screen Depth Interval (ft-bmp)	-- to --	Casing Diameter (in.)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	10.66	Total Depth (ft-bmp)	19	Water Column (ft)	8.34	Gallons in Well	1.36
Water Quality Meter Make/Model	Horiba U-52	Purge Method	Low-Flow	Sample Method	Low-Flow		
Sample Time	10:10	Volumes Purged	0.29	Sample ID	G-5-W-200625	Evacuation Equipment	Bladder
Purge Start	09:50	Gallons Purged	0.40	Duplicate ID	--		
Purge End	10:05	Total Purge Time (h:m)	0:15				

Time	Rate (mL/min)	Depth to Water (ft)	Total Volume purged (ml)	Total Volume purged (gal)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temper ature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:50	100	10.66	0	--	7.03	0.682	0.0	1.57	9.13	202	Clear	None
09:56	100	10.66	600	--	6.92	0.696	0.0	1.05	8.63	194	Clear	None
09:59	100	10.66	900	--	6.91	0.695	0.0	0.77	8.54	190	Clear	None
10:02	100	10.66	1200	--	6.92	0.695	0.0	0.74	8.41	187	Clear	None
10:05	100	10.66	1500	--	6.90	0.694	0.0	0.72	8.37	182	Clear	None

Comments: Bolt holes are stripped. Unable to secure well cover.

Well Casing Volume Conversion

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

Sample Information

Sample ID: G-5-W-200625 Sample Time: 10:10 Sample Depth (ft-bmp): 11.5
 Analytes and Methods: See sample 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

Project Number	30043323	Well ID	G-9	Date	6/23/2020		
Site Location	4103 Geist Road, Fairbanks, AK 99709	Site ID	211081	Weather (°F)	Raining	Sampled by	Michael MacDaniel
Measuring Point Description	--	Screen Depth Interval (ft-bmp)	-- to --	Casing Diameter (in.)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	10.22	Total Depth (ft-bmp)	18.62	Water Column (ft)	8.40	Gallons in Well	1.36
Water Quality Meter Make/Model	Horiba U-52	Purge Method	Low-Flow	Sample Method	Low-Flow		
Sample Time	15:00	Volumes Purged	0.74	Sample ID	G-9-W-200624	Evacuation Equipment	Bladder
Purge Start	14:18	Gallons Purged	1.00	Duplicate ID	--		
Purge End	14:59	Total Purge Time (h:m)	0:41				

Time	Rate (mL/min)	Depth to Water (ft)	Total Volume purged (ml)	Total Volume purged (gal)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
14:18	100	10.22	0	--	7.19	0.966	626	0.13	13.89	134	Clear	None
14:30	100	10.22	1200	--	7.10	0.988	411	0.00	13.90	126	Clear	None
14:33	100	10.22	1500	--	7.10	0.975	356	0.00	13.99	124	Clear	None
14:37	100	10.22	1900	--	7.09	0.980	329	0.00	14.07	121	Clear	None
14:40	100	10.22	2200	--	7.09	0.970	314	0.00	14.29	118	Clear	None
14:44	100	10.22	2600	--	7.08	0.947	291	0.00	14.61	115	Clear	None
14:47	100	10.22	2900	--	7.07	0.940	253	0.00	14.75	112	Clear	None
14:50	100	10.22	3200	--	7.07	0.933	233	0.00	14.35	110	Clear	None
14:54	100	10.22	3600	--	7.05	0.931	220	0.00	14.69	108	Clear	None
14:56	100	10.22	3800	--	7.06	0.935	212	0.00	14.58	106	Clear	None

Comments: Replaced one bolt. Other bolt hole has rock stuck in it.

Well Casing Volume Conversion

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

Sample Information

Sample ID: G-9-W-200624 Sample Time: 15:00 Sample Depth (ft-bmp): 11
 Analytes and Methods: See sample 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

Project Number	30043323	Well ID	MW-301D	Date	6/24/2020		
Site Location	4103 Geist Road, Fairbanks, AK 99709	Site ID	211081	Weather (°F)	Cloudy	Sampled by	Michael MacDaniel
Measuring Point Description	--	Screen Depth Interval (ft-bmp)	-- to --	Casing Diameter (in.)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	12.43	Total Depth (ft-bmp)	62	Water Column (ft)	49.57	Gallons in Well	8.05
Water Quality Meter Make/Model	Horiba U-52	Purge Method	Low-Flow	Sample Method	Low-Flow		
Sample Time	10:25	Volumes Purged	0.09	Sample ID	MW-301D-W- 200624	Evacuation Equipment	Bladder
Purge Start	09:56	Gallons Purged	0.71	Duplicate ID	--		
Purge End	10:23	Total Purge Time (h:m)	0:27				

Time	Rate (mL/min)	Depth to Water (ft)	Total Volume purged (ml)	Total Volume purged (gal)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temper ature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:56	100	12.43	0	--	7.75	0.638	47.5	0.37	9.95	239	Clear	None
10:10	100	12.44	1400	--	7.63	0.639	38.5	0.00	9.70	5	Clear	None
10:14	100	12.44	1800	--	7.62	0.638	39.0	0.00	9.66	-11	Clear	None
10:17	100	12.44	2100	--	7.62	0.637	39.5	0.00	9.67	-19	Clear	None
10:20	100	12.44	2400	--	7.61	0.638	39.2	0.00	9.85	-24	Clear	None
10:23	100	12.44	2700	--	7.59	0.638	41.9	0.00	9.87	-25	Clear	None

Comments: None

Well Casing Volume Conversion

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

Sample Information

Sample ID: MW-301D-W-200624 Sample Time: 10:25 Sample Depth (ft-bmp): 13.25
 Analytes and Methods: BTEX / GRO

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

Project Number	30043323	Well ID	MW-304D	Date	6/24/2020		
Site Location	4103 Geist Road, Fairbanks, AK 99709	Site ID	211081	Weather (°F)	Raining	Sampled by	Michael MacDaniel
Measuring Point Description	--	Screen Depth Interval (ft-bmp)	-- to --	Casing Diameter (in.)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	14.33	Total Depth (ft-bmp)	60	Water Column (ft)	45.67	Gallons in Well	7.42
Water Quality Meter Make/Model	Horiba U-52	Purge Method	Low-Flow	Sample Method	Low-Flow		
Sample Time	09:25	Volumes Purged	0.06	Sample ID	MW-304D-W- 200624	Evacuation Equipment	Bladder
Purge Start	09:04	Gallons Purged	0.45	Duplicate ID	--		
Purge End	09:22	Total Purge Time (h:m)	0:18				

Time	Rate (mL/min)	Depth to Water (ft)	Total Volume purged (ml)	Total Volume purged (gal)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
09:04	100	14.33	0	--	8.29	0.658	13.4	5.82	12.82	234	Clear	None
09:15	100	14.33	1100	--	8.08	0.659	13.5	5.44	12.60	238	Clear	None
09:18	100	14.34	1400	--	8.09	0.658	13.6	5.41	12.58	237	Clear	None
09:21	100	14.33	1700	--	8.07	0.659	13.8	5.42	12.57	239	Clear	None

Comments: None

Well Casing Volume Conversion

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

Sample Information

Sample ID: MW-304D-W-200624 Sample Time: 09:25 Sample Depth (ft-bmp): 14

Analytes and Methods: BTEX / GRO

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

Project Number	30043323	Well ID	MW-307	Date	6/24/2020		
Site Location	4103 Geist Road, Fairbanks, AK 99709	Site ID	211081	Weather (°F)	Cloudy	Sampled by	Michael MacDaniel
Measuring Point Description	--	Screen Depth Interval (ft-bmp)	-- to --	Casing Diameter (in.)	2	Well Casing Material	PVC
Static Water Level (ft-bmp)	12.73	Total Depth (ft-bmp)	14.56	Water Column (ft)	1.83	Gallons in Well	0.3
Water Quality Meter Make/Model	Horiba U-52	Purge Method	Low-Flow	Sample Method	Low-Flow		
Sample Time	11:45	Volumes Purged	1.94	Sample ID	MW-307-W- 200624	Evacuation Equipment	Bladder
Purge Start	11:18	Gallons Purged	0.58	Duplicate ID	--		
Purge End	11:40	Total Purge Time (h:m)	0:22				

