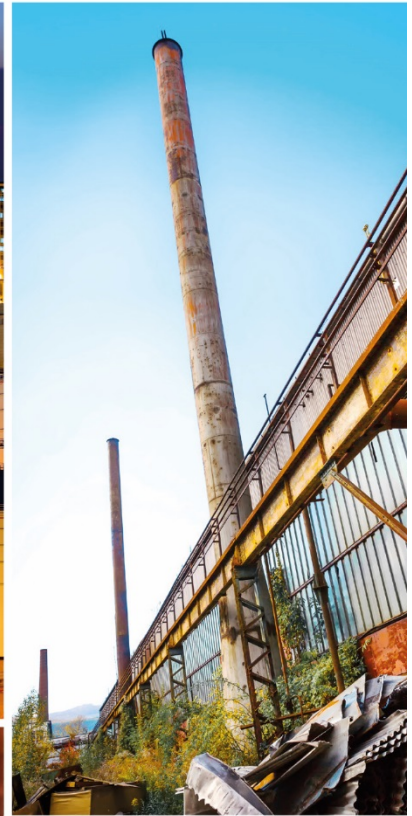
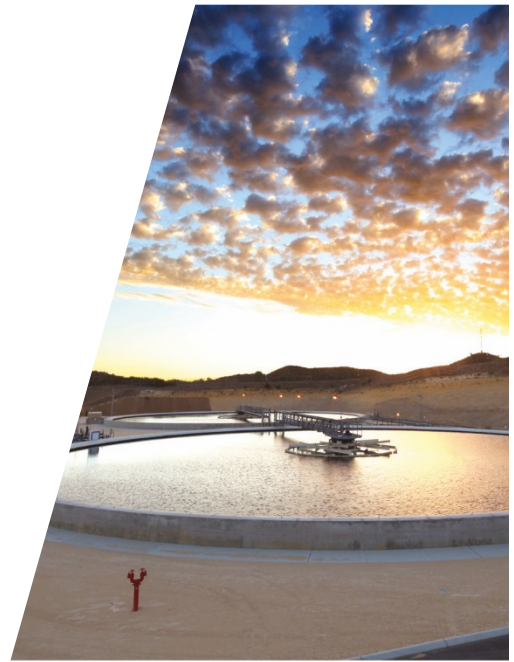




Third Quarter 2018 Groundwater Monitoring Report

Former Unocal Service Station #4854
2730 Spenard Road
Anchorage, Alaska
ADEC File ID: 2100.26.116
Hazard ID: 23370

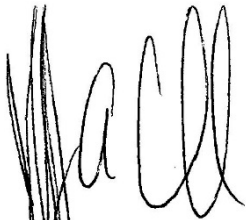
Chevron Environmental
Management Company



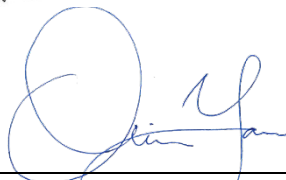


Third Quarter 2018 Groundwater Monitoring Report


Former Unocal Service Station #4854
2730 Spenard Road
Anchorage, Alaska
ADEC File ID: 2100.26.116
Hazard ID: 23370



Jeffrey Cloud
Chemist



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Senior Staff Geologist



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Senior Project Geologist

Table of Contents

1.	Introduction.....	1
1.1	Site Description and Background	1
1.2	Hydrogeology.....	1
1.3	Conceptual Site Model.....	1
1.4	Constituents of Potential Concern - Cleanup Levels	1
2.	Groundwater Monitoring and Sampling.....	2
2.1	Low Flow Purging and Sampling	2
2.2	Data Quality	3
2.3	Purged Groundwater Disposal.....	3
3.	Results and Findings.....	3
3.1	Groundwater Analytical Methods.....	3
3.2	Groundwater Sampling Results	3
4.	Conclusions and Recommendations.....	4

Figure Index

Figure 1	Vicinity Map
Figure 2	Groundwater Elevation and Hydrocarbon Concentration Map

Table Index

Table 1	Current Groundwater Analytical Results
Table 2	Historical Groundwater Analytical Results

Appendix Index

Appendix A	Site Photographs
Appendix B	Human Health Conceptual Site Model Scoping and Graphics Forms
Appendix C	Monitoring Data Package
Appendix D	Laboratory Analytical Report
Appendix E	Petroleum Hydrocarbon Concentration Graphs
Appendix F	ADEC Laboratory Data Review Checklist and Memorandum

Acronyms and Abbreviations

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
BTEX	benzene, toluene, ethylbenzene, xylenes
COPCs	constituents of potential concern
CSM	conceptual site model
DRO	diesel range organics
ft btoc	feet below top of casing
GRO	gasoline range organics
mg/L	milligrams per liter
LNAPL	light non-aqueous phase liquids
No	number
P.G.	Professional Geologist
RRO	residual range organics
UST	underground storage tank
VOC	volatile organic compounds

1. Introduction

GHD is submitting this *Third Quarter 2018 Groundwater Monitoring Report* to the Alaska Department of Environmental Conservation (ADEC) on behalf of Chevron Environmental Management Company (Chevron) for the former Unocal service station 4854. Groundwater monitoring and sampling was performed by GHD in accordance with the ADEC's August 2017 *Field Sampling Guidance* and GHD's March 15, 2017 *Former Log Crib Assessment Workplan*. Reporting was performed by GHD in accordance with ADEC's March 7, 2017 *Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites*. Project objectives are to monitor current groundwater conditions and evaluate dissolved petroleum hydrocarbon concentrations.

1.1 Site Description and Background

The site is a former Unocal service station located at 2730 Spenard Road in Anchorage, Alaska (Figure 1). The property's legal description is T13N R4W SEC 24 SE4SE4SE4SW4SE4 PTN 150 X 135. The latitude and longitude are 61.195508° north and 149.905965° west. The site is currently owned by Spenard & Northern Lights LLC, O'Neill Properties Inc. In 1990 six underground storage tanks (UST), product piping, and two log cribs were removed from the property and new USTs and piping were installed. A vapor extraction system was also installed in 1990.

The site is currently an active parking lot for two different businesses. Site photographs are presented as Appendix A.

1.2 Hydrogeology

The site is located in south central Alaska, southeast of the northern Knik Arm of Cook Inlet. Historical groundwater depths have ranged between 17.17 and 18.41 feet below top of casing (ft btoc) since September 2017. Static groundwater depths ranged from 16.85 (MW 4) to 17.60 ft btoc (MW 1) on August 9, 2018. Groundwater flow was to the southeast with a gradient of 0.01, which is consistent with historical data (Figure 2).

1.3 Conceptual Site Model

GHD completed a conceptual site model (CSM) for this site. Human health CSM scoping and graphics forms are included as Appendix B.

1.4 Constituents of Potential Concern - Cleanup Levels

Site constituents of potential concern (COPCs) are:

Table 1.1 Constituents of Potential Concern

COPCs	ADEC Cleanup Levels	
	Groundwater (mg/L)	Soil (mg/kg)
DRO	1.5	250
RRO	1.1	11,000
GRO	2.2	300
Benzene	0.0046	0.022
mg/L - milligrams per liter mg/kg - milligrams per kilogram RRO - residual range organics DRO - diesel range organics GRO - gasoline range organics		

ADEC Table C Groundwater Cleanup Levels (Title 18 Alaska Administrative Code (AAC) 75.345) and ADEC Method Two Soil Cleanup Levels, Tables B1 and B2, under 40-inch zone, migration to groundwater (Title 18 AAC 75.341) are the default site cleanup levels for groundwater and soil.

2. Groundwater Monitoring and Sampling

On August 9, 2018, GHD gauged and sampled groundwater monitoring wells MW 1, MW-2, MW 3, and MW-4. GHD monitoring data package is presented in Appendix C.

2.1 Low Flow Purging and Sampling

Prior to monitoring, each monitoring well was opened and the cap removed to allow groundwater levels to stabilize and equilibrate. Depth to groundwater and total well depth were measured and recorded with a water level meter capable of 0.01 foot accuracy. A QED Sample Pro bladder pump, or equivalent, with a self-contained compressor and control unit was used to purge groundwater from the well. Clean, disposable Teflon lined tubing and bladders were used to purge the well and collect samples to minimize the risk of volatile contaminant absorption by the sampling equipment. Drawdown of the water table was continuously monitored during purging with a water level meter and the flow rate of the pump adjusted so drawdown was limited to less than 0.1 meter, or 0.3 feet. The intake of the pump was set as close as possible to the soil/groundwater interface and caution was exercised to ensure the water table was within the screened interval of the well. Water quality parameters were continuously monitored during purging using a multi-parameter water quality meter equipped with a flow through cell and a turbidity meter. Water quality 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. A grab-groundwater sample was collected upon stabilization. Water quality parameters were considered stable when three successive readings were within the following ADEC limits:

- $\pm 3\%$ for temperature (minimum of $\pm 0.2^\circ\text{C}$)
- pH: ± 0.1

- conductivity: \pm 3 percent
- oxidation/reduction potential: \pm 10 millivolts
- dissolved oxygen: \pm 10 percent
- turbidity: \pm 10 percent

2.2 Data Quality

All field instruments were calibrated prior to mobilization according to the manufacturer's specifications and calibration was verified and documented onsite on a daily basis. Calibration forms are included in Appendix C. All field staff are trained in routine maintenance and operation of instrumentation. All reusable sampling equipment was decontaminated between sample points using a stiff brush and a solution of water and laboratory grade detergent. Equipment was rinsed twice in clean water and once with distilled or deionized water.

Samples analyzed for volatile organic compounds (VOCs) were collected before samples for non-volatile compounds. Groundwater samples, including one duplicate per ten samples collected were decanted into clean containers supplied by the analytical laboratory, placed on ice in an insulated cooler, chilled to a temperature of approximately 4°C (+/- 2°). The coolers were sealed for transport and shipped to Eurofins Lancaster analytical laboratory under chain-of-custody. Laboratory data was qualified by a GHD chemist.

2.3 Purged Groundwater Disposal

Approximately 4.4 gallons of groundwater not used for sampling was filtered through granular activated carbon and purged to the ground surface in the permeable planter areas or near the center of the site to ensure no offsite runoff.

3. Results and Findings

3.1 Groundwater Analytical Methods

Collected groundwater samples were analyzed for one or more of the following:

- Residual range organics (RRO) by Alaska Series Method AK103
- Diesel range organics (DRO) by Alaska Series Method AK102
- Gasoline range organics (GRO) by Alaska Series Method AK101
- Benzene, toluene, ethylbenzene, xylenes (BTEX) by Method SW-846 8260B

3.2 Groundwater Sampling Results

DRO was detected above the cleanup level in MW-2 at 1.6 mg/L (MW-2 Duplicate sample reported DRO at 1.7 mg/L). No RRO, GRO, or benzene was detected above ADEC Table C Groundwater Cleanup Levels in any sample collected. Current groundwater analytical data is presented in Table 1 and on Figure 2. Historical groundwater analytical data is presented in Table 2. The laboratory

analytical report is included as Appendix D. Petroleum hydrocarbon concentration graphs are included as Appendix E.

Based on the quality assurance/quality control review, the data submitted were judged to be acceptable for use without qualification. The ADEC Laboratory Data Review Checklist and memorandum are presented as Appendix F.

4. Conclusions and Recommendations

DRO was detected above the cleanup level in MW-2. No other petroleum hydrocarbons were detected above ADEC Table C Groundwater Cleanup Levels in any sample collected. GHD will continue quarterly groundwater monitoring and sampling in 2018; MW-1 will continue to be sampled in 2018 pending no measurable light non-aqueous phase liquids (LNAPL) during well gauging.



about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

Oliver Yan

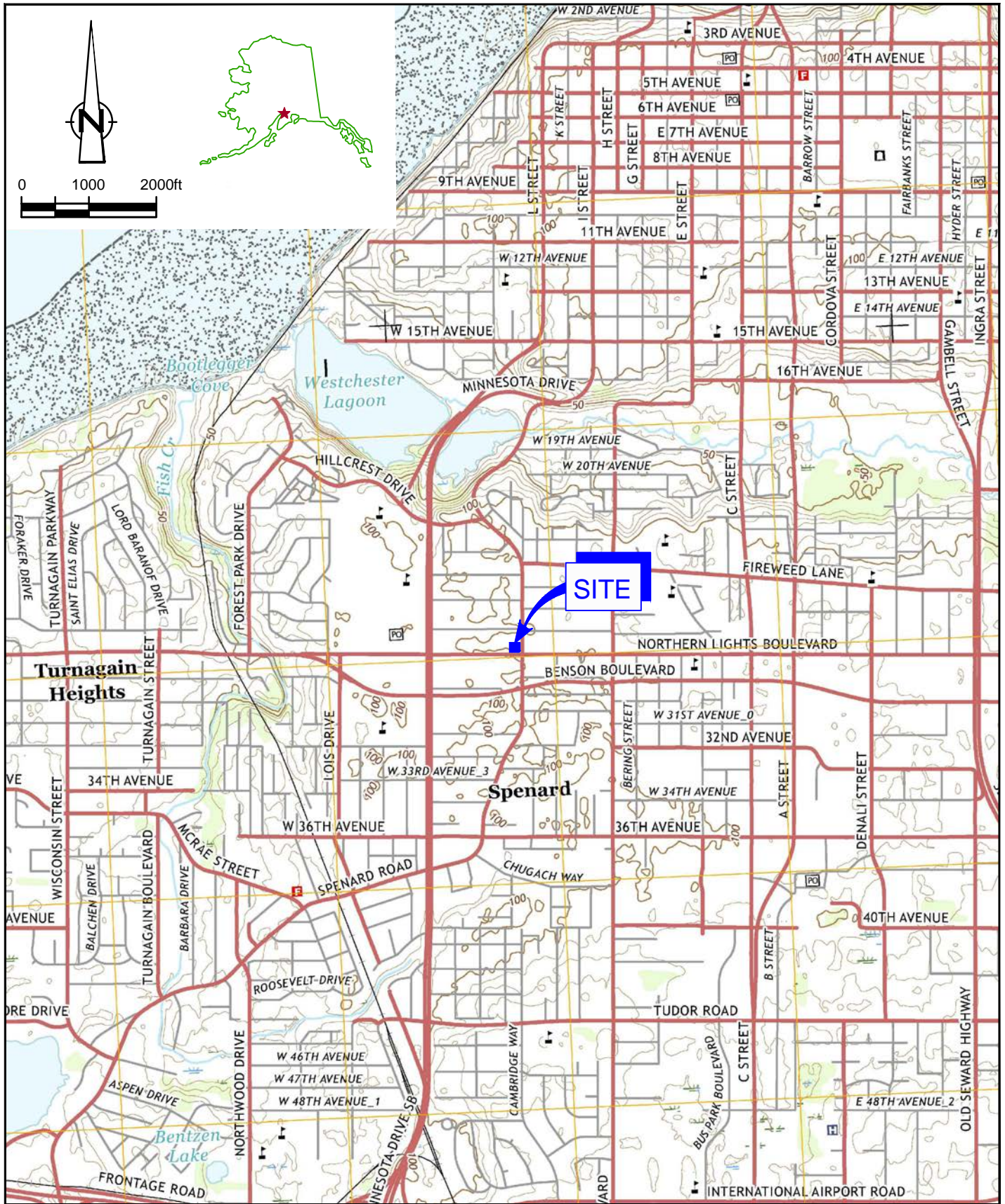
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720-974-0935

www.ghd.com

Figures



Source: USGS QUAD MAP; ANCHORAGE A-8 NW, AK, 2016.