Time	Rate (mL/min)	Depth to Water (ft)	Total Volume purged (ml)	Total Volume purged (gal)	pH (standard units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Redox (mV)	Appearance	
											Color	Odor
11:18	100	12.73	0	--	7.48	0.686	246	4.63	12.45	124	Clear	None
11:30	100	12.73	1200	--	7.31	0.662	102	4.11	11.95	141	Clear	None
11:33	100	12.73	1500	--	7.32	0.660	90.7	4.07	11.91	145	Clear	None
11:36	100	12.73	1800	--	7.29	0.667	89.7	4.14	11.94	149	Clear	None
11:40	100	12.73	2200	--	7.27	0.658	85.7	4.03	11.98	150	Clear	None

Comments: PVC is starting to interfere with well cover. Needs to be cut.

Well Casing Volume Conversion

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

Sample Information

Sample ID: MW-307-W-200624 Sample Time: 11:45 Sample Depth (ft-bmp): 13.2
 Analytes and Methods: See sample chain of custody

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

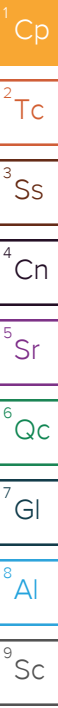
mS/cm = milliSiemens per centimeter
 NTU = Nephelometric Turbidity Unit
 mg/L = milligrams per liter
 PVC = Polyvinyl Chloride

mV = millivolts
 °F = degrees Fahrenheit
 °C = degrees Celsius

APPENDIX C

Laboratory Analytical Results





Arcadis - Chevron - AK

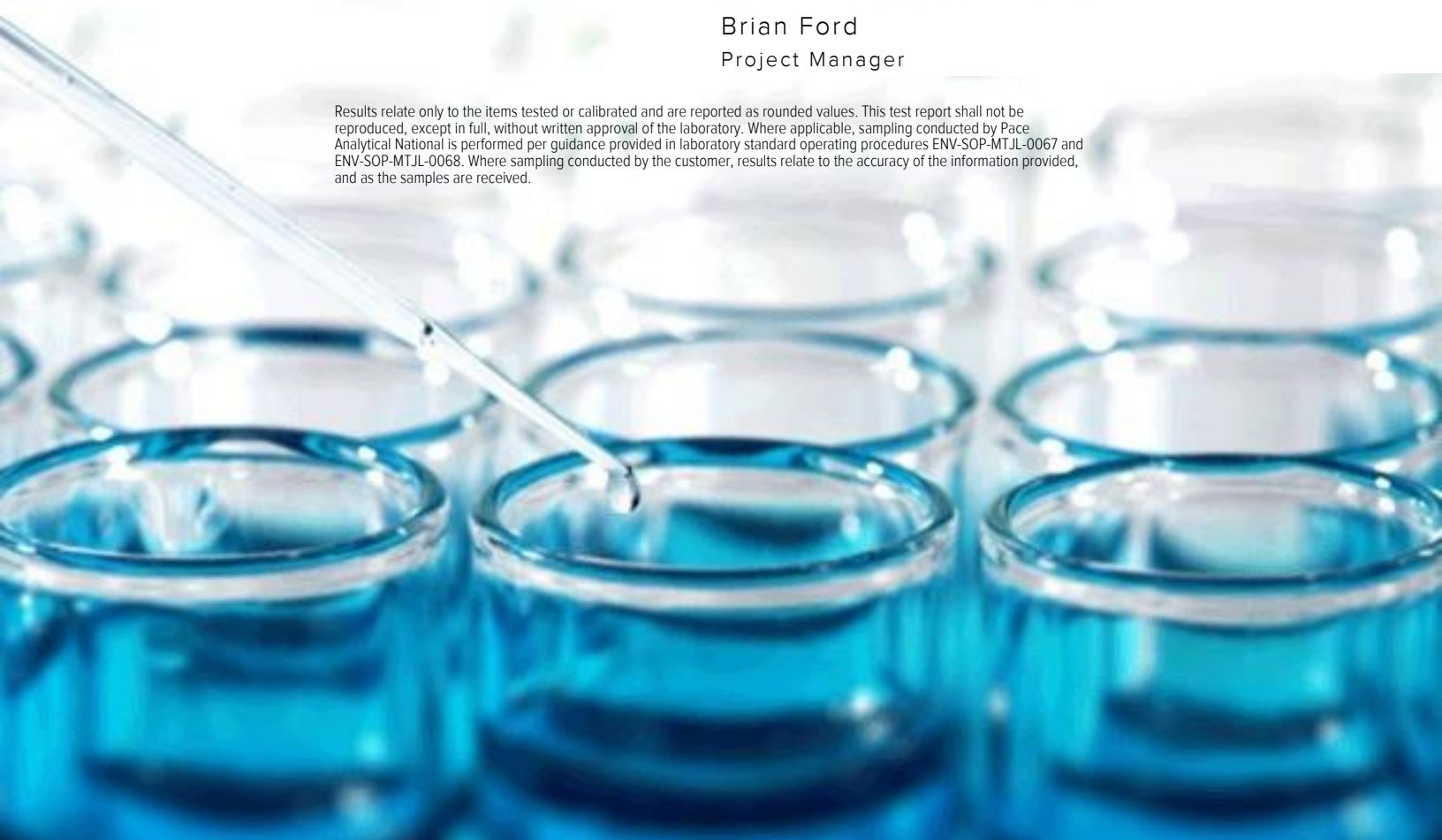
Sample Delivery Group: L1234215
Samples Received: 06/27/2020
Project Number: 30043323.5134
Description: 211081

Report To: Nicole Monroe
880 H St.
Anchorage, AK 99501

Entire Report Reviewed By:

Brian Ford
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.





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1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

SAMPLE SUMMARY



G-1R-W-200624 L1234215-01 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 13:10
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1503768	1	07/05/20 03:18	07/05/20 03:18	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1503741	1	07/03/20 18:41	07/03/20 18:41	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1502714	1	07/07/20 07:10	07/08/20 06:38	KME	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

G-4-W-200625 L1234215-02 GW

Collected by Michael MacDaniel
 Collected date/time 06/25/20 12:15
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1505120	10	07/08/20 15:04	07/08/20 15:04	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1504461	50	07/07/20 00:10	07/07/20 00:10	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1502714	1.11	07/07/20 07:10	07/08/20 07:38	KME	Mt. Juliet, TN

4 Cn

5 Sr

6 Qc

G-5-W-200625 L1234215-03 GW

Collected by Michael MacDaniel
 Collected date/time 06/25/20 10:10
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1504335	1	07/07/20 07:07	07/07/20 07:07	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1503741	1	07/03/20 19:20	07/03/20 19:20	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1504461	10	07/07/20 00:30	07/07/20 00:30	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1502714	1.43	07/07/20 07:10	07/08/20 07:58	KME	Mt. Juliet, TN

7 Gl

8 Al

9 Sc

G-9-W-200624 L1234215-04 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 15:00
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1504335	1	07/07/20 07:32	07/07/20 07:32	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1504461	1	07/06/20 22:52	07/06/20 22:52	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1502714	1	07/07/20 07:10	07/08/20 08:18	KME	Mt. Juliet, TN

MW-301D-W-200624 L1234215-05 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 10:25
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1504609	1	07/07/20 08:44	07/07/20 08:44	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1504218	1	07/06/20 09:41	07/06/20 09:41	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1504997	1	07/08/20 11:27	07/08/20 11:27	ADM	Mt. Juliet, TN

MW-304D-W-200624 L1234215-06 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 09:25
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1504609	1	07/07/20 09:08	07/07/20 09:08	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1504218	1	07/06/20 10:02	07/06/20 10:02	ADM	Mt. Juliet, TN

SAMPLE SUMMARY



MW-307-W-200624 L1234215-07 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 11:45
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1503768	1	07/05/20 04:56	07/05/20 04:56	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1503741	1	07/03/20 20:00	07/03/20 20:00	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1504461	1	07/06/20 23:11	07/06/20 23:11	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1502714	1.11	07/07/20 07:10	07/08/20 08:39	KME	Mt. Juliet, TN

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

BD-1-W-200624 L1234215-08 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 00:00
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1503768	1	07/05/20 05:20	07/05/20 05:20	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1502809	1	07/02/20 02:39	07/02/20 02:39	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1502714	1	07/07/20 07:10	07/08/20 08:59	KME	Mt. Juliet, TN

BD-2-W-200625 L1234215-09 GW

Collected by Michael MacDaniel
 Collected date/time 06/25/20 00:00
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1504609	1	07/07/20 09:32	07/07/20 09:32	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1502809	1	07/02/20 02:59	07/02/20 02:59	ADM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1502714	1	07/07/20 07:10	07/08/20 09:19	KME	Mt. Juliet, TN

EB-W-200625 L1234215-10 GW

Collected by Michael MacDaniel
 Collected date/time 06/25/20 12:30
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1505120	1	07/08/20 14:40	07/08/20 14:40	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1503741	1	07/03/20 17:41	07/03/20 17:41	JHH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG1502714	1.05	07/07/20 07:10	07/08/20 09:39	KME	Mt. Juliet, TN

TRIP BLANK_200624 L1234215-11 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 00:00
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG1504609	1	07/07/20 05:07	07/07/20 05:07	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG1503741	1	07/03/20 18:01	07/03/20 18:01	JHH	Mt. Juliet, TN

G-1R-W-200624 L1234215-12 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 13:10
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method AK 102	WG1502715	1	07/07/20 07:10	07/08/20 18:17	KME	Mt. Juliet, TN

G-4-W-200625 L1234215-13 GW

Collected by Michael MacDaniel
 Collected date/time 06/25/20 12:15
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method AK 102	WG1502715	1.11	07/07/20 07:10	07/08/20 19:17	KME	Mt. Juliet, TN

SAMPLE SUMMARY



G-5-W-200625 L1234215-14 GW

Collected by Michael MacDaniel
 Collected date/time 06/25/20 10:10
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method AK 102	WG1502715	1.43	07/07/20 07:10	07/08/20 19:37	KME	Mt. Juliet, TN

1 Cp

2 Tc

3 Ss

G-9-W-200624 L1234215-15 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 15:00
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method AK 102	WG1502715	1	07/07/20 07:10	07/08/20 19:57	KME	Mt. Juliet, TN

4 Cn

5 Sr

MW-307-W-200624 L1234215-18 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 11:45
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method AK 102	WG1502715	1.11	07/07/20 07:10	07/08/20 20:17	KME	Mt. Juliet, TN

6 Qc

7 Gl

BD-1-W-200624 L1234215-19 GW

Collected by Michael MacDaniel
 Collected date/time 06/24/20 00:00
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method AK 102	WG1502715	1	07/07/20 07:10	07/08/20 20:37	KME	Mt. Juliet, TN

8 Al

9 Sc

BD-2-W-200625 L1234215-20 GW

Collected by Michael MacDaniel
 Collected date/time 06/25/20 00:00
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method AK 102	WG1502715	1	07/07/20 07:10	07/08/20 20:57	KME	Mt. Juliet, TN

EB-W-200625 L1234215-21 GW

Collected by Michael MacDaniel
 Collected date/time 06/25/20 12:30
 Received date/time 06/27/20 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Semi-Volatile Organic Compounds (GC) by Method AK 102	WG1502715	1.05	07/07/20 07:10	07/08/20 21:18	KME	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

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Sample Delivery Group (SDG) Narrative

VOC pH outside of method requirement.

Batch	Method	Lab Sample ID
WG1504609	AK101	L1234215-11

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

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

Batch	Analyte	Lab Sample ID
WG1502714	n-Triacontane d62	(BLANK) R3547354-1, (MSD) R3547354-7, L1234215-01, 04, 07, 08



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	101		10.0	100	1	07/05/2020 03:18	WG1503768
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	105			50.0-150		07/05/2020 03:18	WG1503768

1 Cp

2 Tc

3 Ss

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	61.0		0.0941	1.00	1	07/03/2020 18:41	WG1503741
Toluene	U		0.278	1.00	1	07/03/2020 18:41	WG1503741
Ethylbenzene	0.526	J	0.137	1.00	1	07/03/2020 18:41	WG1503741
Total Xylenes	0.297	J	0.174	3.00	1	07/03/2020 18:41	WG1503741
(S) Toluene-d8	112			80.0-120		07/03/2020 18:41	WG1503741
(S) 4-Bromofluorobenzene	104			77.0-126		07/03/2020 18:41	WG1503741
(S) 1,2-Dichloroethane-d4	102			70.0-130		07/03/2020 18:41	WG1503741

4 Cn

5 Sr

6 Qc

7 Gl

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/08/2020 06:38	WG1502714
AK103 RRO C25-C36	U		403	800	1	07/08/2020 06:38	WG1502714
(S) <i>o</i> -Terphenyl	73.8			50.0-150		07/08/2020 06:38	WG1502714
(S) <i>n</i> -Triacontane d62	45.2	J2		50.0-150		07/08/2020 06:38	WG1502714

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	7520		100	1000	10	07/08/2020 15:04	WG1505120
(S) a,a,a-Trifluorotoluene(FID)	99.9			50.0-150		07/08/2020 15:04	WG1505120

1 Cp

2 Tc

3 Ss

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	2650		4.71	50.0	50	07/07/2020 00:10	WG1504461
Toluene	382		13.9	50.0	50	07/07/2020 00:10	WG1504461
Ethylbenzene	624		6.85	50.0	50	07/07/2020 00:10	WG1504461
Total Xylenes	2010		8.70	150	50	07/07/2020 00:10	WG1504461
(S) Toluene-d8	107			80.0-120		07/07/2020 00:10	WG1504461
(S) 4-Bromofluorobenzene	99.2			77.0-126		07/07/2020 00:10	WG1504461
(S) 1,2-Dichloroethane-d4	107			70.0-130		07/07/2020 00:10	WG1504461

4 Cn

5 Sr

6 Qc

7 Gl

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	1560		254	888	1.11	07/08/2020 07:38	WG1502714
AK103 RRO C25-C36	U		447	888	1.11	07/08/2020 07:38	WG1502714
(S) o-Terphenyl	77.5			50.0-150		07/08/2020 07:38	WG1502714
(S) n-Triacontane d62	57.8			50.0-150		07/08/2020 07:38	WG1502714

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	694		10.0	100	1	07/07/2020 07:07	WG1504335
(S) a,a,a-Trifluorotoluene(FID)	98.4			50.0-150		07/07/2020 07:07	WG1504335

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	U		0.941	10.0	10	07/07/2020 00:30	WG1504461
Toluene	U		2.78	10.0	10	07/07/2020 00:30	WG1504461
Ethylbenzene	61.7		0.137	1.00	1	07/03/2020 19:20	WG1503741
Total Xylenes	529		1.74	30.0	10	07/07/2020 00:30	WG1504461
(S) Toluene-d8	110			80.0-120		07/03/2020 19:20	WG1503741
(S) Toluene-d8	108			80.0-120		07/07/2020 00:30	WG1504461
(S) 4-Bromofluorobenzene	106			77.0-126		07/03/2020 19:20	WG1503741
(S) 4-Bromofluorobenzene	101			77.0-126		07/07/2020 00:30	WG1504461
(S) 1,2-Dichloroethane-d4	102			70.0-130		07/03/2020 19:20	WG1503741
(S) 1,2-Dichloroethane-d4	107			70.0-130		07/07/2020 00:30	WG1504461

Sample Narrative:

L1234215-03 WG1504461, WG1503741: Cannot be re-analyzed at lower dilution due to high levels of target analytes.