FORMER UNOCAL SERVICE STATION 4854
 2730 SPENARD ROAD
 ANCHORAGE, ALASKA

82676-940418

Oct 1, 2018

VICINITY MAP

FIGURE 1

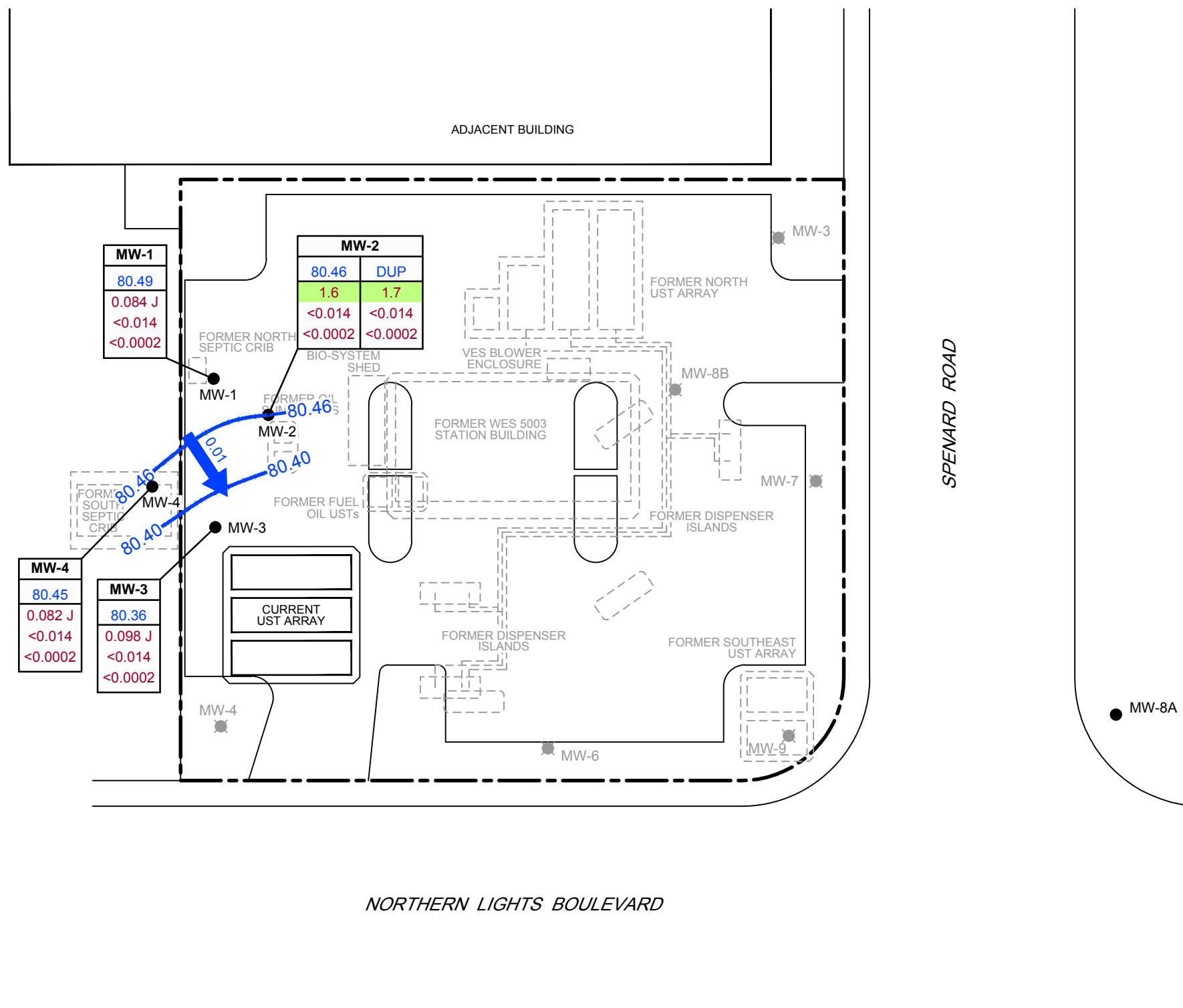
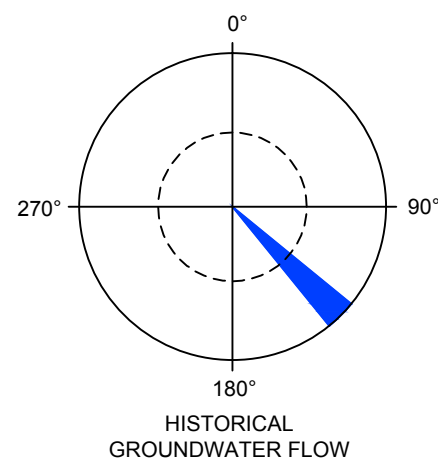
LEGEND

- MONITORING WELL LOCATION
- DESTROYED WELL LOCATION
- 80.06 — GROUNDWATER ELEVATION CONTOUR, IN FEET ABOVE MEAN SEA LEVEL (FT MSL), DASHED WHERE INFERRED
- ← 0.01 GROUNDWATER FLOW DIRECTION AND GRADIENT

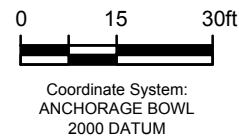
MW-3	
80.36	GROUNDWATER ELEVATION (FT MSL)
0.098 J	DRO CONCENTRATION (mg/L)
<0.014	GRO CONCENTRATION (mg/L)
<0.0002	BENZENE CONCENTRATION (mg/L)

J ESTIMATED VALUE BETWEEN METHOD DETECTION LIMIT AND LABORATORY REPORTING LIMIT

RESULTS HIGHLIGHTED GREEN EXCEED ADEC TABLE C GROUNDWATER CLEANUP LEVEL (18 AAC 75.345)



Source: LOUNSBURY & ASSOCIATES, INC., SURVEY DATED NOVEMBER 3 AND 20, 2017.



FORMER UNOCAL SERVICE STATION 4854
2730 SPENARD ROAD
ANCHORAGE, ALASKA
GROUNDWATER ELEVATION AND HYDROCARBON
CONCENTRATION MAP - AUGUST 9, 2018

82676-940418
Oct 5, 2018

FIGURE 2

Tables

Table 1
Current Groundwater Analytical Results
Former Unocal Service Station #4854
2730 Spenard Road
Anchorage, Alaska

Location ID	Date Sampled	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS			
					DRO	GRO	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					1.5	2.2	1.1	0.0046	1.1	0.015	0.19
MW-1	08/09/2018	98.09	17.60	80.49	0.084 J	<0.014	<0.085	<0.0002	<0.0002	<0.0002	<0.0005
MW-2	08/09/2018	97.86	17.40	80.46	1.6 / 1.7	<0.014 / <0.014	0.97 J / 1.0 J	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0005 / <0.0005
MW-3	08/09/2018	97.53	17.17	80.36	0.098 J	<0.014	<0.085	<0.0002	<0.0002	<0.0002	<0.0005
MW-4	08/09/2018	97.30	16.85	80.45	0.082 J	<0.014	<0.082	<0.0002	<0.0002	<0.0002	<0.0005
QA-T	08/09/2018	--	--	--	--	<0.014	--	<0.0002	<0.0002	<0.0002	<0.0005

Notes and Abbreviations

TOC = top of casing
 DTW = depth to water
 GWE = groundwater elevation
 TPH = total petroleum hydrocarbons
 DRO = diesel range organics by Alaska Series Method AK102
 GRO = gasoline range organics by Alaska Series Method AK101
 RRO = residual range organics by Alaska Series Method AK103
 Benzene, toluene, ethylbenzene, and total xylenes by Environmental Protection Agency (EPA) Method 8021B or 8260B or SW-E46 8021B
 Total Xylenes = Sum of m-, o-, and p-xylenes
 VOC = volatile organic compounds by EPA Method 524.2
 ADEC = Alaska Department of Environmental Conservation
^a = Levels established in ADEC Table C Groundwater Cleanup Levels (18 AAC 75.345)
BOLD = Indicates concentration above the ADEC Table C Groundwater Cleanup Level
 ft msl = feet above mean sea level
 ft btoc = feet below top of casing
 mg/L = milligrams per liter
 J = Estimated value
 -- = Not measured / not analyzed
 <x = Constituent not detected above x milligrams per liter
 x / y = Sample results / blind duplicate results

Table 2
Historical Groundwater Analytical Results
Former Unocal Service Station #4854
2730 Spenard Road
Anchorage, Alaska

Location ID	Date Sampled	TOC Units	DTW ft btoc	DTP ft btoc	Product Thickness ft	GWE ft msl	HYDROCARBONS			PRIMARY VOCS			
							DRO mg/L	GRO mg/L	RRO mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylene (total) mg/L
ADEC Groundwater Cleanup Levels							1.5	2.2	1.1	0.0046	1.1	0.015	0.19
MW-1	9/7/2017	98.09	18.41	--	--	79.68	0.11 J / 0.11 J	<0.010 / <0.010	0.084 J / 0.090 J	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005
MW-1	11/09/2017	98.09	18.15	--	--	79.94	<0.051 / <0.051	<0.010 / <0.010	<0.077 / <0.077 J	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005
MW-1	3/26/2018 ²	98.09	18.22	18.21	--	-- ⁴	--	--	--	--	--	--	--
MW-1	6/18/2018	98.09	17.91	--	--	80.18	<0.054	<0.010	<0.080	<0.0005	<0.0005	<0.0005	<0.0005
MW-1	8/9/2018	98.09	17.60	--	--	80.49	0.084 J	<0.014	<0.085	<0.0005	<0.0005	<0.0005	<0.0005
MW-2	9/7/2017 ¹	97.86	18.29	--	--	79.57	--	--	--	--	--	--	--
MW-2	11/9/2017 ¹	97.86	17.95	--	--	79.91	--	--	--	--	--	--	--
MW-2	3/26/2018 ³	97.86	--	--	--	--	--	--	--	--	--	--	--
MW-2	6/18/2018	97.86	17.73	--	--	80.13	1.4 / 1.7	<0.010 / <0.010	1.0 / 0.85	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005
MW-2	8/9/2018	97.86	17.40	--	--	80.46	1.6 / 1.7	<0.014 / <0.014	0.97 J / 1.0 J	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0005 / <0.0005
MW-3	9/7/2017	97.53	18.02	--	--	79.51	0.058 J	<0.010	<0.078 J	<0.0005	<0.0005	<0.0005	<0.0005
MW-3	11/09/2017	97.53	17.66	--	--	79.87	0.067 J	<0.010	0.12 J	<0.0005	<0.0005	<0.0005	<0.0005
MW-3	3/26/2018	97.53	17.79	--	--	79.74	<0.056 / <0.051	<0.010 / <0.010	<0.083 / <0.076	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005
MW-3	6/18/2018	97.53	17.48	--	--	80.05	<0.051	<0.010	<0.077	<0.0005	<0.0005	<0.0005	<0.0005
MW-3	8/9/2018	97.53	17.17	--	--	80.36	0.098 J	<0.014	<0.085	<0.0002	<0.0002	<0.0002	<0.0005
MW-4	9/7/2017	97.30	17.72	--	--	79.58	<0.052	<0.010	<0.077	<0.0005	<0.0005	<0.0005	<0.0005
MW-4	11/09/2017	97.30	17.39	--	--	79.91	<0.053	<0.010	<0.079	<0.0005	<0.0005	<0.0005	<0.0005
MW-4	06/26/2018	97.30	--	--	--	--	--	--	--	--	--	--	--
MW-4	3/26/2018 ³	97.30	--	--	--	--	--	--	--	--	--	--	--
MW-4	6/18/2018	97.30	17.16	--	--	80.14	<0.050	<0.010	<0.076	<0.0005	<0.0005	<0.0005	<0.0005
MW-4	8/9/2018	97.30	16.85	--	--	80.45	0.082 J	<0.014	<0.082	<0.0002	<0.0002	<0.0002	<0.0005
QA-T	09/07/2017	--	--	--	--	--	--	<0.010	--	<0.0005	<0.0005	<0.0005	<0.0005
QA-T	11/09/2017	--	--	--	--	--	--	<0.010	--	<0.0005	<0.0005	<0.0005	<0.0005
QA-T	03/26/2018	--	--	--	--	--	--	<0.010	--	<0.0005	<0.0005	<0.0005	<0.0005
QA-T	6/18/2018	--	--	--	--	--	--	<0.010	--	<0.0005	<0.0005	<0.0005	<0.0005
QA-T	8/9/2018	--	--	--	--	--	--	<0.014	--	<0.0002	<0.0002	<0.0002	<0.0005

Table 2

**Historical Groundwater Analytical Results
Former Unocal Service Station #4854
2730 Spenard Road
Anchorage, Alaska**

Notes and Abbreviations

TOC = top of casing

DTW = depth to water

GWE = groundwater elevation

TPH = total petroleum hydrocarbons

DRO = diesel range organics by Alaska Series Method AK102

GRO = gasoline range organics by Alaska Series Method AK101

RRO = residual range organics by Alaska Series Method AK103

Benzene, toluene, ethylbenzene, and total xylenes by Environmental Protection Agency (EPA) Method 8021B or 8260B or SW-E46 8021B

Total Xylenes = Sum of m-, o-, and p-xylenes

VOC = volatile organic compounds by EPA Method 524.2

ADEC = Alaska Department of Environmental Conservation

^a = Levels established in ADEC Table C Groundwater Cleanup Levels (18 AAC 75.345)**BOLD** = Indicates concentration above the ADEC Table C Groundwater Cleanup Level

ft msl = feet above mean sea level

ft btoc = feet below top of casing

mg/L = milligrams per liter

J = Estimated value

-- = Not measured / not analyzed

<x = Constituent not detected above x milligrams per liter

x / y = Sample results / blind duplicate results

** Groundwater Elevation Corrected due to LNAPL = (TOC - DTW)+((DTW-LNAPLT) x 0.80)

1 Monitor only

2 Not sampled, product in well

3 Unable to sample

4 GWE could not be calculated because LNAPL thickness could not be determined.

Appendix A

Site Photographs



PHOTO 1 - VIEW OF SITE FACING NORTHEAST.