L1234215-03 WG1504461, WG1503741: Not all compounds reportable at lower dilution.

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		327	1140	1.43	07/08/2020 07:58	WG1502714
AK103 RRO C25-C36	U		576	1140	1.43	07/08/2020 07:58	WG1502714
(S) o-Terphenyl	73.7			50.0-150		07/08/2020 07:58	WG1502714
(S) n-Triacontane d62	51.3			50.0-150		07/08/2020 07:58	WG1502714

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	12.2	J	10.0	100	1	07/07/2020 07:32	WG1504335
(S) <i>a,a,a</i> -Trifluorotoluene(FID)	96.0			50.0-150		07/07/2020 07:32	WG1504335

1 Cp

2 Tc

3 Ss

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	0.343	J	0.0941	1.00	1	07/06/2020 22:52	WG1504461
Toluene	U		0.278	1.00	1	07/06/2020 22:52	WG1504461
Ethylbenzene	U		0.137	1.00	1	07/06/2020 22:52	WG1504461
Total Xylenes	0.176	J	0.174	3.00	1	07/06/2020 22:52	WG1504461
(S) Toluene-d8	109			80.0-120		07/06/2020 22:52	WG1504461
(S) 4-Bromofluorobenzene	98.4			77.0-126		07/06/2020 22:52	WG1504461
(S) 1,2-Dichloroethane-d4	107			70.0-130		07/06/2020 22:52	WG1504461

4 Cn

5 Sr

6 Qc

7 Gl

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/08/2020 08:18	WG1502714
AK103 RRO C25-C36	U		403	800	1	07/08/2020 08:18	WG1502714
(S) <i>o</i> -Terphenyl	68.8			50.0-150		07/08/2020 08:18	WG1502714
(S) <i>n</i> -Triacontane d62	44.3	J2		50.0-150		07/08/2020 08:18	WG1502714

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	U		10.0	100	1	07/07/2020 08:44	WG1504609
(S) a,a,a-Trifluorotoluene(FID)	95.6			50.0-150		07/07/2020 08:44	WG1504609

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	0.144	J	0.0941	1.00	1	07/08/2020 11:27	WG1504997
Toluene	U		0.278	1.00	1	07/06/2020 09:41	WG1504218
Ethylbenzene	U		0.137	1.00	1	07/06/2020 09:41	WG1504218
Total Xylenes	U		0.174	3.00	1	07/06/2020 09:41	WG1504218
(S) Toluene-d8	99.0			80.0-120		07/06/2020 09:41	WG1504218
(S) Toluene-d8	97.6			80.0-120		07/08/2020 11:27	WG1504997
(S) 4-Bromofluorobenzene	107			77.0-126		07/06/2020 09:41	WG1504218
(S) 4-Bromofluorobenzene	103			77.0-126		07/08/2020 11:27	WG1504997
(S) 1,2-Dichloroethane-d4	100			70.0-130		07/06/2020 09:41	WG1504218
(S) 1,2-Dichloroethane-d4	99.1			70.0-130		07/08/2020 11:27	WG1504997



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	U		10.0	100	1	07/07/2020 09:08	WG1504609
(S) a,a,a-Trifluorotoluene(FID)	96.0			50.0-150		07/07/2020 09:08	WG1504609

1 Cp

2 Tc

3 Ss

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	U		0.0941	1.00	1	07/06/2020 10:02	WG1504218
Toluene	U		0.278	1.00	1	07/06/2020 10:02	WG1504218
Ethylbenzene	U		0.137	1.00	1	07/06/2020 10:02	WG1504218
Total Xylenes	U		0.174	3.00	1	07/06/2020 10:02	WG1504218
(S) Toluene-d8	100			80.0-120		07/06/2020 10:02	WG1504218
(S) 4-Bromofluorobenzene	105			77.0-126		07/06/2020 10:02	WG1504218
(S) 1,2-Dichloroethane-d4	103			70.0-130		07/06/2020 10:02	WG1504218

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	U		10.0	100	1	07/05/2020 04:56	WG1503768
(S) a,a,a-Trifluorotoluene(FID)	105			50.0-150		07/05/2020 04:56	WG1503768

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	U		0.0941	1.00	1	07/06/2020 23:11	WG1504461
Toluene	U		0.278	1.00	1	07/03/2020 20:00	WG1503741
Ethylbenzene	U		0.137	1.00	1	07/03/2020 20:00	WG1503741
Total Xylenes	U		0.174	3.00	1	07/06/2020 23:11	WG1504461
(S) Toluene-d8	111			80.0-120		07/03/2020 20:00	WG1503741
(S) Toluene-d8	109			80.0-120		07/06/2020 23:11	WG1504461
(S) 4-Bromofluorobenzene	104			77.0-126		07/03/2020 20:00	WG1503741
(S) 4-Bromofluorobenzene	96.1			77.0-126		07/06/2020 23:11	WG1504461
(S) 1,2-Dichloroethane-d4	103			70.0-130		07/03/2020 20:00	WG1503741
(S) 1,2-Dichloroethane-d4	105			70.0-130		07/06/2020 23:11	WG1504461

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		254	888	1.11	07/08/2020 08:39	WG1502714
AK103 RRO C25-C36	U		447	888	1.11	07/08/2020 08:39	WG1502714
(S) o-Terphenyl	66.3			50.0-150		07/08/2020 08:39	WG1502714
(S) n-Triacontane d62	47.7	<u>J2</u>		50.0-150		07/08/2020 08:39	WG1502714



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	U		10.0	100	1	07/05/2020 05:20	WG1503768
(S) a,a,a-Trifluorotoluene(FID)	105			50.0-150		07/05/2020 05:20	WG1503768

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	0.361	J	0.0941	1.00	1	07/02/2020 02:39	WG1502809
Toluene	U		0.278	1.00	1	07/02/2020 02:39	WG1502809
Ethylbenzene	U		0.137	1.00	1	07/02/2020 02:39	WG1502809
Total Xylenes	U		0.174	3.00	1	07/02/2020 02:39	WG1502809
(S) Toluene-d8	100			80.0-120		07/02/2020 02:39	WG1502809
(S) 4-Bromofluorobenzene	97.9			77.0-126		07/02/2020 02:39	WG1502809
(S) 1,2-Dichloroethane-d4	113			70.0-130		07/02/2020 02:39	WG1502809

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/08/2020 08:59	WG1502714
AK103 RRO C25-C36	U		403	800	1	07/08/2020 08:59	WG1502714
(S) o-Terphenyl	60.0			50.0-150		07/08/2020 08:59	WG1502714
(S) n-Triacontane d62	41.3	J2		50.0-150		07/08/2020 08:59	WG1502714



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	830		10.0	100	1	07/07/2020 09:32	WG1504609
(S) a,a,a-Trifluorotoluene(FID)	98.1			50.0-150		07/07/2020 09:32	WG1504609

1 Cp

2 Tc

3 Ss

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	U		0.0941	1.00	1	07/02/2020 02:59	WG1502809
Toluene	0.590	J	0.278	1.00	1	07/02/2020 02:59	WG1502809
Ethylbenzene	32.2		0.137	1.00	1	07/02/2020 02:59	WG1502809
Total Xylenes	335		0.174	3.00	1	07/02/2020 02:59	WG1502809
(S) Toluene-d8	102			80.0-120		07/02/2020 02:59	WG1502809
(S) 4-Bromofluorobenzene	101			77.0-126		07/02/2020 02:59	WG1502809
(S) 1,2-Dichloroethane-d4	111			70.0-130		07/02/2020 02:59	WG1502809

4 Cn

5 Sr

6 Qc

7 Gl

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	313	J	229	800	1	07/08/2020 09:19	WG1502714
AK103 RRO C25-C36	U		403	800	1	07/08/2020 09:19	WG1502714
(S) o-Terphenyl	73.0			50.0-150		07/08/2020 09:19	WG1502714
(S) n-Triacontane d62	54.5			50.0-150		07/08/2020 09:19	WG1502714

8 Al

9 Sc



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	U		10.0	100	1	07/08/2020 14:40	WG1505120
(S) a,a,a-Trifluorotoluene(FID)	95.6			50.0-150		07/08/2020 14:40	WG1505120

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	U		0.0941	1.00	1	07/03/2020 17:41	WG1503741
Toluene	U		0.278	1.00	1	07/03/2020 17:41	WG1503741
Ethylbenzene	U		0.137	1.00	1	07/03/2020 17:41	WG1503741
Total Xylenes	U		0.174	3.00	1	07/03/2020 17:41	WG1503741
(S) Toluene-d8	111			80.0-120		07/03/2020 17:41	WG1503741
(S) 4-Bromofluorobenzene	105			77.0-126		07/03/2020 17:41	WG1503741
(S) 1,2-Dichloroethane-d4	105			70.0-130		07/03/2020 17:41	WG1503741

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		240	840	1.05	07/08/2020 09:39	WG1502714
AK103 RRO C25-C36	U		423	840	1.05	07/08/2020 09:39	WG1502714
(S) o-Terphenyl	68.6			50.0-150		07/08/2020 09:39	WG1502714
(S) n-Triacontane d62	57.5			50.0-150		07/08/2020 09:39	WG1502714



Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	U		10.0	100	1	07/07/2020 05:07	WG1504609
(S) a,a,a-Trifluorotoluene(FID)	95.5			50.0-150		07/07/2020 05:07	WG1504609

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Benzene	U		0.0941	1.00	1	07/03/2020 18:01	WG1503741
Toluene	U		0.278	1.00	1	07/03/2020 18:01	WG1503741
Ethylbenzene	U		0.137	1.00	1	07/03/2020 18:01	WG1503741
Total Xylenes	U		0.174	3.00	1	07/03/2020 18:01	WG1503741
(S) Toluene-d8	111			80.0-120		07/03/2020 18:01	WG1503741
(S) 4-Bromofluorobenzene	101			77.0-126		07/03/2020 18:01	WG1503741
(S) 1,2-Dichloroethane-d4	102			70.0-130		07/03/2020 18:01	WG1503741

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Semi-Volatile Organic Compounds (GC) by Method AK 102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/08/2020 18:17	WG1502715
(S) o-Terphenyl	90.0			50.0-150		07/08/2020 18:17	WG1502715

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Semi-Volatile Organic Compounds (GC) by Method AK 102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	1160		254	888	1.11	07/08/2020 19:17	WG1502715
(S) o-Terphenyl	91.2			50.0-150		07/08/2020 19:17	WG1502715

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Semi-Volatile Organic Compounds (GC) by Method AK 102

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	359	J	327	1140	1.43	07/08/2020 19:37	WG1502715
(S) o-Terphenyl	93.9			50.0-150		07/08/2020 19:37	WG1502715

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Semi-Volatile Organic Compounds (GC) by Method AK 102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/08/2020 19:57	WG1502715
(S) o-Terphenyl	83.0			50.0-150		07/08/2020 19:57	WG1502715

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Semi-Volatile Organic Compounds (GC) by Method AK 102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		254	888	1.11	07/08/2020 20:17	WG1502715
(S) o-Terphenyl	84.7			50.0-150		07/08/2020 20:17	WG1502715

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Semi-Volatile Organic Compounds (GC) by Method AK 102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		229	800	1	07/08/2020 20:37	WG1502715
(S) o-Terphenyl	72.8			50.0-150		07/08/2020 20:37	WG1502715

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Semi-Volatile Organic Compounds (GC) by Method AK 102

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	286	J	229	800	1	07/08/2020 20:57	WG1502715
(S) o-Terphenyl	85.0			50.0-150		07/08/2020 20:57	WG1502715

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Semi-Volatile Organic Compounds (GC) by Method AK 102

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	U		240	840	1.05	07/08/2020 21:18	WG1502715
(S) o-Terphenyl	94.1			50.0-150		07/08/2020 21:18	WG1502715

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Method Blank (MB)

(MB) R3546268-2 07/04/20 02:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
TPHGAK C6 to C10	U		10.0	100
(S) a,a,a-Trifluorotoluene(FID)	101			60.0-120

1 Cp

2 Tc

3 Ss

4 Cn

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

(LCS) R3546268-1 07/04/20 01:47 • (LCSD) R3546268-5 07/05/20 09:50

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
TPHGAK C6 to C10	400	414	399	104	99.7	60.0-120			3.69	20
(S) a,a,a-Trifluorotoluene(FID)				102	96.5	60.0-120				

5 Sr

6 Qc

7 Gl

L1234215-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1234215-01 07/05/20 03:18 • (MS) R3546268-3 07/05/20 08:37 • (MSD) R3546268-4 07/05/20 09:02

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
TPHGAK C6 to C10	400	101	473	484	93.0	95.8	1	70.0-130			2.30	20
(S) a,a,a-Trifluorotoluene(FID)					96.8	97.2		50.0-150				

8 Al

9 Sc



Method Blank (MB)

(MB) R3546717-2 07/07/20 04:18

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
TPHGAK C6 to C10	U		10.0	100
^(S) a,a,a-Trifluorotoluene(FID)	95.8			60.0-120

1 Cp

2 Tc

3 Ss

4 Cn

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

(LCS) R3546717-1 07/07/20 03:30 • (LCSD) R3546717-3 07/07/20 11:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
TPHGAK C6 to C10	400	369	401	92.2	100	60.0-120			8.31	20
^(S) a,a,a-Trifluorotoluene(FID)				96.2	96.5	60.0-120				

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3546906-2 07/07/20 04:18

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TPHGAK C6 to C10	U		10.0	100
^(S) a,a,a-Trifluorotoluene(FID)	95.8			60.0-120

¹ Cp

² Tc

³ Ss

⁴ Cn

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

(LCS) R3546906-1 07/07/20 03:30 • (LCSD) R3546906-3 07/07/20 11:57

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	400	369	401	92.2	100	60.0-120			8.31	20
^(S) a,a,a-Trifluorotoluene(FID)				96.2	96.5	60.0-120				

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3547814-2 07/08/20 14:00

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TPHGAK C6 to C10	U		10.0	100
(S) a,a,a-Trifluorotoluene(FID)	95.8			60.0-120

1 Cp

2 Tc

3 Ss

4 Cn

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

(LCS) R3547814-1 07/08/20 13:11 • (LCSD) R3547814-3 07/09/20 01:08

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	400	394	379	98.5	94.8	60.0-120			3.88	20
(S) a,a,a-Trifluorotoluene(FID)				95.8	96.9	60.0-120				

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3545513-2 07/01/20 23:28

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	102			80.0-120
(S) 4-Bromofluorobenzene	97.8			77.0-126
(S) 1,2-Dichloroethane-d4	111			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3545513-1 07/01/20 22:48

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	5.28	106	70.0-123	
Ethylbenzene	5.00	5.64	113	79.0-123	
Toluene	5.00	5.17	103	79.0-120	
Xylenes, Total	15.0	16.6	111	79.0-123	
(S) Toluene-d8			102	80.0-120	
(S) 4-Bromofluorobenzene			100	77.0-126	
(S) 1,2-Dichloroethane-d4			111	70.0-130	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3546378-3 07/03/20 09:33