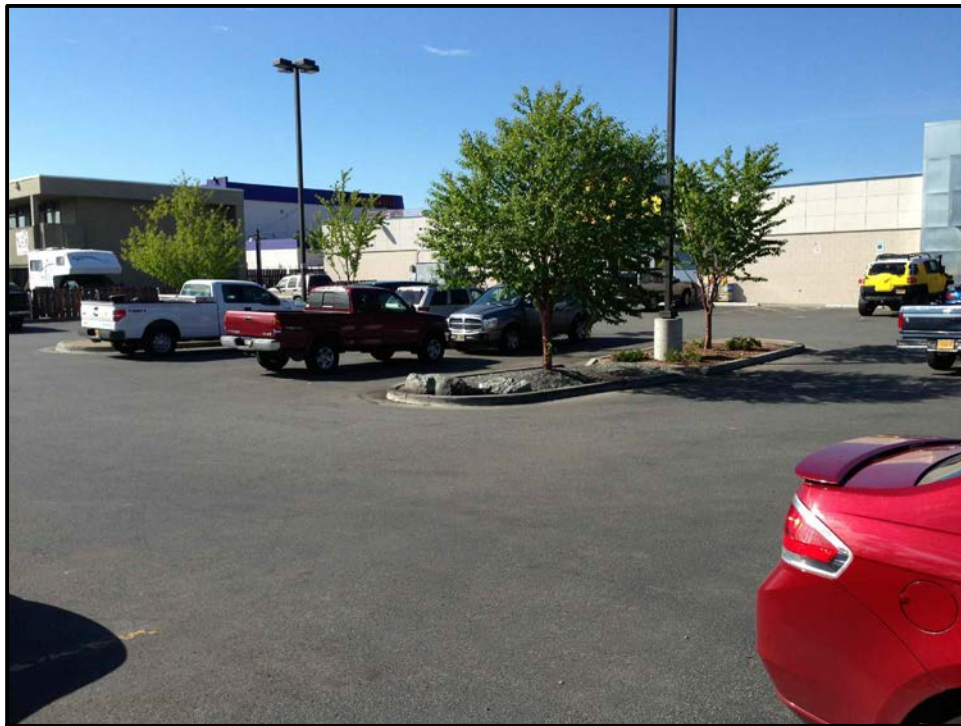


PHOTO 2 - VIEW OF SITE FACING NORTHWEST.



FORMER UNOCAL SERVICE STATION 4854
2730 SPENARD ROAD
ANCHORAGE, ALASKA

82676-95
Apr 4, 2018

SITE PHOTOGRAPHS

APPENDIX A



PHOTO 3 - VIEW OF SITE FACING NORTHWEST.

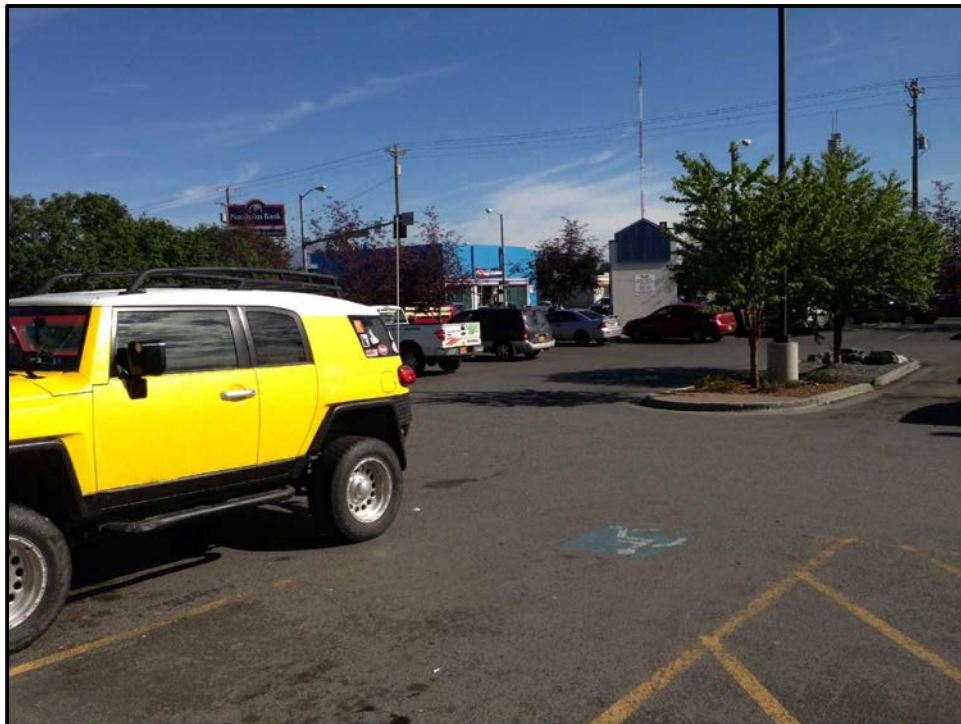


PHOTO 4 - VIEW OF SITE FACING SOUTHEAST.



FORMER UNOCAL SERVICE STATION 4854
2730 SPENARD ROAD
ANCHORAGE, ALASKA

SITE PHOTOGRAPHS

82676-95
Apr 4, 2018

APPENDIX A



PHOTO 5 - VIEW OF SITE FACING SOUTHWEST.



PHOTO 6 - MW-4 - FACING NORTH.



FORMER UNOCAL SERVICE STATION 4854
2730 SPENARD ROAD
ANCHORAGE, ALASKA

82676-95
Apr 4, 2018

SITE PHOTOGRAPHS

APPENDIX A

Appendix B

Human Health Conceptual Site Model Scoping and Graphics Forms

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name:

File Number:

Completed by:

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources (*check potential sources at the site*)

- | | |
|--------------------------------------------------------|------------------------------------------------------|
| <input type="checkbox"/> USTs | <input type="checkbox"/> Vehicles |
| <input type="checkbox"/> ASTs | <input type="checkbox"/> Landfills |
| <input type="checkbox"/> Dispensers/fuel loading racks | <input type="checkbox"/> Transformers |
| <input type="checkbox"/> Drums | <input type="checkbox"/> Other: <input type="text"/> |

Release Mechanisms (*check potential release mechanisms at the site*)

- | | |
|---------------------------------|------------------------------------------------------|
| <input type="checkbox"/> Spills | <input type="checkbox"/> Direct discharge |
| <input type="checkbox"/> Leaks | <input type="checkbox"/> Burning |
| | <input type="checkbox"/> Other: <input type="text"/> |

Impacted Media (*check potentially-impacted media at the site*)

- | | |
|--------------------------------------------------------|------------------------------------------------------|
| <input type="checkbox"/> Surface soil (0-2 feet bgs*) | <input type="checkbox"/> Groundwater |
| <input type="checkbox"/> Subsurface soil (>2 feet bgs) | <input type="checkbox"/> Surface water |
| <input type="checkbox"/> Air | <input type="checkbox"/> Biota |
| <input type="checkbox"/> Sediment | <input type="checkbox"/> Other: <input type="text"/> |

Receptors (*check receptors that could be affected by contamination at the site*)

- | | |
|--------------------------------------------------------------------------|------------------------------------------------------|
| <input type="checkbox"/> Residents (adult or child) | <input type="checkbox"/> Site visitor |
| <input type="checkbox"/> Commercial or industrial worker | <input type="checkbox"/> Trespasser |
| <input type="checkbox"/> Construction worker | <input type="checkbox"/> Recreational user |
| <input type="checkbox"/> Subsistence harvester (i.e. gathers wild foods) | <input type="checkbox"/> Farmer |
| <input type="checkbox"/> Subsistence consumer (i.e. eats wild foods) | <input type="checkbox"/> Other: <input type="text"/> |

* bgs - below ground surface

2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.)

If the box is checked, label this pathway complete:

Comments:

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.)

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)?

If both boxes are checked, label this pathway complete:

Comments:

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future?

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350.

If both boxes are checked, label this pathway complete:

Comments:

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future?

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities).

If both boxes are checked, label this pathway complete:

Comments:

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods?

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)?

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.)

If all of the boxes are checked, label this pathway complete:

Comments:

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.)

Are the contaminants in soil volatile (see Appendix D in the guidance document)?

If both boxes are checked, label this pathway complete:

Comments:

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminated soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures)

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)?

If both boxes are checked, label this pathway complete:

Comments:

3. Additional Exposure Pathways: *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Check the box if further evaluation of this pathway is needed:

Comments:

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

Check the box if further evaluation of this pathway is needed:

Comments:

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM₁₀). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed:

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed:

Comments:

4. Other Comments (*Provide other comments as necessary to support the information provided in this form.*)

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Chevron 306449
ADEC File ID: 2100.26.116

Completed By: GHD Services, Inc
 Date Completed: 12/01/2017

Instructions: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.

(1) Media	(2) Transport Mechanisms
<input type="checkbox"/> Surface Soil (0-2 ft bgs)	<input type="checkbox"/> Direct release to surface soil <i>check soil</i> <input type="checkbox"/> Migration to subsurface <i>check soil</i> <input type="checkbox"/> Migration to groundwater <i>check groundwater</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Runoff or erosion <i>check surface water</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input checked="" type="checkbox"/> Subsurface Soil (2-15 ft bgs)	<input type="checkbox"/> Direct release to subsurface soil <i>check soil</i> <input checked="" type="checkbox"/> Migration to groundwater <i>check groundwater</i> <input checked="" type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input type="checkbox"/> Ground-water	<input type="checkbox"/> Direct release to groundwater <i>check groundwater</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Flow to surface water body <i>check surface water</i> <input type="checkbox"/> Flow to sediment <i>check sediment</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input type="checkbox"/> Surface Water	<input type="checkbox"/> Direct release to surface water <i>check surface water</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Sedimentation <i>check sediment</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
<input type="checkbox"/> Sediment	<input type="checkbox"/> Direct release to sediment <i>check sediment</i> <input type="checkbox"/> Resuspension, runoff, or erosion <i>check surface water</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____

(3) Exposure Media	(4) Exposure Pathway/Route	(5) Current & Future Receptors						
		Residents (adults or children)	Commercial or Industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
<input checked="" type="checkbox"/> soil	<input checked="" type="checkbox"/> Incidental Soil Ingestion <input type="checkbox"/> Dermal Absorption of Contaminants from Soil <input type="checkbox"/> Inhalation of Fugitive Dust	F	C/F	C/F	C/F			
<input checked="" type="checkbox"/> groundwater	<input checked="" type="checkbox"/> Ingestion of Groundwater <input type="checkbox"/> Dermal Absorption of Contaminants in Groundwater <input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water	F	C/F	C/F	C/F			
<input checked="" type="checkbox"/> air	<input checked="" type="checkbox"/> Inhalation of Outdoor Air <input checked="" type="checkbox"/> Inhalation of Indoor Air <input type="checkbox"/> Inhalation of Fugitive Dust	F	C/F	C/F	C/F			
<input type="checkbox"/> surface water	<input type="checkbox"/> Ingestion of Surface Water <input type="checkbox"/> Dermal Absorption of Contaminants in Surface Water <input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water							
<input type="checkbox"/> sediment	<input type="checkbox"/> Direct Contact with Sediment							
<input type="checkbox"/> biota	<input type="checkbox"/> Ingestion of Wild or Farmed Foods							

Appendix C

Monitoring Data Package



DAILY FIELD REPORT

Project Name: <u>CEMC 306449</u>	GHD Project Manager: <u>S. PRITCHARD</u>	Field Rep: <u>O. YAN / T. WEAVER</u>
Project Number: <u>082676</u>	Date: <u>08/09/18</u>	Site Address: <u>2730 SPENARD ROAD ANCHORAGE, AK</u>
Scope of Work: <u>GW MONITORING/SAMPLING; COLLECT GW SAMPLES</u>		Weather: <u>58°F / OVERCAST</u>
Equipment: <u>YSI-556 (DETOXYS) (TURBIDITY 1225); MP-50; INTERFERENCE PROBE (1569)</u>		

Time	Activity/Comments	SWA
07:30	LOAD VEHICLE W/ EQUIPMENT; CALIBRATE EQUIPMENT	
0745	MOB TO TTT ENV TO PICK UP EQUIP.	
0809	MOBILIZE TO SITE; ARRIVE ON SITE; SETUP → CONDUCT TAILGATE SAFETY MEETING. NOTIFY PM; 827 - START GAUGING WELLS.	
0840	SET UP FOR LF PURGE SAMPLING AT WELL MW-4	
0845	START LF PURGE SAMPLING AT WELL MW-4; COLLECT PARAMETER READINGS.	
0917	COLLECT MW-4-W-180809; AT 0923 → DECON EQUIPMENT	
0925	SET UP AT WELL MW-3; START LF PURGE SAMPLING AT 0927; COLLECT GW PARAMETER READINGS; PURGE 0.8 GALLONS THROUGH GAC FROM MW-4	
0959	COLLECT SAMPLE MW-3-W-180809; DECON EQUIPMENT @ 1004; PURGE 0.7 GAL THROUGH GAC.	
1007	SETUP @ MW-1 LOCATION; 1009 - START LF PURGE SAMPLING; COLLECT GW PARAMETERS.	
1044	COLLECT MW-1-W-180809 SAMPLE; DECON EQUIPMENT @ 1048; PURGE 0.8 GAL WATER THROUGH GAC BUCKET.	
1050	SET UP AT WELL MW-2 LOCATION → START LF PURGE SAMPLING; COLLECT GW PARAMETER READINGS.	
1122	COLLECT MW-2-W-180809/DUP-1-W-180809 GW SAMPLE; DECON EQUIPMENT; PURGE 0.9 GAL THROUGH GAC; DECON WATER THROUGH GAC ~ 1.2 GAL	
1129	SITE CLEANUP; DEMOS FROM SITE → 1135; HEAD TO TTT TO PICK UP EQUIPMENT / ONTR OFF.	
	HEAD TO OFFICE; DROPPED OFF SAMPLES	
	TOTAL PURGED THROUGH GAC: <u>7.4 GAL</u>	

[Handwritten Signature]

SWA Key:	A: Person or People	B: Equipment	C: Environmental
	D: Procedures/Processes/JSA-review/revise	E: Visitors	

Operational Mileage: Start End Total

Site Photographs: GAC Tracker: Disposal Log: N/A Lab COC Review:



Groundwater Sampling Form

Project No. 082676 PM Siobhan Pritchard Well ID MW-2 Date 8/9/18 Page 2 of 4

Site ID / Location 306449 / 2730 Spenard Road, Anchorage, Alaska (ADEC File ID: 2100.26.116)

Screen Casing Well Material x PVC Sampled by T. Weaver
Setting (ft-btoc) 10-25 Diameter (in.) 2" SS O. Yan

Static Water Level (ft-btoc) 17.40 Total Depth (ft-btoc) 24.72 Water Column / Gallons in Well 7.32 / 1.171
Sample ID MW-2 - W-180809
Dup ID DUP-1-W-180809

Sample Time 1122 Start End

No-Purge Method Sampler Length (in) <u>36</u> <input type="checkbox"/> Depth of Sample <u> </u> <u>30</u> <input type="checkbox"/>		Low Flow Method Pump type <u>Bladder</u> <input checked="" type="checkbox"/> <u>Other</u> <input type="checkbox"/> Pump Intake (ft-btoc) <u>18.10</u> Volumes Purged <u>0.90 GAL</u> Purge Time: Start <u>1050</u> End <u>1120</u>	
Low-Flow Sampling Position <u>Bottom</u> <input type="checkbox"/> Suspended <input type="checkbox"/> Bottom set <input type="checkbox"/> Was 1 gallon Baler used to collect non volatile samples Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		Flow rate (ml/minute) <u>110-135</u> Did well Dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	Temp (°C)	Cond. (mS/cm) 3%	Dissolved Oxygen (mg/L) 10%	pH 0.1	Redox (mV) 10	Turbidity (NTU)	Additional notes
1055	5	135	17.44	0.15	12.79	0.387	2.49	6.01	126.6	32.1	CLEAR
1100	10	110	17.45	0.25	12.36	0.385	2.20	6.10	118.8	20.4	" "
1105	15	110	17.45	0.40	11.91	0.384	2.54	6.14	113.6	17.0	" "
1110	20	110	17.45	0.50	11.87	0.384	2.71	6.15	110.8	12.9	" "
1115	25	110	17.45	0.60	11.87	0.384	2.75	6.14	110.0	8.9	" "

Constituents Sampled	Container	Number	Preservative
BTEX by 8260 <input type="checkbox"/>			
Full Scan VOCs by 8260 <input checked="" type="checkbox"/>	40 mL vial	3/3 ✓	HCl
HVOCs by 8260 <input type="checkbox"/>			
GRO by AK 101 <input checked="" type="checkbox"/>	40 mL vial	3/3 ✓	HCl
DRO by AK 102 <input checked="" type="checkbox"/>	250 mL amber	1/1 ✓	HCl
RRO by AK 103 <input checked="" type="checkbox"/>	250 mL amber	1/1 ✓	HCl
Lead by 6010 <input type="checkbox"/>			
PAHs by 8270 <input type="checkbox"/>			
Alkalinity by 2320B <input type="checkbox"/>			
Methane by RSK175 <input type="checkbox"/>			
Sulfate by EPA 300 <input type="checkbox"/>			
Nitrate/Nitrite by EPA 300 <input type="checkbox"/>			
EDB by 8011 <input checked="" type="checkbox"/> once in 2018	40 mL vial	2	
1,2-DCA by 8260B <input checked="" type="checkbox"/> once in 2018	should be included in Full Scan VOC		

TOTAL: 16

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Field Test Results:
N/A Ferrous Iron mg/L Nitrate mg/L Other

Well Information

Well Location: ONSITE - PARKING LOT Well Locked at Arrival: Yes / No

Condition of Well: GOOD Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up

Additional Notes
.....
.....
.....



Groundwater Sampling Form

Project No. 082676 PM Siobhan Pritchard Well ID MW-3 Date 08/09/18 Page 3 of 4

Site ID / Location 306449 / 2730 Spenard Road, Anchorage, Alaska (ADEC File ID: 2100.26.116)

Screen Casing Well Material x PVC SS Sampled by T. Weaver
 Setting (ft-btoc) 10-25 Diameter (in.) 2" SS O. Yan

Static Water Level (ft-btoc) 17.17 Total Depth (ft-btoc) 24.53 Water Column / Gallons in Well 7.36 / 1.778
 Sample ID MW-3-W-180809 Dup ID ---

Sample Time 0959 Start --- End ---

No-Purge Method
 Sampler Length (in) 36 Depth of Sample 30
Low-Flow Sampling
 Weights --- Position --- Suspended
 Bottom Bottom set
 Was 1 gallon Baler used to collect non volatile samples Yes No

Low Flow Method
 Pump type Bladder Other
 Pump Intake (ft-btoc) 17.80
 Flow rate (ml/minute) 115 Volumes Purged 0.7 GAL
 Did well Dewater? Yes No Purge Time: Start 0927 End 0957

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	Temp (°C)	Cond. (mS/cm) 3%	Dissolved Oxygen (mg/L) 10%	pH 0.1	Redox (mV) 10	Turbidity (NTU)	Additional notes
0932	5	115	17.19	0.10	13.52	0.547	7.32	6.38	129.4	28.1	CLEAR
0937	10	115	17.21	0.25	11.96	0.557	6.72	6.31	129.5	16.7	" "
0942	15	115	17.21	0.35	11.48	0.564	6.24	6.28	128.1	16.8	" "
0947	20	115	17.21	0.45	11.34	0.568	6.40	6.29	125.9	10.7	" "
0952	25	115	17.21	0.55	11.15	0.568	6.25	6.28	123.8	8.18	" "

Constituents Sampled	Container	Number	Preservative
BTEX by 8260 <input type="checkbox"/>			
Full Scan VOCs by 8260 <input checked="" type="checkbox"/>	40 mL vial	3 ✓	HCl
HVOCs by 8260 <input type="checkbox"/>			
GRO by AK 101 <input checked="" type="checkbox"/>	40 mL vial	3 ✓	HCl
DRO by AK 102 <input checked="" type="checkbox"/>	250 mL amber	1 ✓	HCl
RRO by AK 103 <input checked="" type="checkbox"/>	250 mL amber	1 ✓	HCl
Lead by 6010 <input type="checkbox"/>			
PAHs by 8270 <input type="checkbox"/>			
Alkalinity by 2320B <input type="checkbox"/>			
Methane by RSK175 <input type="checkbox"/>			
Sulfate by EPA 300 <input type="checkbox"/>			
Nitrate/Nitrite by EPA 300 <input type="checkbox"/>			
EDB by 8011 <input checked="" type="checkbox"/> once in 2018	40 mL vial	2	
1,2-DCA by 8260B <input checked="" type="checkbox"/> once in 2018	should be included in Full Scan VOC		
		TOTAL: 8	

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Field Test Results: N/A Ferrous Iron --- mg/L Nitrate --- mg/L Other ---

Well Information
 Well Location: ONSITE - PARKING LOT Well Locked at Arrival: Yes / No
 Condition of Well: GOOD Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up

Additional Notes



Groundwater Sampling Form

Project No. 082676 PM Siobhan Pritchard Well ID MW-4 Date 08/09/18 Page 4 of 4

Site ID / Location 306449 / 2730 Spenard Road, Anchorage, Alaska (ADEC File ID: 2100.26.116)
 Screen Casing Well Material x PVC Sampled by T. Weaver
 Setting (ft-btoc) 10-25 Diameter (in.) 2" SS O. Yan

Static Water Level (ft-btoc) 16.85 Total Depth (ft-btoc) 24.59 Water Column / Gallons in Well 7.74 / 1.238
 Sample ID MW-4-W-180809
 Dup ID

Sample Time 0917 Start End

Sampler Length (in) <u>36</u> <input type="checkbox"/> <u>30</u> <input type="checkbox"/> Weights <u> </u> Was Teflon Bailer used to collect non volatile samples <input type="checkbox"/>	No-Purge Method Depth of Sample <u> </u> Low-Flow Sampling Position <u> </u> Suspended <input type="checkbox"/> Bottom set <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	Low Flow Method Pump type Bladder <input checked="" type="checkbox"/> Other <input type="checkbox"/> Pump Intake (ft-btoc) <u>17.35</u> Volumes Purged <u>0.80 GAL</u> Flow rate (ml/minute) <u>130</u> Purge Time: Start <u>0845</u> End <u>0915</u> Did well Dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	Temp (°C)	Cond. (mS/cm) 3%	Dissolved Oxygen (mg/L) 10%	pH 0.1	Redox (mV) 10	Turbidity (NTU)	Additional notes
0850	5	130	16.87	0.10	12.82	0.560	7.79	5.95	163.2	84.0	CLEAR
0855	10	130	16.88	0.20	11.55	0.533	7.10	6.09	146.8	45.0	" "
0900	15	130	16.87	0.35	11.37	0.526	6.98	6.13	141.4	39.1	" "
0905	20	130	16.87	0.45	11.07	0.525	6.93	6.19	137.7	29.2	" "
0910	25	130	16.87	0.55	11.00	0.524	6.88	6.21	134.8	25.9	" "

Constituents Sampled	Container	Number	Preservative
BTEX by 8260 <input type="checkbox"/>			
Full Scan VOCs by 8260 <input checked="" type="checkbox"/>	40 mL vial	3 ✓	HCl
HVOCs by 8260 <input type="checkbox"/>			
GRO by AK 101 <input checked="" type="checkbox"/>	40 mL vial	3 ✓	HCl
DRO by AK 102 <input checked="" type="checkbox"/>	250 mL amber	1 ✓	HCl
RRO by AK 103 <input checked="" type="checkbox"/>	250 mL amber	1 ✓	HCl
Lead by 6010 <input type="checkbox"/>			
PAHs by 8270 <input type="checkbox"/>			
Alkalinity by 2320B <input type="checkbox"/>			
Methane by RSK175 <input type="checkbox"/>			
Sulfate by EPA 300 <input type="checkbox"/>			
Nitrate/Nitrite by EPA 300 <input type="checkbox"/>			
EDB by 8011 <input checked="" type="checkbox"/> once in 2018	40 mL vial	2	
1,2-DCA by 8260B <input checked="" type="checkbox"/> once in 2018	should be included in Full Scan VOC		
		TOTAL: 8	

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Field Test Results:
 N/A Ferrous Iron mg/L Nitrate mg/L Other

Well Information
 Well Location: OFFSIDE - PARKING LOT - HOOPER'S MARNOT STORE Well Locked at Arrival: Yes / No
 Condition of Well: Good Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up

Additional Notes

TTT Environmental

The preferred source for instrument
Rentals, Sales, Service, and Supplies!

INSTRUMENT RENTAL FUNCTION/CHECKLIST

Company Name: GHD Services
Rental Description: I/F probe - 200 FT 3/8

Sales Order #: 5181931
Serial #: 8569

Item Description	Qty	Checked Out?	Checked In?	Damaged / Missing?
Interface Probe	1	1		
Cushioned carrying case	1			
Spare Battery (9V)	1 or 2			
Optional				
Operators manual				
Tape guide				

Instrument Function Test / Inspection (Correct all deficiencies)	✓	Pre-rental Check-out	Post-rental Check-in (<i>"No's" may be customer charge</i>)	
			Yes	No
Soft sided case clean (inside and out) and in good condition with proper length, size, and meter type properly marked:	✓		Yes	No
TTT property tag and s/n# in place on front of meter:	✓			
Meter front and rear spools are in good condition:	✓		Yes	No
Spool properly secured to frame and spool brake functional:	✓		Yes	No
Meter sits flat, frame not bent, and probe holder in place:	✓		Yes	No
Probe not bent, probe bottom in good condition, and tape connection at top of probe in good condition when flexed:	✓		Yes	No
Meter battery cover, buttons, and knobs in place, tight, and in good condition:	✓		Yes	No
Red LED and buzzer works properly when "Start" button pressed (indicates good batteries). When applicable, Green LED stays flashing until "off is pressed":	✓	Yes	Yes	No
Probe buzzes properly when placed in water:	✓	Yes	Yes	No
Meter provides different tone when passed from Oil to water..transition is clear & precise going both directions:	✓			
Spare batteries test good, white tape over contacts and placed in resealable bag in front pocket of meter bag:	✓			

Signature (Check-out): [Signature]

Signature (Check-in): _____

Declared Value: \$1,350

- * By renting with TTT customer agrees to the rental terms and conditions (copy available upon request).
- * Notify TTT within 24hrs of receipt if anything is damaged or missing.
- * Customer is responsible for all parts and equipment damaged or missing during rental.
- * All instruments have been inspected and calibrated (when applicable) prior to rental.

Field Data Record Form
Meter, PH/Cond./Temp./DO/ORP/ Salinity/Flow Cell,
YSI 556 MPS
(QSF-483D)

Page 1 of 1

Control number: 10E101585 (TTT RENTAL)
 Date (mm/dd/yyyy): 08/05/18
 User (print name): YAN, CLIVE

Project number: 082676 / 0C2327
 Project name: 306449 / 95414

Location: 2150 SPENARD RD, ANCHORAGE
5210 OLD SEWARD HWY, ANCHORAGE

Calibration solution(s):	pH 7.0	pH 4.0	Cond.	ORP
Lot #(s):	<u>VT1</u>	<u>VV3A</u>	<u>VT2</u>	<u>2079</u>
Supplier(s):	<u>OAKTON</u>	<u>OAKTON</u>	<u>OAKTON</u>	<u>HANNA</u>
Expiration date(s):	<u>07/2019</u>	<u>5/2019</u>	<u>07/2019</u>	<u>10/2022</u>

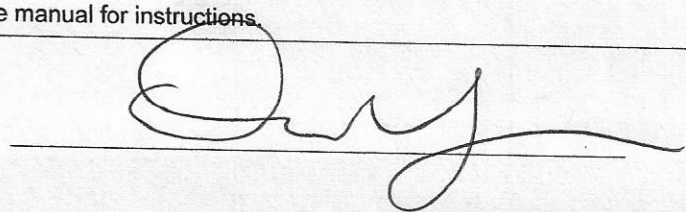
Additional information: _____

Field procedure before use:

	Check when completed
<ul style="list-style-type: none"> Check kit contents. Check pH 7 buffer reading. Calibrate if greater than ± 0.2. <p>PH is a two point calibration but always start with the seven standard.</p> <ul style="list-style-type: none"> Fill calibration cup with pH 7.0 buffer and attach to probe with probes facing down. Press Esc to enter into main menu and use down arrow key to highlight calibration menu. Press \downarrow key to accept. Use \downarrow key to highlight pH symbol and press enter \downarrow. Select 2 point calibration and use number pad to enter 7.0 and push \downarrow to accept value. Push \downarrow again to calibrate. Repeat these steps to calibrate your pH value to <u>4.0</u> or 10.0. Press Esc to return to the calibration screen. <p>Check conductivity standard near the expected range. Calibrate if greater than <u>$\pm 0.5\%$</u>.</p> <p>Conductivity is a one point calibration.</p> <ul style="list-style-type: none"> Fill calibration cup with <u>1.413 mS</u> standard and attach to probe with probes facing up. Press Esc to return to the calibration screen. Use the \uparrow or \downarrow to select SpC and press \downarrow Use the number key pad to enter 1.413 and push \downarrow to accept value. Push \downarrow again to calibrate. <p>Check ORP standard:</p> <ul style="list-style-type: none"> Press Esc to return to the calibration screen. Use the \uparrow or \downarrow to select ORP and press \downarrow Use the number key pad to enter the value and push \downarrow to accept. Push \downarrow again to calibrate. <p>To calibrate DO, see manual for instructions.</p>	<p><input checked="" type="checkbox"/> Reading <u>6.90</u></p> <p>Calibrated Y <input checked="" type="checkbox"/> N</p> <p>Reading <u>3.97</u></p> <p>Standard <u>1.413</u></p> <p>Reading <u>1.421</u></p> <p>Calibrated Y <input checked="" type="checkbox"/> N</p> <p>Standard <u>296</u> mV</p> <p>Reading <u>241.8</u> mV</p> <p>Calibrated Y <input checked="" type="checkbox"/> N</p>

Filing: Field file

Signature: _____



Field Data Record Form
Meter, Turbidity (Portable), HF Scientific
(QSF-249D)

Page 1 of 1

Control number: 1225 (TTT RENTAL)
 Date (mm/dd/yyyy): 08/09/18
 User (print name): MIKE

Project number: 082676 / 062327
 Project name: CEC Q5419 / 30099
 Location: 2730 SPENARD ROAD
520 OLD JEWELL HWY

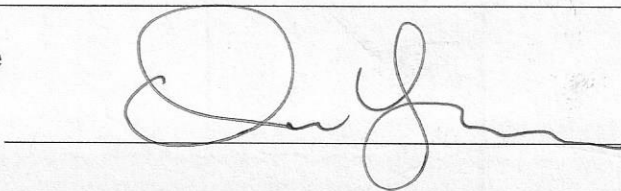
Additional equipment control numbers and descriptions: _____

Field procedure before use:

	Check when completed
<ul style="list-style-type: none"> • Turn the DRT-15CE to the 0-10 range. • Check outside of reference standard bottles for cleanliness, no condensation, surface scratches, or finger smudges. • Insert the reference standard and index. • Adjust the Reference Adjust in the appropriate direction to cause the display to read 0.02 NTU. • The unity is now ready to use on any range. <p>Note: Condensation, surface scratches, finger smudges, and dirt on outside of sample bottles affects meter readings.</p>	<p align="center"> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> </p>

Filing: Field file

Signature: _____



Appendix D

Laboratory Analytical Report



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

ChevronTexaco
6001 Bollinger Canyon Rd L4310
San Ramon CA 94583

Report Date: September 06, 2018 16:35

Project: 306449

Account #: 10880
Group Number: 1975691
PO Number: 0015274506
Release Number: CARRIER
State of Sample Origin: AK

Electronic Copy To Chevron
Electronic Copy To GHD
Electronic Copy To GHD
Electronic Copy To GHD
Electronic Copy To GHD

Attn: GHD EDD
Attn: Jeffrey Cloud
Attn: Sarah Gillette
Attn: Siobhan Pritchard
Attn: GHD EDF

Respectfully Submitted,



Megan A. Moeller
Senior Specialist

(717) 556-7261

To view our laboratory's current scopes of accreditation please go to <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
MW-1-W-180809 Grab Water	08/09/2018 10:44	9749836
MW-2-W-180809 Grab Water	08/09/2018 11:22	9749837
MW-3-W-180809 Grab Water	08/09/2018 09:59	9749838
MW-4-W-180809 Grab Water	08/09/2018 09:17	9749839
DUP-1-W-180809 Grab Groundwater	08/09/2018	9749840
QA-1-W-180809 Groundwater	08/09/2018	9749841

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: 306449
ELLE Group #: 1975691

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:**AK 102-SV 4/8/02, GC Petroleum Hydrocarbons****Sample #s: 9749837, 9749840**

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken:

The sample was re-extracted outside the method required holding time and the LCS/LCSD is compliant. All results are reported from the first trial.

Sample #s: 9749836, 9749838, 9749839

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Batch #: 182290053A (Sample number(s): 9749836-9749840)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: C25-C36 RRO

Sample Description: MW-1-W-180809 Grab Water
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749836
ELLE Group #: 1975691
Matrix: Water

Project Name: 306449

Submission Date/Time: 08/11/2018 10:00

Collection Date/Time: 08/09/2018 10:44

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles			mg/l	mg/l	mg/l	
10335	Acetone	67-64-1	N.D.	0.0008	0.020	1
10335	Benzene	71-43-2	N.D.	0.0002	0.001	1
10335	Bromodichloromethane	75-27-4	N.D.	0.0002	0.001	1
10335	Bromoform	75-25-2	N.D.	0.002	0.005	1
10335	Bromomethane	74-83-9	N.D.	0.0005	0.001	1
10335	2-Butanone	78-93-3	N.D.	0.001	0.010	1
10335	Carbon Disulfide	75-15-0	N.D.	0.0003	0.005	1
10335	Carbon Tetrachloride	56-23-5	N.D.	0.0002	0.001	1
10335	Chlorobenzene	108-90-7	N.D.	0.0002	0.001	1
10335	Chloroethane	75-00-3	N.D.	0.0003	0.001	1
10335	Chloroform	67-66-3	0.001	0.0002	0.001	1
10335	Chloromethane	74-87-3	N.D.	0.0003	0.001	1
10335	Cyclohexane	110-82-7	N.D.	0.002	0.005	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.001	0.005	1
10335	Dibromochloromethane	124-48-1	N.D.	0.0004	0.001	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.0003	0.001	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	0.0002	0.005	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	0.0002	0.005	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	0.0002	0.005	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.0003	0.001	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.0002	0.001	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.002	0.005	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.0002	0.001	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.0002	0.001	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.0002	0.001	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.0002	0.001	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.0002	0.001	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.0002	0.001	1
10335	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10335	Freon 113	76-13-1	N.D.	0.002	0.010	1
10335	2-Hexanone	591-78-6	N.D.	0.003	0.010	1
10335	Isopropylbenzene	98-82-8	N.D.	0.0003	0.005	1
10335	Methyl Acetate	79-20-9	N.D.	0.0006	0.005	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0002	0.001	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	0.0005	0.010	1
10335	Methylcyclohexane	108-87-2	N.D.	0.0002	0.005	1
10335	Methylene Chloride	75-09-2	N.D.	0.0002	0.001	1
10335	Styrene	100-42-5	N.D.	0.0002	0.005	1
10335	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.0002	0.001	1
10335	Tetrachloroethene	127-18-4	N.D.	0.0002	0.001	1
10335	Toluene	108-88-3	N.D.	0.0002	0.001	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-1-W-180809 Grab Water
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749836
ELLE Group #: 1975691
Matrix: Water

Project Name: 306449

Submittal Date/Time: 08/11/2018 10:00
Collection Date/Time: 08/09/2018 10:44

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260B	mg/l	mg/l	mg/l	
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.0004	0.005	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.0002	0.001	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.0002	0.001	1
10335	Trichloroethene	79-01-6	N.D.	0.0002	0.001	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.0004	0.001	1
10335	Vinyl Chloride	75-01-4	N.D.	0.0004	0.001	1
10335	Xylene (Total)	1330-20-7	N.D.	0.0005	0.005	1

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	N.D.	0.014	0.10	1

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Petroleum Hydrocarbons		AK 102-SV 4/8/02	mg/l	mg/l	mg/l	
13222	C10--C25 DRO	n.a.	0.084 J	0.053	0.26	1
13222	C25-C36 RRO	n.a.	N.D.	0.085	0.26	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCL 4.3 VOCs	SW-846 8260B	1	E182341AA	08/22/2018 15:15	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E182341AA	08/22/2018 15:15	Linda C Pape	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18226D20A	08/15/2018 00:06	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	18226D20A	08/15/2018 00:06	Jeremy C Giffin	1
13222	AK 102/103-SV	AK 102-SV 4/8/02	1	182290053A	08/23/2018 13:31	Nicholas R Rossi	1
13225	Mini-Ext. AK 102/103SV,DRO/RRO	AK 102-SV 4/8/02	1	182290053A	08/20/2018 02:00	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-2-W-180809 Grab Water
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749837
ELLE Group #: 1975691
Matrix: Water

Project Name: 306449

Submission Date/Time: 08/11/2018 10:00
Collection Date/Time: 08/09/2018 11:22

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles			mg/l	mg/l	mg/l	
10335	Acetone	67-64-1	N.D.	0.0008	0.020	1
10335	Benzene	71-43-2	N.D.	0.0002	0.001	1
10335	Bromodichloromethane	75-27-4	N.D.	0.0002	0.001	1
10335	Bromoform	75-25-2	N.D.	0.002	0.005	1
10335	Bromomethane	74-83-9	N.D.	0.0005	0.001	1
10335	2-Butanone	78-93-3	N.D.	0.001	0.010	1
10335	Carbon Disulfide	75-15-0	N.D.	0.0003	0.005	1
10335	Carbon Tetrachloride	56-23-5	N.D.	0.0002	0.001	1
10335	Chlorobenzene	108-90-7	N.D.	0.0002	0.001	1
10335	Chloroethane	75-00-3	N.D.	0.0003	0.001	1
10335	Chloroform	67-66-3	0.001	0.0002	0.001	1
10335	Chloromethane	74-87-3	N.D.	0.0003	0.001	1
10335	Cyclohexane	110-82-7	N.D.	0.002	0.005	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.001	0.005	1
10335	Dibromochloromethane	124-48-1	N.D.	0.0004	0.001	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.0003	0.001	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	0.0002	0.005	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	0.0002	0.005	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	0.0002	0.005	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.0003	0.001	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.0002	0.001	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.002	0.005	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.0002	0.001	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.0002	0.001	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.0002	0.001	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.0002	0.001	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.0002	0.001	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.0002	0.001	1
10335	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10335	Freon 113	76-13-1	N.D.	0.002	0.010	1
10335	2-Hexanone	591-78-6	N.D.	0.003	0.010	1
10335	Isopropylbenzene	98-82-8	N.D.	0.0003	0.005	1
10335	Methyl Acetate	79-20-9	N.D.	0.0006	0.005	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0002	0.001	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	0.0005	0.010	1
10335	Methylcyclohexane	108-87-2	N.D.	0.0002	0.005	1
10335	Methylene Chloride	75-09-2	N.D.	0.0002	0.001	1
10335	Styrene	100-42-5	N.D.	0.0002	0.005	1
10335	1,1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.0002	0.001	1
10335	Tetrachloroethene	127-18-4	N.D.	0.0002	0.001	1
10335	Toluene	108-88-3	N.D.	0.0002	0.001	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-2-W-180809 Grab Water
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749837
ELLE Group #: 1975691
Matrix: Water

Project Name: 306449

Submission Date/Time: 08/11/2018 10:00
Collection Date/Time: 08/09/2018 11:22

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260B	mg/l	mg/l	mg/l	
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.0004	0.005	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.0002	0.001	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.0002	0.001	1
10335	Trichloroethene	79-01-6	N.D.	0.0002	0.001	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.0004	0.001	1
10335	Vinyl Chloride	75-01-4	N.D.	0.0004	0.001	1
10335	Xylene (Total)	1330-20-7	N.D.	0.0005	0.005	1
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	N.D.	0.014	0.10	1
GC Petroleum Hydrocarbons		AK 102-SV 4/8/02	mg/l	mg/l	mg/l	
13222	C10--C25 DRO	n.a.	1.6	0.052	0.26	1
13222	C25-C36 RRO	n.a.	0.97	0.084	0.26	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken:

The sample was re-extracted outside the method required holding time and the LCS/LCSD is compliant. All results are reported from the first trial.

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCL 4.3 VOCs	SW-846 8260B	1	E182341AA	08/22/2018 15:36	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E182341AA	08/22/2018 15:36	Linda C Pape	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18226D20A	08/15/2018 00:34	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	18226D20A	08/15/2018 00:34	Jeremy C Giffin	1
13222	AK 102/103-SV	AK 102-SV 4/8/02	1	182290053A	08/23/2018 13:58	Nicholas R Rossi	1
13225	Mini-Ext. AK 102/103SV,DRO/RRO	AK 102-SV 4/8/02	1	182290053A	08/20/2018 02:00	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-3-W-180809 Grab Water
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749838
ELLE Group #: 1975691
Matrix: Water

Project Name: 306449

Submittal Date/Time: 08/11/2018 10:00

Collection Date/Time: 08/09/2018 09:59

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles			mg/l	mg/l	mg/l	
10335	Acetone	67-64-1	N.D.	0.0008	0.020	1
10335	Benzene	71-43-2	N.D.	0.0002	0.001	1
10335	Bromodichloromethane	75-27-4	N.D.	0.0002	0.001	1
10335	Bromoform	75-25-2	N.D.	0.002	0.005	1
10335	Bromomethane	74-83-9	N.D.	0.0005	0.001	1
10335	2-Butanone	78-93-3	N.D.	0.001	0.010	1
10335	Carbon Disulfide	75-15-0	N.D.	0.0003	0.005	1
10335	Carbon Tetrachloride	56-23-5	N.D.	0.0002	0.001	1
10335	Chlorobenzene	108-90-7	N.D.	0.0002	0.001	1
10335	Chloroethane	75-00-3	N.D.	0.0003	0.001	1
10335	Chloroform	67-66-3	0.002	0.0002	0.001	1
10335	Chloromethane	74-87-3	N.D.	0.0003	0.001	1
10335	Cyclohexane	110-82-7	N.D.	0.002	0.005	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.001	0.005	1
10335	Dibromochloromethane	124-48-1	N.D.	0.0004	0.001	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.0003	0.001	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	0.0002	0.005	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	0.0002	0.005	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	0.0002	0.005	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.0003	0.001	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.0002	0.001	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.002	0.005	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.0002	0.001	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.0002	0.001	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.0002	0.001	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.0002	0.001	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.0002	0.001	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.0002	0.001	1
10335	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10335	Freon 113	76-13-1	N.D.	0.002	0.010	1
10335	2-Hexanone	591-78-6	N.D.	0.003	0.010	1
10335	Isopropylbenzene	98-82-8	N.D.	0.0003	0.005	1
10335	Methyl Acetate	79-20-9	N.D.	0.0006	0.005	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0002	0.001	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	0.0005	0.010	1
10335	Methylcyclohexane	108-87-2	N.D.	0.0002	0.005	1
10335	Methylene Chloride	75-09-2	N.D.	0.0002	0.001	1
10335	Styrene	100-42-5	N.D.	0.0002	0.005	1
10335	1,1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.0002	0.001	1
10335	Tetrachloroethene	127-18-4	N.D.	0.0002	0.001	1
10335	Toluene	108-88-3	N.D.	0.0002	0.001	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-3-W-180809 Grab Water
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749838
ELLE Group #: 1975691
Matrix: Water