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	110			80.0-120
(S) 4-Bromofluorobenzene	102			77.0-126
(S) 1,2-Dichloroethane-d4	102			70.0-130

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

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

(LCS) R3546378-1 07/03/20 08:33 • (LCSD) R3546378-2 07/03/20 08:53

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	5.25	5.58	105	112	70.0-123			6.09	20
Ethylbenzene	5.00	5.13	5.43	103	109	79.0-123			5.68	20
Toluene	5.00	5.16	5.39	103	108	79.0-120			4.36	20
Xylenes, Total	15.0	16.4	17.2	109	115	79.0-123			4.76	20
(S) Toluene-d8				108	109	80.0-120				
(S) 4-Bromofluorobenzene				103	103	77.0-126				
(S) 1,2-Dichloroethane-d4				104	103	70.0-130				

6 Qc

7 Gl

8 Al

9 Sc

L1234215-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1234215-01 07/03/20 18:41 • (MS) R3546378-4 07/04/20 08:39 • (MSD) R3546378-5 07/04/20 08:59

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	5.00	61.0	63.1	64.9	42.0	78.0	1	17.0-158			2.81	27
Ethylbenzene	5.00	0.526	4.91	5.65	87.7	102	1	30.0-155			14.0	27
Toluene	5.00	U	4.47	5.13	89.4	103	1	26.0-154			13.7	28
Xylenes, Total	15.0	0.297	14.2	16.7	92.7	109	1	29.0-154			16.2	28
(S) Toluene-d8					109	110		80.0-120				
(S) 4-Bromofluorobenzene					104	105		77.0-126				
(S) 1,2-Dichloroethane-d4					104	104		70.0-130				



Method Blank (MB)

(MB) R3546403-4 07/06/20 03:32

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
(S) Toluene-d8	99.2			80.0-120
(S) 4-Bromofluorobenzene	102			77.0-126
(S) 1,2-Dichloroethane-d4	102			70.0-130

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

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

(LCS) R3546403-1 07/06/20 02:11 • (LCSD) R3546403-2 07/06/20 02:31

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	4.74	4.72	94.8	94.4	70.0-123			0.423	20
Ethylbenzene	5.00	4.29	4.47	85.8	89.4	79.0-123			4.11	20
Toluene	5.00	4.31	4.39	86.2	87.8	79.0-120			1.84	20
Xylenes, Total	15.0	13.1	13.2	87.3	88.0	79.0-123			0.760	20
(S) Toluene-d8				98.6	98.6	80.0-120				
(S) 4-Bromofluorobenzene				106	106	77.0-126				
(S) 1,2-Dichloroethane-d4				100	101	70.0-130				

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3546952-2 07/06/20 21:20

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
Ethylbenzene	U		0.137	1.00
Toluene	U		0.278	1.00
Xylenes, Total	U		0.174	3.00
<i>(S) Toluene-d8</i>	112			80.0-120
<i>(S) 4-Bromofluorobenzene</i>	98.4			77.0-126
<i>(S) 1,2-Dichloroethane-d4</i>	104			70.0-130

Laboratory Control Sample (LCS)

(LCS) R3546952-1 07/06/20 20:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Benzene	5.00	5.70	114	70.0-123	
Ethylbenzene	5.00	4.80	96.0	79.0-123	
Toluene	5.00	5.21	104	79.0-120	
Xylenes, Total	15.0	14.4	96.0	79.0-123	
<i>(S) Toluene-d8</i>			106	80.0-120	
<i>(S) 4-Bromofluorobenzene</i>			99.6	77.0-126	
<i>(S) 1,2-Dichloroethane-d4</i>			105	70.0-130	

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Method Blank (MB)

(MB) R3547285-4 07/08/20 08:19

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Benzene	U		0.0941	1.00
(S) Toluene-d8	97.7			80.0-120
(S) 4-Bromofluorobenzene	104			77.0-126
(S) 1,2-Dichloroethane-d4	97.3			70.0-130

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

(LCS) R3547285-1 07/08/20 06:56 • (LCSD) R3547285-2 07/08/20 07:17

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 %
Benzene	5.00	5.22	5.75	104	115	70.0-123			9.66	20
(S) Toluene-d8				98.0	97.5	80.0-120				
(S) 4-Bromofluorobenzene				106	108	77.0-126				
(S) 1,2-Dichloroethane-d4				99.2	102	70.0-130				

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3547592-1 07/08/20 16:16

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
AK102 DRO C10-C25	U		229	800
(S) o-Terphenyl	83.8			60.0-120

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

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

(LCS) R3547592-2 07/08/20 16:36 • (LCSD) R3547592-3 07/08/20 16:56

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
AK102 DRO C10-C25	3000	2610	2460	87.0	82.0	75.0-125			5.92	20
(S) o-Terphenyl				96.3	91.0	60.0-120				

L1234215-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1234215-12 07/08/20 18:17 • (MS) R3547592-4 07/08/20 18:37 • (MSD) R3547592-5 07/08/20 18:57

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
AK102 DRO C10-C25	3000	U	2670	2420	89.0	80.7	1	75.0-125			9.82	20
(S) o-Terphenyl					87.8	91.3		50.0-150				



Method Blank (MB)

(MB) R3547354-1 07/08/20 04:57

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	U		403	800
(S) n-Triacontane d62	48.4	<u>J2</u>		60.0-120
(S) o-Terphenyl	66.8			60.0-120

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

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

(LCS) R3547354-2 07/08/20 05:17 • (LCSD) R3547354-3 07/08/20 05:37

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	%	%	%			%	%
AK102 DRO C10-C25	3000	2390	2530	79.7	84.3	75.0-125			5.69	20
(S) o-Terphenyl				94.5	104	60.0-120				

6 Qc

7 Gl

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

(LCS) R3547354-4 07/08/20 05:58 • (LCSD) R3547354-5 07/08/20 06:18

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	3000	3010	2950	100	98.3	60.0-120			2.01	20
(S) n-Triacontane d62				71.3	68.6	60.0-120				

8 Al

9 Sc

L1234215-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1234215-01 07/08/20 06:38 • (MS) R3547354-6 07/08/20 06:58 • (MSD) R3547354-7 07/08/20 07:18

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	3000	U	2590	2550	86.3	85.0	1	75.0-125			1.56	20
(S) n-Triacontane d62					54.4	49.9		50.0-150		<u>J2</u>		
(S) o-Terphenyl					100	97.5		50.0-150				



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
J	The identification of the analyte is acceptable; the reported value is an estimate.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 AI

9 Sc



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* 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 National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	n/a
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}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