Project Name: 306449

Submittal Date/Time: 08/11/2018 10:00
Collection Date/Time: 08/09/2018 09:59

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260B	mg/l	mg/l	mg/l	
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.0004	0.005	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.0002	0.001	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.0002	0.001	1
10335	Trichloroethene	79-01-6	N.D.	0.0002	0.001	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.0004	0.001	1
10335	Vinyl Chloride	75-01-4	N.D.	0.0004	0.001	1
10335	Xylene (Total)	1330-20-7	N.D.	0.0005	0.005	1

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	N.D.	0.014	0.10	1

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Petroleum Hydrocarbons		AK 102-SV 4/8/02	mg/l	mg/l	mg/l	
13222	C10--C25 DRO	n.a.	0.098 J	0.053	0.26	1
13222	C25-C36 RRO	n.a.	N.D.	0.085	0.26	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCL 4.3 VOCs	SW-846 8260B	1	E182341AA	08/22/2018 15:56	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E182341AA	08/22/2018 15:56	Linda C Pape	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18226D20A	08/15/2018 01:02	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	18226D20A	08/15/2018 01:02	Jeremy C Giffin	1
13222	AK 102/103-SV	AK 102-SV 4/8/02	1	182290053A	08/23/2018 14:26	Nicholas R Rossi	1
13225	Mini-Ext. AK 102/103SV,DRO/RRO	AK 102-SV 4/8/02	1	182290053A	08/20/2018 02:00	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-4-W-180809 Grab Water
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749839
ELLE Group #: 1975691
Matrix: Water

Project Name: 306449

Submission Date/Time: 08/11/2018 10:00

Collection Date/Time: 08/09/2018 09:17

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles			mg/l	mg/l	mg/l	
10335	Acetone	67-64-1	N.D.	0.0008	0.020	1
10335	Benzene	71-43-2	N.D.	0.0002	0.001	1
10335	Bromodichloromethane	75-27-4	N.D.	0.0002	0.001	1
10335	Bromoform	75-25-2	N.D.	0.002	0.005	1
10335	Bromomethane	74-83-9	N.D.	0.0005	0.001	1
10335	2-Butanone	78-93-3	N.D.	0.001	0.010	1
10335	Carbon Disulfide	75-15-0	N.D.	0.0003	0.005	1
10335	Carbon Tetrachloride	56-23-5	N.D.	0.0002	0.001	1
10335	Chlorobenzene	108-90-7	N.D.	0.0002	0.001	1
10335	Chloroethane	75-00-3	N.D.	0.0003	0.001	1
10335	Chloroform	67-66-3	0.002	0.0002	0.001	1
10335	Chloromethane	74-87-3	N.D.	0.0003	0.001	1
10335	Cyclohexane	110-82-7	N.D.	0.002	0.005	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.001	0.005	1
10335	Dibromochloromethane	124-48-1	N.D.	0.0004	0.001	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.0003	0.001	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	0.0002	0.005	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	0.0002	0.005	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	0.0002	0.005	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.0003	0.001	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.0002	0.001	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.002	0.005	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.0002	0.001	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.0002	0.001	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.0002	0.001	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.0002	0.001	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.0002	0.001	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.0002	0.001	1
10335	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10335	Freon 113	76-13-1	N.D.	0.002	0.010	1
10335	2-Hexanone	591-78-6	N.D.	0.003	0.010	1
10335	Isopropylbenzene	98-82-8	N.D.	0.0003	0.005	1
10335	Methyl Acetate	79-20-9	N.D.	0.0006	0.005	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0002	0.001	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	0.0005	0.010	1
10335	Methylcyclohexane	108-87-2	N.D.	0.0002	0.005	1
10335	Methylene Chloride	75-09-2	N.D.	0.0002	0.001	1
10335	Styrene	100-42-5	N.D.	0.0002	0.005	1
10335	1,1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.0002	0.001	1
10335	Tetrachloroethene	127-18-4	N.D.	0.0002	0.001	1
10335	Toluene	108-88-3	N.D.	0.0002	0.001	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-4-W-180809 Grab Water
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749839
ELLE Group #: 1975691
Matrix: Water

Project Name: 306449

Submittal Date/Time: 08/11/2018 10:00
Collection Date/Time: 08/09/2018 09:17

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260B	mg/l	mg/l	mg/l	
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.0004	0.005	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.0002	0.001	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.0002	0.001	1
10335	Trichloroethene	79-01-6	N.D.	0.0002	0.001	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.0004	0.001	1
10335	Vinyl Chloride	75-01-4	N.D.	0.0004	0.001	1
10335	Xylene (Total)	1330-20-7	N.D.	0.0005	0.005	1
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	N.D.	0.014	0.10	1
GC Petroleum Hydrocarbons		AK 102-SV 4/8/02	mg/l	mg/l	mg/l	
13222	C10--C25 DRO	n.a.	0.082 J	0.051	0.25	1
13222	C25-C36 RRO	n.a.	N.D.	0.082	0.25	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCL 4.3 VOCs	SW-846 8260B	1	E182341AA	08/22/2018 14:35	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E182341AA	08/22/2018 14:35	Linda C Pape	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18226D20A	08/15/2018 01:30	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	18226D20A	08/15/2018 01:30	Jeremy C Giffin	1
13222	AK 102/103-SV	AK 102-SV 4/8/02	1	182290053A	08/23/2018 14:54	Nicholas R Rossi	1
13225	Mini-Ext. AK 102/103SV,DRO/RRO	AK 102-SV 4/8/02	1	182290053A	08/20/2018 02:00	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-W-180809 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749840
ELLE Group #: 1975691
Matrix: Groundwater

Project Name: 306449

Submission Date/Time: 08/11/2018 10:00
Collection Date/Time: 08/09/2018

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles			mg/l	mg/l	mg/l	
10335	Acetone	67-64-1	N.D.	0.0008	0.020	1
10335	Benzene	71-43-2	N.D.	0.0002	0.001	1
10335	Bromodichloromethane	75-27-4	N.D.	0.0002	0.001	1
10335	Bromoform	75-25-2	N.D.	0.002	0.005	1
10335	Bromomethane	74-83-9	N.D.	0.0005	0.001	1
10335	2-Butanone	78-93-3	N.D.	0.001	0.010	1
10335	Carbon Disulfide	75-15-0	N.D.	0.0003	0.005	1
10335	Carbon Tetrachloride	56-23-5	N.D.	0.0002	0.001	1
10335	Chlorobenzene	108-90-7	N.D.	0.0002	0.001	1
10335	Chloroethane	75-00-3	N.D.	0.0003	0.001	1
10335	Chloroform	67-66-3	0.001	0.0002	0.001	1
10335	Chloromethane	74-87-3	N.D.	0.0003	0.001	1
10335	Cyclohexane	110-82-7	N.D.	0.002	0.005	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.001	0.005	1
10335	Dibromochloromethane	124-48-1	N.D.	0.0004	0.001	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.0003	0.001	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	0.0002	0.005	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	0.0002	0.005	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	0.0002	0.005	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.0003	0.001	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.0002	0.001	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.002	0.005	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.0002	0.001	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.0002	0.001	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.0002	0.001	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.0002	0.001	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.0002	0.001	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.0002	0.001	1
10335	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10335	Freon 113	76-13-1	N.D.	0.002	0.010	1
10335	2-Hexanone	591-78-6	N.D.	0.003	0.010	1
10335	Isopropylbenzene	98-82-8	N.D.	0.0003	0.005	1
10335	Methyl Acetate	79-20-9	N.D.	0.0006	0.005	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0002	0.001	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	0.0005	0.010	1
10335	Methylcyclohexane	108-87-2	N.D.	0.0002	0.005	1
10335	Methylene Chloride	75-09-2	N.D.	0.0002	0.001	1
10335	Styrene	100-42-5	N.D.	0.0002	0.005	1
10335	1,1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.0002	0.001	1
10335	Tetrachloroethene	127-18-4	N.D.	0.0002	0.001	1
10335	Toluene	108-88-3	N.D.	0.0002	0.001	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1-W-180809 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749840
ELLE Group #: 1975691
Matrix: Groundwater

Project Name: 306449

Submittal Date/Time: 08/11/2018 10:00
Collection Date/Time: 08/09/2018

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260B	mg/l	mg/l	mg/l	
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.0004	0.005	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.0002	0.001	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.0002	0.001	1
10335	Trichloroethene	79-01-6	N.D.	0.0002	0.001	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.0004	0.001	1
10335	Vinyl Chloride	75-01-4	N.D.	0.0004	0.001	1
10335	Xylene (Total)	1330-20-7	N.D.	0.0005	0.005	1
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	N.D.	0.014	0.10	1
GC Petroleum Hydrocarbons		AK 102-SV 4/8/02	mg/l	mg/l	mg/l	
13222	C10--C25 DRO	n.a.	1.7	0.052	0.26	1
13222	C25-C36 RRO	n.a.	1.0	0.085	0.26	1

The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken:

The sample was re-extracted outside the method required holding time and the LCS/LCSD is compliant. All results are reported from the first trial.

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCL 4.3 VOCs	SW-846 8260B	1	E182341AA	08/22/2018 14:55	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E182341AA	08/22/2018 14:55	Linda C Pape	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18226D20A	08/15/2018 01:58	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	18226D20A	08/15/2018 01:58	Jeremy C Giffin	1
13222	AK 102/103-SV	AK 102-SV 4/8/02	1	182290053A	08/23/2018 15:21	Nicholas R Rossi	1
13225	Mini-Ext. AK 102/103SV,DRO/RRO	AK 102-SV 4/8/02	1	182290053A	08/20/2018 02:00	Sherry L Morrow	1

*=This limit was used in the evaluation of the final result

Sample Description: QA-1-W-180809 Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749841
ELLE Group #: 1975691
Matrix: Groundwater

Project Name: 306449

Submission Date/Time: 08/11/2018 10:00
Collection Date/Time: 08/09/2018

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles			mg/l	mg/l	mg/l	
10335	Acetone	67-64-1	N.D.	0.0008	0.020	1
10335	Benzene	71-43-2	N.D.	0.0002	0.001	1
10335	Bromodichloromethane	75-27-4	N.D.	0.0002	0.001	1
10335	Bromoform	75-25-2	N.D.	0.002	0.005	1
10335	Bromomethane	74-83-9	N.D.	0.0005	0.001	1
10335	2-Butanone	78-93-3	N.D.	0.001	0.010	1
10335	Carbon Disulfide	75-15-0	N.D.	0.0003	0.005	1
10335	Carbon Tetrachloride	56-23-5	N.D.	0.0002	0.001	1
10335	Chlorobenzene	108-90-7	N.D.	0.0002	0.001	1
10335	Chloroethane	75-00-3	N.D.	0.0003	0.001	1
10335	Chloroform	67-66-3	N.D.	0.0002	0.001	1
10335	Chloromethane	74-87-3	N.D.	0.0003	0.001	1
10335	Cyclohexane	110-82-7	N.D.	0.002	0.005	1
10335	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	0.001	0.005	1
10335	Dibromochloromethane	124-48-1	N.D.	0.0005	0.001	1
10335	1,2-Dibromoethane	106-93-4	N.D.	0.0003	0.001	1
10335	1,2-Dichlorobenzene	95-50-1	N.D.	0.0002	0.005	1
10335	1,3-Dichlorobenzene	541-73-1	N.D.	0.0002	0.005	1
10335	1,4-Dichlorobenzene	106-46-7	N.D.	0.0002	0.005	1
10335	Dichlorodifluoromethane	75-71-8	N.D.	0.0003	0.001	1
10335	1,1-Dichloroethane	75-34-3	N.D.	0.0002	0.001	1
10335	1,2-Dichloroethane	107-06-2	N.D.	0.002	0.005	1
10335	1,1-Dichloroethene	75-35-4	N.D.	0.0002	0.001	1
10335	cis-1,2-Dichloroethene	156-59-2	N.D.	0.0002	0.001	1
10335	trans-1,2-Dichloroethene	156-60-5	N.D.	0.0002	0.001	1
10335	1,2-Dichloropropane	78-87-5	N.D.	0.0002	0.001	1
10335	cis-1,3-Dichloropropene	10061-01-5	N.D.	0.0002	0.001	1
10335	trans-1,3-Dichloropropene	10061-02-6	N.D.	0.0002	0.001	1
10335	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10335	Freon 113	76-13-1	N.D.	0.002	0.010	1
10335	2-Hexanone	591-78-6	N.D.	0.003	0.010	1
10335	Isopropylbenzene	98-82-8	N.D.	0.0003	0.005	1
10335	Methyl Acetate	79-20-9	N.D.	0.0006	0.005	1
10335	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.0002	0.001	1
10335	4-Methyl-2-pentanone	108-10-1	N.D.	0.0005	0.010	1
10335	Methylcyclohexane	108-87-2	N.D.	0.0002	0.005	1
10335	Methylene Chloride	75-09-2	N.D.	0.0002	0.001	1
10335	Styrene	100-42-5	N.D.	0.0002	0.005	1
10335	1,1,1,2,2-Tetrachloroethane	79-34-5	N.D.	0.0002	0.001	1
10335	Tetrachloroethene	127-18-4	N.D.	0.0002	0.001	1
10335	Toluene	108-88-3	N.D.	0.0002	0.001	1

*=This limit was used in the evaluation of the final result

Sample Description: QA-1-W-180809 Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9749841
ELLE Group #: 1975691
Matrix: Groundwater

Project Name: 306449

Submittal Date/Time: 08/11/2018 10:00
Collection Date/Time: 08/09/2018

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260B	mg/l	mg/l	mg/l	
10335	1,2,4-Trichlorobenzene	120-82-1	N.D.	0.0004	0.005	1
10335	1,1,1-Trichloroethane	71-55-6	N.D.	0.0002	0.001	1
10335	1,1,2-Trichloroethane	79-00-5	N.D.	0.0002	0.001	1
10335	Trichloroethene	79-01-6	N.D.	0.0002	0.001	1
10335	Trichlorofluoromethane	75-69-4	N.D.	0.0004	0.001	1
10335	Vinyl Chloride	75-01-4	N.D.	0.0004	0.001	1
10335	Xylene (Total)	1330-20-7	N.D.	0.0005	0.005	1
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	N.D.	0.014	0.10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCL 4.3 VOCs	SW-846 8260B	1	E182341AA	08/22/2018 09:11	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E182341AA	08/22/2018 09:11	Linda C Pape	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18226D20A	08/14/2018 23:11	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	18226D20A	08/14/2018 23:11	Jeremy C Giffin	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: ChevronTexaco
Reported: 09/06/2018 16:35

Group Number: 1975691

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Batch number: E182341AA	Sample number(s): 9749836-9749841		
Acetone	N.D.	0.0008	0.020
Benzene	N.D.	0.0002	0.001
Bromodichloromethane	N.D.	0.0002	0.001
Bromoform	N.D.	0.002	0.005
Bromomethane	N.D.	0.0005	0.001
2-Butanone	N.D.	0.001	0.010
Carbon Disulfide	N.D.	0.0003	0.005
Carbon Tetrachloride	N.D.	0.0002	0.001
Chlorobenzene	N.D.	0.0002	0.001
Chloroethane	N.D.	0.0003	0.001
Chloroform	N.D.	0.0002	0.001
Chloromethane	N.D.	0.0003	0.001
Cyclohexane	N.D.	0.002	0.005
1,2-Dibromo-3-chloropropane	N.D.	0.001	0.005
Dibromochloromethane	N.D.	0.0004	0.001
1,2-Dibromoethane	N.D.	0.0003	0.001
1,2-Dichlorobenzene	N.D.	0.0002	0.005
1,3-Dichlorobenzene	N.D.	0.0002	0.005
1,4-Dichlorobenzene	N.D.	0.0002	0.005
Dichlorodifluoromethane	N.D.	0.0003	0.001
1,1-Dichloroethane	N.D.	0.0002	0.001
1,2-Dichloroethane	N.D.	0.002	0.005
1,1-Dichloroethene	N.D.	0.0002	0.001
cis-1,2-Dichloroethene	N.D.	0.0002	0.001
trans-1,2-Dichloroethene	N.D.	0.0002	0.001
1,2-Dichloropropane	N.D.	0.0002	0.001
cis-1,3-Dichloropropene	N.D.	0.0002	0.001
trans-1,3-Dichloropropene	N.D.	0.0002	0.001
Ethylbenzene	N.D.	0.0002	0.001
Freon 113	N.D.	0.002	0.010
2-Hexanone	N.D.	0.003	0.010
Isopropylbenzene	N.D.	0.0003	0.005
Methyl Acetate	N.D.	0.0006	0.005
Methyl Tertiary Butyl Ether	N.D.	0.0002	0.001
4-Methyl-2-pentanone	N.D.	0.0005	0.010
Methylcyclohexane	N.D.	0.0002	0.005
Methylene Chloride	N.D.	0.0002	0.001
Styrene	N.D.	0.0002	0.005
1,1,1,2-Tetrachloroethane	N.D.	0.0002	0.001

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ChevronTexaco
Reported: 09/06/2018 16:35

Group Number: 1975691

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Tetrachloroethene	N.D.	0.0002	0.001
Toluene	N.D.	0.0002	0.001
1,2,4-Trichlorobenzene	N.D.	0.0004	0.005
1,1,1-Trichloroethane	N.D.	0.0002	0.001
1,1,2-Trichloroethane	N.D.	0.0002	0.001
Trichloroethene	N.D.	0.0002	0.001
Trichlorofluoromethane	N.D.	0.0004	0.001
Vinyl Chloride	N.D.	0.0004	0.001
Xylene (Total)	N.D.	0.0005	0.005
Batch number: 18226D20A	Sample number(s): 9749836-9749841		
TPH-GRO AK water C6-C10	N.D.	0.014	0.10
Batch number: 182290053A	Sample number(s): 9749836-9749840		
C10-<C25 DRO	N.D.	0.050	0.25
C25-C36 RRO	N.D.	0.081	0.25

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	mg/l	mg/l	mg/l	mg/l					
Batch number: E182341AA	Sample number(s): 9749836-9749841								
Acetone	0.150	0.163			109		54-157		
Benzene	0.0200	0.0201			101		80-120		
Bromodichloromethane	0.0200	0.0192			96		71-120		
Bromoform	0.0200	0.0175			88		51-120		
Bromomethane	0.0200	0.0151			76		53-128		
2-Butanone	0.150	0.122			82		59-135		
Carbon Disulfide	0.0200	0.0181			91		65-128		
Carbon Tetrachloride	0.0200	0.0209			104		64-134		
Chlorobenzene	0.0200	0.0203			101		80-120		
Chloroethane	0.0200	0.0167			83		55-123		
Chloroform	0.0200	0.0204			102		80-120		
Chloromethane	0.0200	0.0124			62		56-121		
Cyclohexane	0.0200	0.0193			97		68-126		
1,2-Dibromo-3-chloropropane	0.0200	0.0174			87		47-131		
Dibromochloromethane	0.0200	0.0189			95		71-120		
1,2-Dibromoethane	0.0200	0.0196			98		77-120		
1,2-Dichlorobenzene	0.0200	0.0203			101		80-120		
1,3-Dichlorobenzene	0.0200	0.0201			101		80-120		
1,4-Dichlorobenzene	0.0200	0.0200			100		80-120		
Dichlorodifluoromethane	0.0200	0.0130			65		41-127		

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ChevronTexaco
Reported: 09/06/2018 16:35

Group Number: 1975691

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1-Dichloroethane	0.0200	0.0203			101		80-120		
1,2-Dichloroethane	0.0200	0.0197			99		73-124		
1,1-Dichloroethene	0.0200	0.0226			113		80-131		
cis-1,2-Dichloroethene	0.0200	0.0211			106		80-120		
trans-1,2-Dichloroethene	0.0200	0.0211			105		80-120		
1,2-Dichloropropane	0.0200	0.0195			97		80-120		
cis-1,3-Dichloropropene	0.0200	0.0194			97		75-120		
trans-1,3-Dichloropropene	0.0200	0.0177			89		67-120		
Ethylbenzene	0.0200	0.0196			98		80-120		
Freon 113	0.0200	0.0209			105		73-139		
2-Hexanone	0.100	0.0801			80		56-135		
Isopropylbenzene	0.0200	0.0205			103		80-120		
Methyl Acetate	0.0200	0.0167			83		54-136		
Methyl Tertiary Butyl Ether	0.0200	0.0194			97		69-122		
4-Methyl-2-pentanone	0.100	0.0827			83		62-133		
Methylcyclohexane	0.0200	0.0205			103		67-121		
Methylene Chloride	0.0200	0.0197			99		80-120		
Styrene	0.0200	0.0203			101		80-120		
1,1,2,2-Tetrachloroethane	0.0200	0.0189			94		72-120		
Tetrachloroethene	0.0200	0.0213			107		80-120		
Toluene	0.0200	0.0194			97		80-120		
1,2,4-Trichlorobenzene	0.0200	0.0200			100		63-120		
1,1,1-Trichloroethane	0.0200	0.0185			93		67-126		
1,1,2-Trichloroethane	0.0200	0.0200			100		80-120		
Trichloroethene	0.0200	0.0205			102		80-120		
Trichlorofluoromethane	0.0200	0.0171			86		55-135		
Vinyl Chloride	0.0200	0.0158			79		56-120		
Xylene (Total)	0.0600	0.0607			101		80-120		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18226D20A	Sample number(s): 9749836-9749841								
TPH-GRO AK water C6-C10	1.10	1.25	1.10	1.27	114	115	60-120	1	20
	mg/l	mg/l	mg/l	mg/l					
Batch number: 182290053A	Sample number(s): 9749836-9749840								
C10-C25 DRO	1.00	0.939	1.00	0.933	94	93	75-125	1	20
C25-C36 RRO	1.80	2.35	1.80	2.38	131*	132*	60-120	1	20

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ChevronTexaco
Reported: 09/06/2018 16:35

Group Number: 1975691

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TCL 4.3 VOCs
Batch number: E182341AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9749836	100	101	100	94
9749837	100	101	100	95
9749838	101	99	98	94
9749839	100	106	99	95
9749840	100	103	99	94
9749841	104	103	90	98
Blank	103	100	95	97
LCS	102	106	97	98
Limits:	80-120	80-120	80-120	80-120

Analysis Name: TPH-GRO AK water C6-C10
Batch number: 18226D20A

	Trifluorotoluene-F
9749836	77
9749837	95
9749838	94
9749839	94
9749840	94
9749841	91
Blank	91
LCS	93
LCSD	109
Limits:	60-120

Analysis Name: AK 102/103-SV
Batch number: 182290053A

	Orthoterphenyl	n-Triacontane-d62
9749836	80	87
9749837	60	96
9749838	81	80
9749839	74	64
9749840	61	97
Limits:	50-150	50-150
	Orthoterphenyl	n-Triacontane-d62
Blank	89	89
LCS	90	82

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ChevronTexaco
Reported: 09/06/2018 16:35

Group Number: 1975691

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: AK 102/103-SV

Batch number: 182290053A

	Orthoterphenyl	n-Triacontane-d62
LCSD	89	94
Limits:	60-120	60-120

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.



Client: Chevron c/o GHD

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>08/11/2018 10:00</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	HCI
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Nicole Reiff (25 684) at 12:05 on 08/11/2018

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	DT146	1.2	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

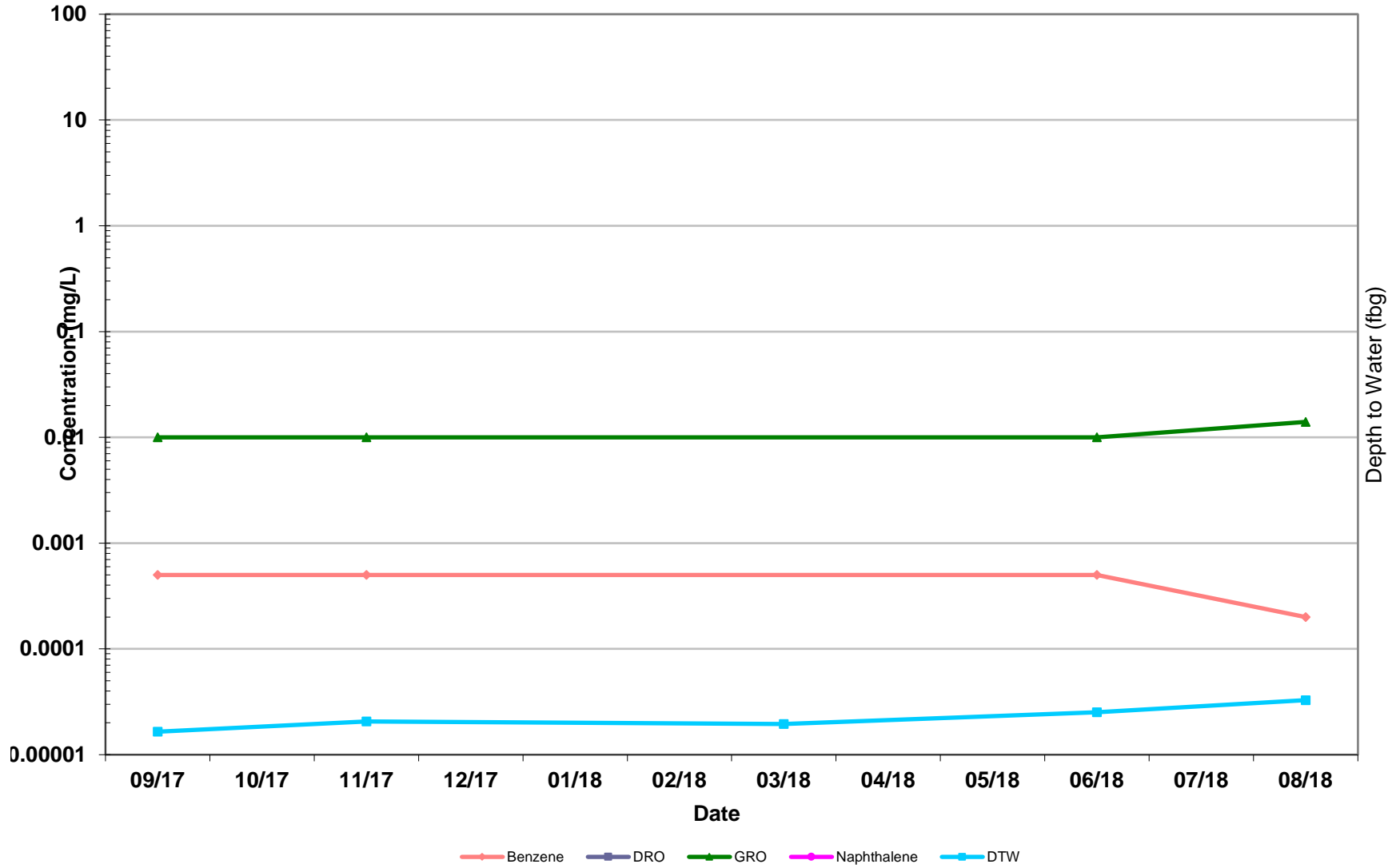
Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Appendix E

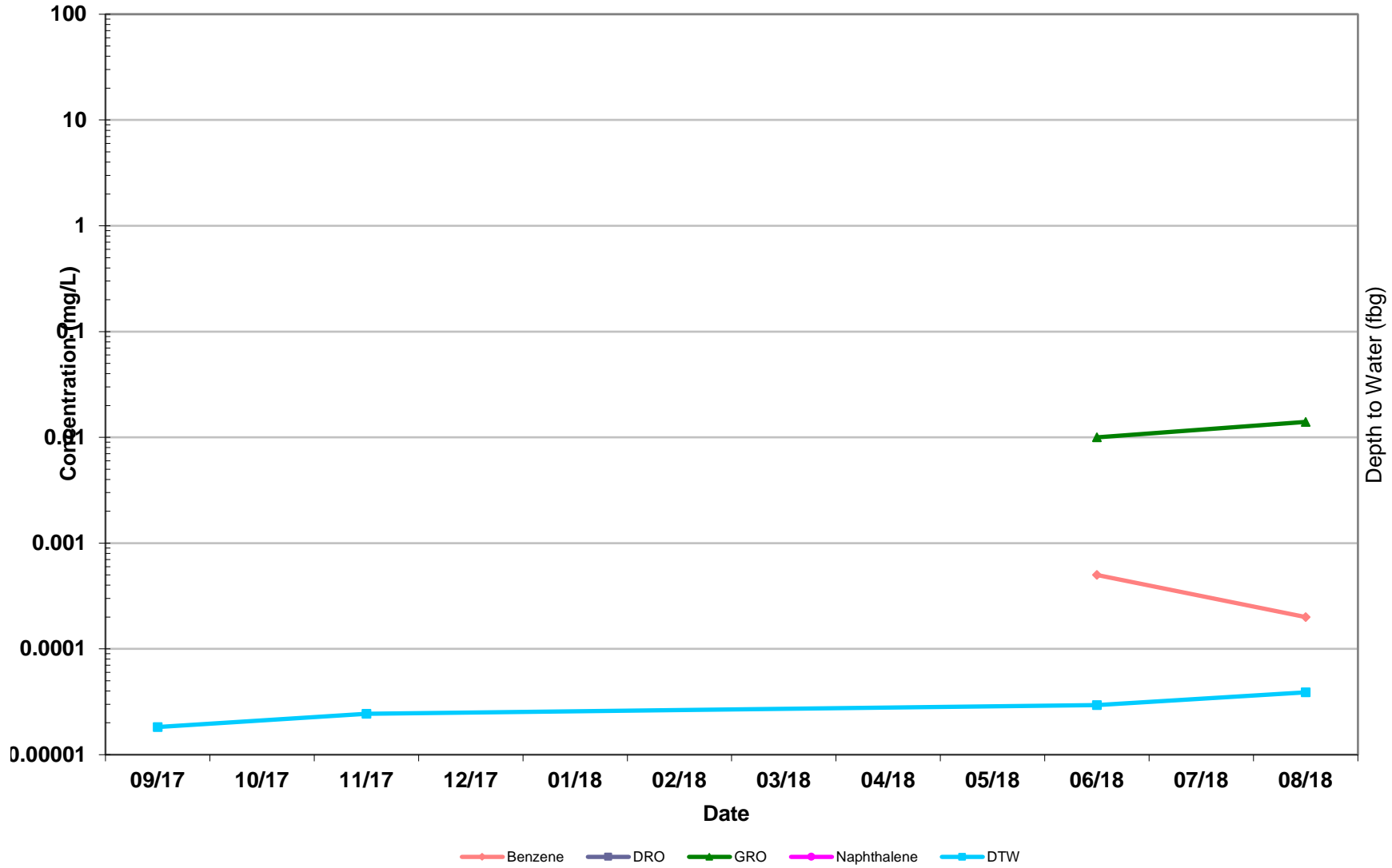
Petroleum Hydrocarbon Concentration Graphs