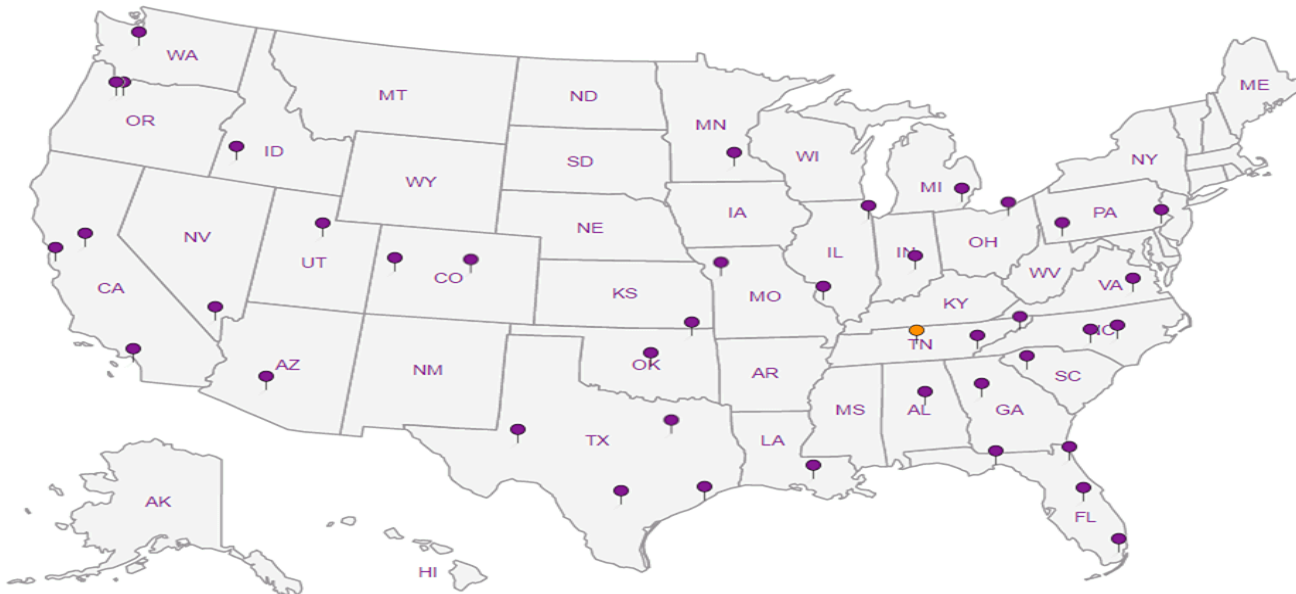
Third Party Federal Accreditations

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

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Arcadis - Chevron - AK

880 H St.
Anchorage, AK 99501

Billing Information:

Attn: Accounts Payable
630 Plaza Dr Ste 600
Highlands Ranch, CO 80129

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 2



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to:
Nicole Monroe

Email To:
Nicole.Monroe@arcadis.com;environmentDM-

Project Description:
309152

City/State
Collected: Fairbanks, AK

Please Circle:
PT MT CL ET

Phone: 907-276-8095

Client Project #
~~30043353.5134~~
30043323.5134

Lab Project #
CHEVARCAK-309152

Collected by (print):
Michael MacDaniel

Site/Facility ID #
211081

P.O. #
~~30043353.5134~~

Collected by (signature):
Michael MacDaniel

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day
Next Day 5 Day (Rad Only)
Two Day 10 Day (Rad Only)
Three Day Standard

Date Results Needed

No.
of
Cnts

Immediately
Packed on Ice N Y X

Sample ID

Comp/Grab

Matrix *

Depth

Date

Time

AK101 40ml Amb HCl

AK102 w/ silica 100ml Amb HCl

AK102/103 100ml Amb HCl

BTEX/MTBE/EDC 8260D 40ml Amb HCl

EDB 8011 40ml Cr-NaThio

G-1R-W-200624
G-4-W-200625
G-5-W-200625
G-9-W-200624
MW-301D-W-200624
MW-304D-W-200624
MW-307-W-200624

Grab
Grab
Grab
Grab
Grab
Grab
Grab

GW
GW
GW
GW
GW
GW
GW

6/24/20 1310 10
6/25/20 1215 10
6/25/20 1010 10
6/24/20 1500 10
6/24/20 1025 10
6/24/20 925 10
6/24/20 1145 10

1310
1215
1010
1500
1025
925
1145

10
10
10
10
10
10
10

X X X X X
X X X X X
X X X X X
X X X X X
X X X X X
X X X X X
X X X X X

SDG # L1234215
A118

Acctnum: CHEVARCAK

Template: T168733

Prelogin: P776650

PM: 110 - Brian Ford

PB:

Shipped Via:

Remarks | Sample # (lab only)

ms parent -01
-02
-03
-04
-05
-06
-07

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

Remarks:

pH _____ Temp _____
Flow _____ Other _____

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

Samples returned via:

UPS X FedEx Y Courier

Tracking #

17500007040

Relinquished by: (Signature)

Date:

6/26/20

Time:

830

Received by: (Signature)

Trip Blank Received: Yes (No)

HCL/MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: 44 °C Bottles Received: 62

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 6/27/20 Time: 865

Hold:

Condition:
NCF / OK

Sandy Youssef

Arcadis - Chevron - AK

880 H St.
Anchorage, AK 99501

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

Pres
Chk

Analysis / Container / Preservative



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



SDG # L1734215

Tablet A117

Acctnum: **CHEVARCAK**

Template: **T169631**

Prelogin: **P781019**

PM: **110 - Brian Ford**

PB:

Shipped Via:

Remarks Sample # (lab only)

Report to: **Nicole Monroe**
Email To: **Nicole.Monroe@arcadis.com;environmentDM-**

Project Description: **211081**
City/State Collected: **Fairbanks, AK**
Please Circle: **PT MT CT ET**

Phone: **907-276-8095**
Client Project # **30043323.5134**
Lab Project # **CHEVARCAK-211081**

Collected by (print): **Michael MacDaniel**
Site/Facility ID # **211081**
P.O. #

Collected by (signature): *[Signature]*
Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day Standard

Immediately
Packed on Ice N ___ Y X
Quote #
Date Results Needed
No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	AK101 40ml Amb HCl	AK102 w/ silica 100ml Amb HCl	AK102/103 no silica 100ml Amb HCl	BTEX 8260D 40ml Amb-HCl									
BD-1-W-200624	Grab	GW		6/24/20	-	10	X	X	X	X									-08
BD-2-W-200625	Grab	GW		6/25/20	-	10	X	X	X	X									-09
EB-W-200625	Grab	GW		6/25/20	1230	10	X	X	X	X									-10
MS-W-200624	Grab	GW		6/24/20	1310	10	X	X	X	X								From G-IR	-01
MSD-W-200624	Grab	GW		6/24/20	1310	9	X	X	X	X								From G-IR	-01
Trip Blank		GW		-	-	3	X			X									-11
		GW																	
		GW																	

* 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 # 1411 1759 6652

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) *[Signature]* Date: 6/26/20 Time: 830
Received by: (Signature) _____ Trip Blank Received: 3 (Yes/No) (HCL) MeOH TBR
Relinquished by: (Signature) _____ Date: _____ Time: _____
Received by: (Signature) _____ Temp: 4.5-12=4.3 °C Bottles Received: 49
Relinquished by: (Signature) _____ Date: _____ Time: _____
Received for lab by: (Signature) Sandy yosse F Date: 6/27/20 Time: 8165
Hold: _____ Condition: NCF / OK

Arcadis - Chevron - AK

880 H St.
Anchorage, AK 99501

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

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 2



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to:
Nicole Monroe

Email To:
Nicole.Monroe@arcadis.com;environmentDM-

Project Description:
309152

City/State
Collected: Fairbanks, AK

Please Circle:
PT MT CL ET

Phone: 907-276-8095

Client Project #
30043353-5134
30043323-5134

Lab Project #
CHEVARCAK-309152

Collected by (print):
Michael MacDaniel

Site/Facility ID #
211081

P.O. #
30043353-5134

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)

Quote #

Same Day Five Day
Next Day 5 Day (Rad Only)
Two Day 10 Day (Rad Only)
Three Day @ Standard

Date Results Needed

No.
of
Cnts

Immediately
Packed on Ice N Y X

Sample ID Comp/Grab Matrix * Depth Date Time

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts	AK101 40ml Amb HCl	AK102 w/ silica 100ml Amb HCl	AK102/103 100ml Amb HCl	BTEX/MTBE/EDC 8260D 40ml Amb-HCl	ES&S 8011 40ml HCl Matrix						
G-1R-W-200624	Grab	GW		6/24/20	1310	10	X	X	X	X	X						
G-4-W-200625	Grab	GW		6/25/20	1215	10	X	X	X	X	X						
G-5-W-200625	Grab	GW		6/25/20	1010	10	X	X	X	X	X						
G-9-W-200624	Grab	GW		6/24/20	1500	10	X	X	X	X	X						
MW-301D-W-200624	Grab	GW		6/24/20	1025	106	X	X	X	X	X						
MW-304D-W-200624	Grab	GW		6/24/20	925	106	X	X	X	X	X						
MW-307-W-200624	Grab	GW		6/24/20	1145	10	X	X	X	X	X						
		GW															
		GW															
		GW															