MW-1



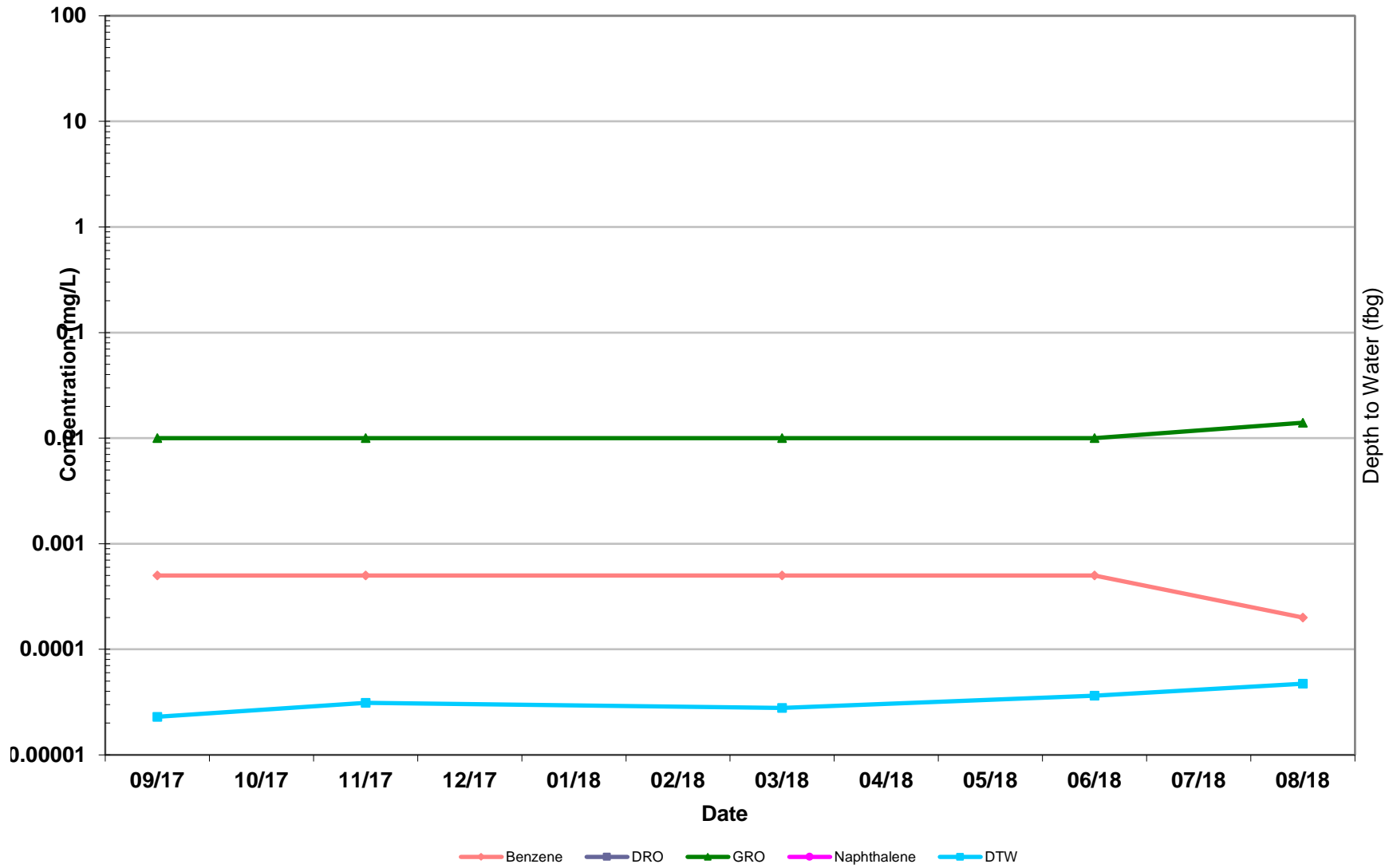
Former UNOCAL Service Station 4854/Chevron 306449
2730 Spenard Road
Anchorage, Alaska

MW-2



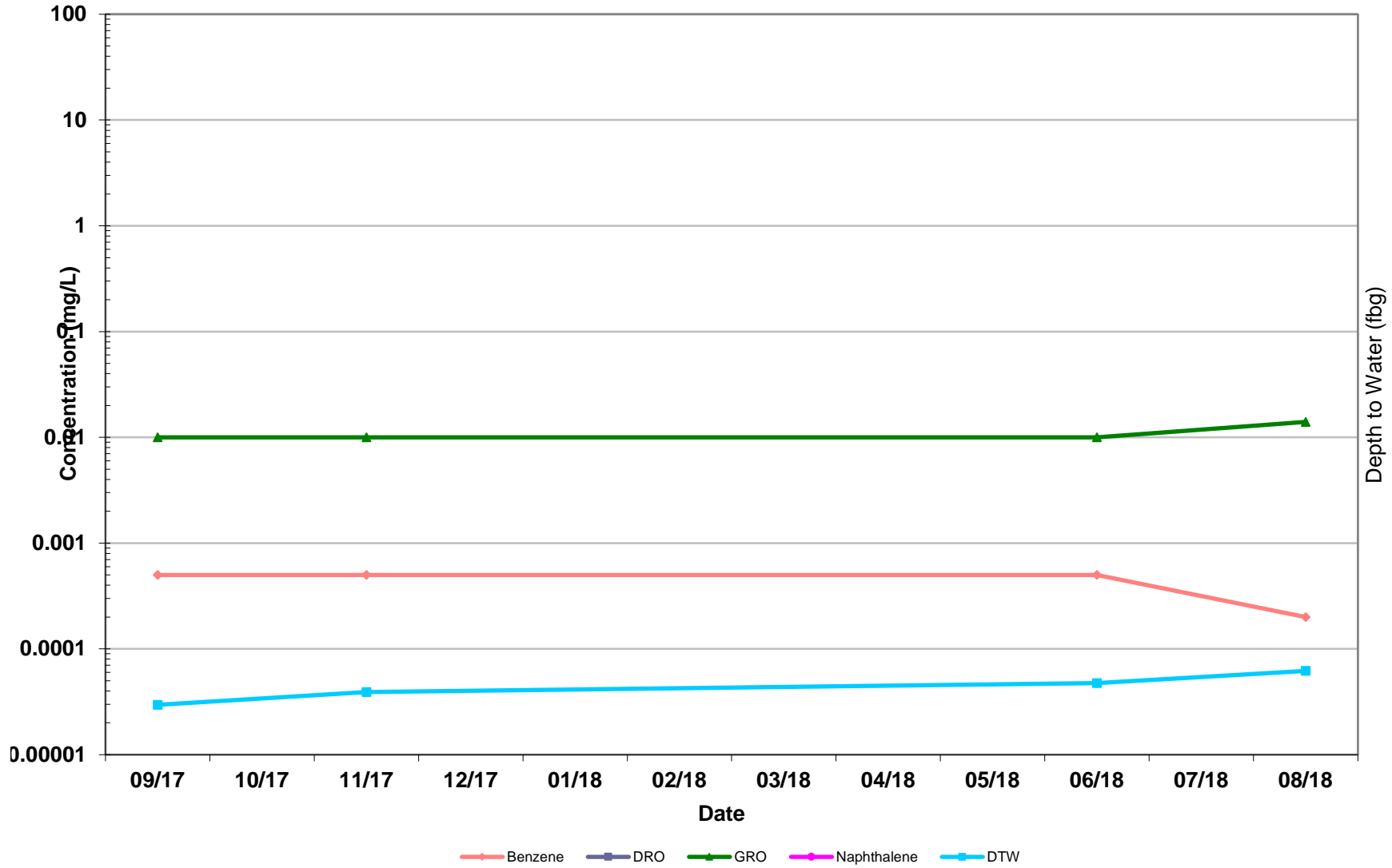
Former UNOCAL Service Station 4854/Chevron 306449
2730 Spenard Road
Anchorage, Alaska

MW-3



Former UNOCAL Service Station 4854/Chevron 306449
2730 Spenard Road
Anchorage, Alaska

MW-4



Former UNOCAL Service Station 4854/Chevron 306449
2730 Spenard Road
Anchorage, Alaska

Appendix F

ADEC Laboratory Data Review Checklist and Memorandum

Laboratory Data Review Checklist

Completed by:

J Cloud

Title:

Project Chemist

Date:

September 26, 2018

CS Report Name:

Third Quarter 2018
Groundwater Monitoring
Report

Report Date:

September 06, 2018

Consultant Firm:

GHD Services Inc.

Laboratory Name:

Eurofins Lancaster Laboratories Environmental

Laboratory Report Number:

1975691

ADEC File Number:

2100.26.116

Hazard Identification Number:

23370

1. Laboratory

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

Yes No Comments:

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No Comments:

Samples not transferred

2. Chain of Custody (COC)

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

Yes No Comments:

b. Correct analyses requested?

Yes No Comments:

3. Laboratory Sample Receipt Documentation

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

Yes No Comments:

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

Yes No Comments:

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

Yes No Comments:

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 Comments:

No discrepancies

e. Data quality or usability affected?

Comments:

None

4. Case Narrative

a. Present and understandable?

Yes No

Comments:

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

Yes No

Comments:

c. Were all corrective actions documented?

Yes No

Comments:

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

Comments:

None

5. Samples Results

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

Yes No

Comments:

b. All applicable holding times met?

Yes No

Comments:

c. All soils reported on a dry weight basis?

Yes No

Comments:

No soils

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

Yes No

Comments:

e. Data quality or usability affected?

Comments:

None

6. QC Samples

a. Method Blank

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

Yes No

Comments:

ii. All method blank results less than limit of quantitation (LOQ)?

Yes No

Comments:

iii. If above LOQ, what samples are affected?

Comments:

No affected samples

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

Yes No

Comments:

No affected samples

v. Data quality or usability affected?

Comments:

None

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

Comments:

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

Yes No

Comments:

No metals/inorganics

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

Yes No Comments:

The method AK102/103 LCS/LCSD set had two high RRO recoveries

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

Yes No Comments:

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

Comments:

MW-2 and DUP-1

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

Yes No Comments:

vii. Data quality or usability affected?

Comments:

The RRO results for samples MW-2 and DUP-1 were qualified as estimated due to the implied high bias

c. Surrogates – Organics Only

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

Yes No Comments:

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

Yes No Comments:

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

Yes No Comments:

No failed surrogates

iv. Data quality or usability affected?

Comments:

None

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

i. One trip blank reported per matrix, analysis and cooler?

Yes No

Comments:

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

Yes No

Comments:

iii. All results less than LOQ?

Yes No

Comments:

iv. If above LOQ, what samples are affected?

Comments:

No affected samples

v. Data quality or usability affected?

Comments:

None

e. Field Duplicate

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

Yes No

Comments:

ii. Submitted blind to lab?

Yes No

Comments:

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

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

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

Yes No Comments:

- iv. Data quality or usability affected?

Comments:

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

Yes No Not Applicable

- i. All results less than LOQ?

Yes No Comments:

- ii. If above LOQ, what samples are affected?

Comments:

- iii. Data quality or usability affected?

Comments:

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

- a. Defined and appropriate?

Yes No Comments:



Memorandum

October 3, 2018

To: ADEC Ref. No.: 082676

From: Jeffrey Cloud  Tel: 206-914-3141

cc: Siobhan Pritchard

**Subject: QA/QC Review
ChevronTexaco Site 306449
Job # 1975691
August 2018**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in Anchorage, Alaska during August 2018. Samples were submitted to Eurofins Lancaster Laboratories Environmental, located in Lancaster, Pennsylvania.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody form, finished report forms, method blank data, recovery data from surrogate spikes, laboratory control samples and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods and applicable guidance from the document entitled "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review", USEPA 540-R-08-01, June 2008 subsequently referred to as the "Guidelines" in this Memorandum.

2. Sample Holding Time and Preservation

The sample holding time criteria and sample preservation requirements for the analyses are summarized in the methods. The sample chain of custody document and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice and stored by the laboratory at the required temperature (0-6°C).



3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation.

4. Surrogate Spike Recoveries

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for volatile organic compound (VOC), gasoline range organics (GRO) and diesel range organics (DRO)/residual range organics (RRO) analysis were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

Surrogate recoveries were assessed against the control limits. All surrogate recoveries met the associated criteria.

5. Laboratory Control Sample Analyses

Laboratory control samples (LCS)/laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS or LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS and LCS/LCSD contained all analytes of interest. All LCS and LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision (where applicable) with the exception of two high RRO recoveries. The RRO results for samples MW-2 and DUP-1 were qualified as estimated due to the implied high bias.

6. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample and one field duplicate sample set.



Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for analysis. All results were non-detect for the analytes of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory. The RPDs associated with the duplicate sample must be less than 50 percent. If the reported concentration in both the investigative sample and its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

7. Analyte Reporting

Non-detect data were reported down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were reported as estimated (J).

8. Conclusion

Based on the assessment detailed in the foregoing, the summarized data are acceptable with the specific qualifications noted herein.