BTEX 8260D 40ml Amb-HCl

SDG # L1234215
A118

Acctnum: CHEVARCAK
Template: T168733
Prelogin: P776650
PM: 110 - Brian Ford
PB:

Shipped Via:
Remarks Sample # (lab only)

ms/parent -01
-02
-03
-04
-05
-06
-07

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

Remarks:

revised COC received Sun 06/28-bjf

pH Temp
Flow Other

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

Samples returned via:

UPS FedEx Courier

Tracking #

17500007040

Relinquished by: (Signature)

Date:

6/26/20

Time:

830

Received by: (Signature)

Trip Blank Received: Yes (No)

HCL/MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: 45.2 = 4.3 62 °C Bottles Received:

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 6/27/20 Time: 865

Hold:

Condition:
NCF / OK

Arcadis - Chevron - AK

880 H St.
Anchorage, AK 99501

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

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 2 of 2



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



SDG # L1234215
A117
Acctnum: **CHEVARCAK**
Template: **T169631**
Prelogin: **P781019**
PM: **110 - Brian Ford**
PB:
Shipped Via:
Remarks: Sample # (lab only)

Report to: **Nicole Monroe**
Email To: **Nicole.Monroe@arcadis.com;environmentDM-**
Project Description: **211081**
City/State Collected: **Fairbanks, AK**
Please Circle: **PT MT CT ET**

Phone: **907-276-8095**
Client Project # **30043323.5134**
Lab Project # **CHEVARCAK-211081**

Collected by (print): **Michael MacDaniel**
Site/Facility ID # **211081**
P.O. #

Collected by (signature): *[Signature]*
Rush? (Lab MUST Be Notified)
Same Day ___ Five Day ___
Next Day ___ 5 Day (Rad Only) ___
Two Day ___ 10 Day (Rad Only) ___
Three Day Standard
Date Results Needed
No. of Cntrs

Immediately Packed on Ice N ___ Y X

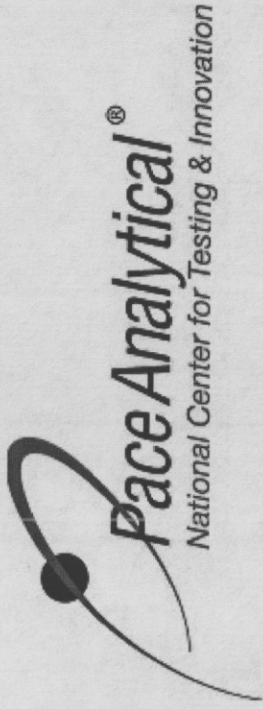
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	AK101 40ml Amb HCl	AK102 w/ silica 100ml Amb HCl	AK102/103 no silica 100ml Amb HCl	BTEX 8260D 40ml Amb-HCl								
BD-1-W-200624	Grab	GW		6/24/20	-	10	X	X	X	X								-08
BD-2-W-200625	Grab	GW		6/25/20	-	10	X	X	X	X								-09
EB-W-200625	Grab	GW		6/25/20	1230	10	X	X	X	X								-10
MS-W-200624	Grab	GW		6/24/20	1310	10	X	X	X	X							From G-IR	-01
MSD-W-200624	Grab	GW		6/24/20	1310	9	X	X	X	X							From G-IR	-01
Trip Blank		GW		-	-	3	X			X								-11
		GW																
		GW																

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

Remarks: **revised COC received Sun 06/28-bjf**
pH ___ Temp ___
Flow ___ Other ___
Samples returned via: UPS X FedEx ___ Courier ___
Tracking # **1411 1759 6652**

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) *[Signature]* Date: **6/26/20** Time: **830**
Received by: (Signature) Trip Blank Received: Yes / No (HCL) MeOH TBR **3**
Relinquished by: (Signature) Date: ___ Time: ___
Received by: (Signature) Temp: **4.5-12=4.3** °C Bottles Received: **49**
Relinquished by: (Signature) Date: ___ Time: ___
Received for lab by: (Signature) **Sandy yosse F** Date: **6/27/20** Time: **8165**
Hold: ___ Condition: NCF / OK



Login #: L1234215	Client: CHEVARCAK	Date: 06/27/2020	Evaluated by: Sandy Yossef
--------------------------	--------------------------	-------------------------	-----------------------------------

Non-Conformance (check applicable items)

Sample Integrity	Chain of Custody Clarification	If Broken Container:
Parameter(s) past holding time x	Login Clarification Needed	
Temperature not in range	Chain of custody is incomplete	Insufficient packing material around container
Improper container type	Please specify Metals requested.	Insufficient packing material inside cooler
pH not in range.	Please specify TCLP requested.	Improper handling by carrier (FedEx / UPS / Courier)
Insufficient sample volume.	Received additional samples not listed on coc.	Sample was frozen
Sample is biphasic.	Sample ids on containers do not match ids on coc	Container lid not intact
Vials received with headspace.	Trip Blank not received.	If no Chain of Custody:
Broken container	Client did not "X" analysis.	Received by:
Broken container:	Chain of Custody is missing	Date/Time:
Sufficient sample remains		Temp./Cont. Rec./pH:
		Carrier:
		Tracking#

Login Comments:

- 1) Did not receive 40mlClr-NaThio containers for any ID except MW-301D and MW-304D.
- 2) Received 40mlClr-NaThio containers for MW-301D and MW-304D but not the 40mlAmb HCl containers or the 100ml Amb HCl containers.
- 3) 1 MSD HCl vial received broken

Client informed by:	Call	Email	Voice Mail	Date:	Time:
TSR Initials: bjf	Client Contact:				

Login Instructions:

- 1)run SV8011 from HCl VOA.
- 2)run AK101 and V8260BTEXMN12C from NaThio VOA. Do not run AK102/102.
- 3) proceed

APPENDIX D

ADEC Data Review Checklist



Laboratory Data Review Checklist

Completed By:

Bhagyashree A Fulzele

Title:

Project Chemist

Date:

July 17,2020

Consultant Firm:

ARCADIS U.S., Inc

Laboratory Name:

Pace Analytical

Laboratory Report Number:

L1234215

Laboratory Report Date:

07/09/2020

CS Site Name:

First Semi Annual 2020 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:

No.

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:

No.

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:

Yes.

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

Comments:

None of the samples were affected.

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

Yes No N/A Comments:

No.

v. Data quality or usability affected?

Comments:

Data quality/usability was not affected.

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:

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 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:

No.

- 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-1R-W-200624.

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

Yes No N/A Comments:

No.

- 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:

Method AK102/103: Surrogate n-Triacontane d62 recovery was less than the control limit in sample G-1R-W-200624, G-9-W-200624, MW-307-W-200624 and BD-1-W-200624. The associated results were qualified as estimated (UJ).

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:

Yes.

iv. Data quality or usability affected?

Comments:

Surrogate recovery exceedances are considered as minor and would result in the estimation of associated data. The reported data should still consider as usable.

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_200624.

- 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:

Yes.

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

Comments:

None of the samples were affected.

- v. Data quality or usability affected?

Comments:

Data quality/usability was not affected.

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-200624 and BD-2-W-200625 was collected from samples G-9-W-200624 and G-5-W-200625 respectively.

- 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:

Method SW846 8260D: The RPD between the parent G-5-W-200625 and duplicate BD-2-W-200625 for compounds ethylbenzene and total xylenes were exceeded the control limit. Compound results were qualified as estimated (J).

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

Comments:

The field duplicate RPD exceedances considered as minor. The reported data should still consider as usable.

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 EB-W-200625.

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/usability was not affected.

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

a. Defined and appropriate?

Yes No N/A Comments:

Yes.