



Transmittal

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Alaska Department of Environmental Conservation (ADEC)
555 Cordova Street
Anchorage, Alaska 95501

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1	Fourth Quarter 2018 Groundwater Monitoring Report	Report 8	

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Remarks:

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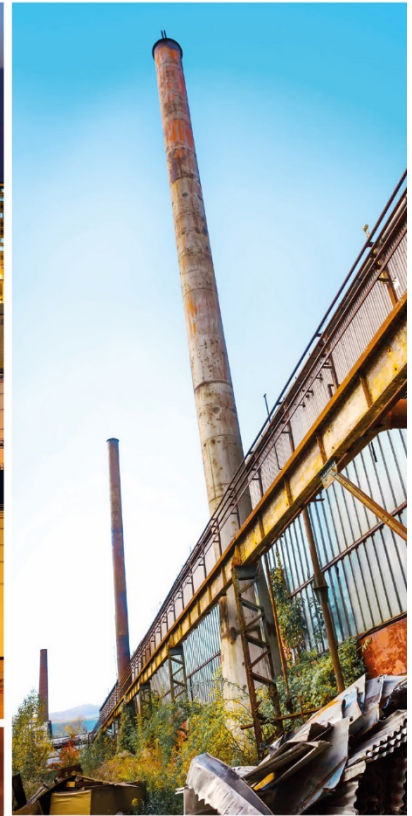
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Fourth Quarter 2018 Groundwater Monitoring Report

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

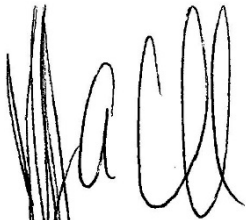
Chevron Environmental
Management Company






Fourth Quarter 2018 Groundwater Monitoring Report


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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 *Fourth 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*. The project objective is 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 and has since been decommissioned.

The site is currently an active parking lot for two retail businesses. Site photographs are presented in 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 16.21 and 18.41 feet below top of casing (ft btoc) since September 2017. Static groundwater depths ranged from 16.21 (MW-4) to 16.91 ft btoc (MW-2) on October 22, 2018. Groundwater flow was to the southeast with a gradient of 0.01 (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 in 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 October 22, 2018, GHD gauged and sampled groundwater monitoring wells MW-1, MW-2, MW-3, and MW-4. GHD’s 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, and 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 5.45 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

No GRO or benzene were detected above ADEC Table C Groundwater Cleanup Levels in any sample collected. Monitoring well MW-2 contained the highest concentration of DRO at 2.9 milligrams per liter (mg/L) (MW-2 duplicate sample at 3.2 mg/L) and RRO at 2.1 mg/L (MW-2 duplicate sample at 2.3 mg/L). Current groundwater analytical data are presented in Table 1 and on Figure 2. Historical groundwater analytical data are presented in Table 2. The laboratory analytical

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

Based on the quality assurance/quality control review, the data submitted were judged to be acceptable for use with the qualifications noted. The ADEC Laboratory Data Review Checklist and memorandum are presented in Appendix F.

4. Conclusions and Recommendations

Higher RRO and DRO concentrations reported in wells MW-1 and MW-2 are likely due to the shallower depth the water measured. No COPCs were detected above cleanup levels in wells MW-1, MW-3 or MW-4. GHD recommends sampling reduction to semiannual in 2019 as COPC concentrations are stable and seasonal fluctuations in groundwater have been established.



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

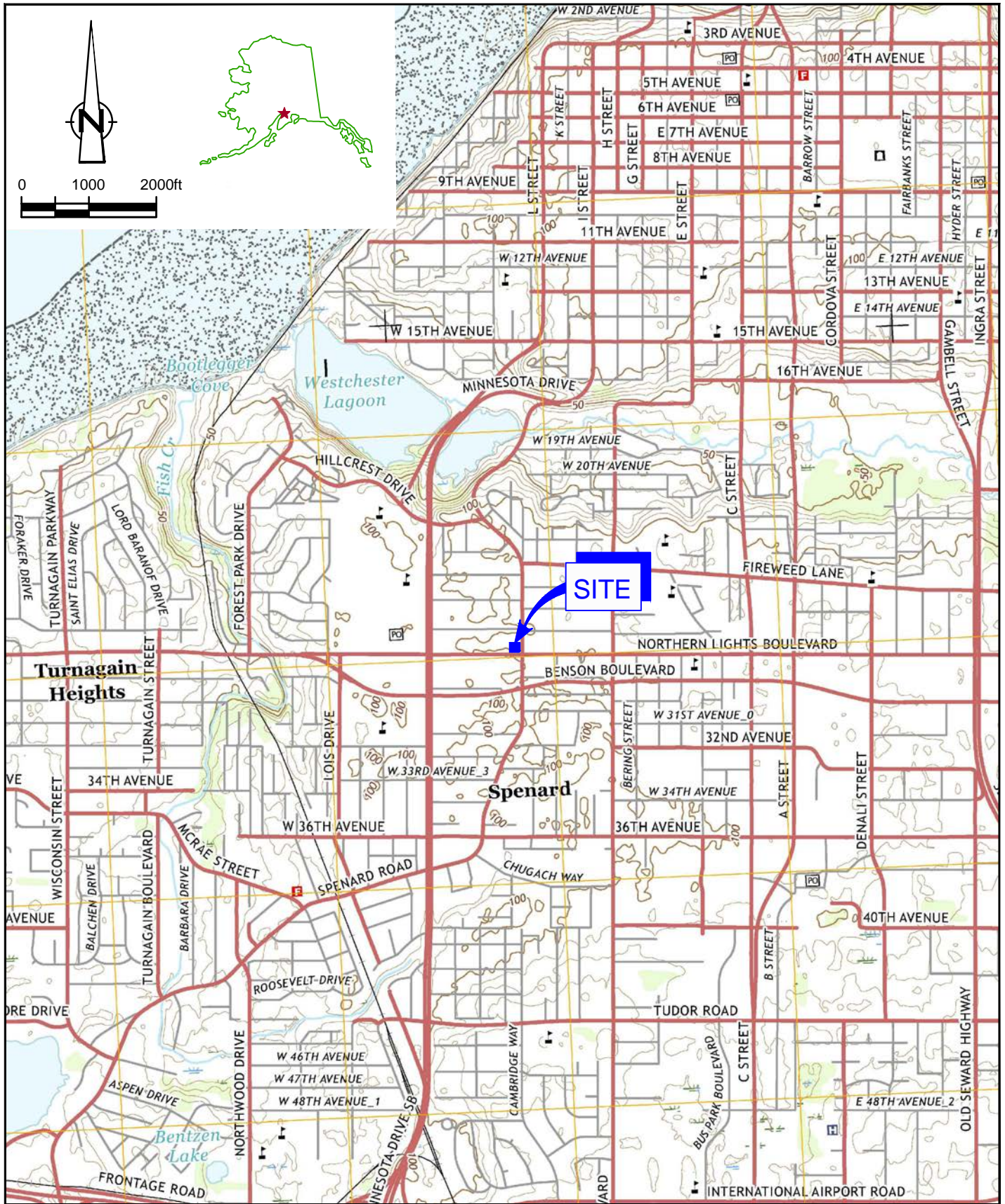
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Figures



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



FORMER UNOCAL SERVICE STATION 4854
 2730 SPENARD ROAD
 ANCHORAGE, ALASKA

82676-940418

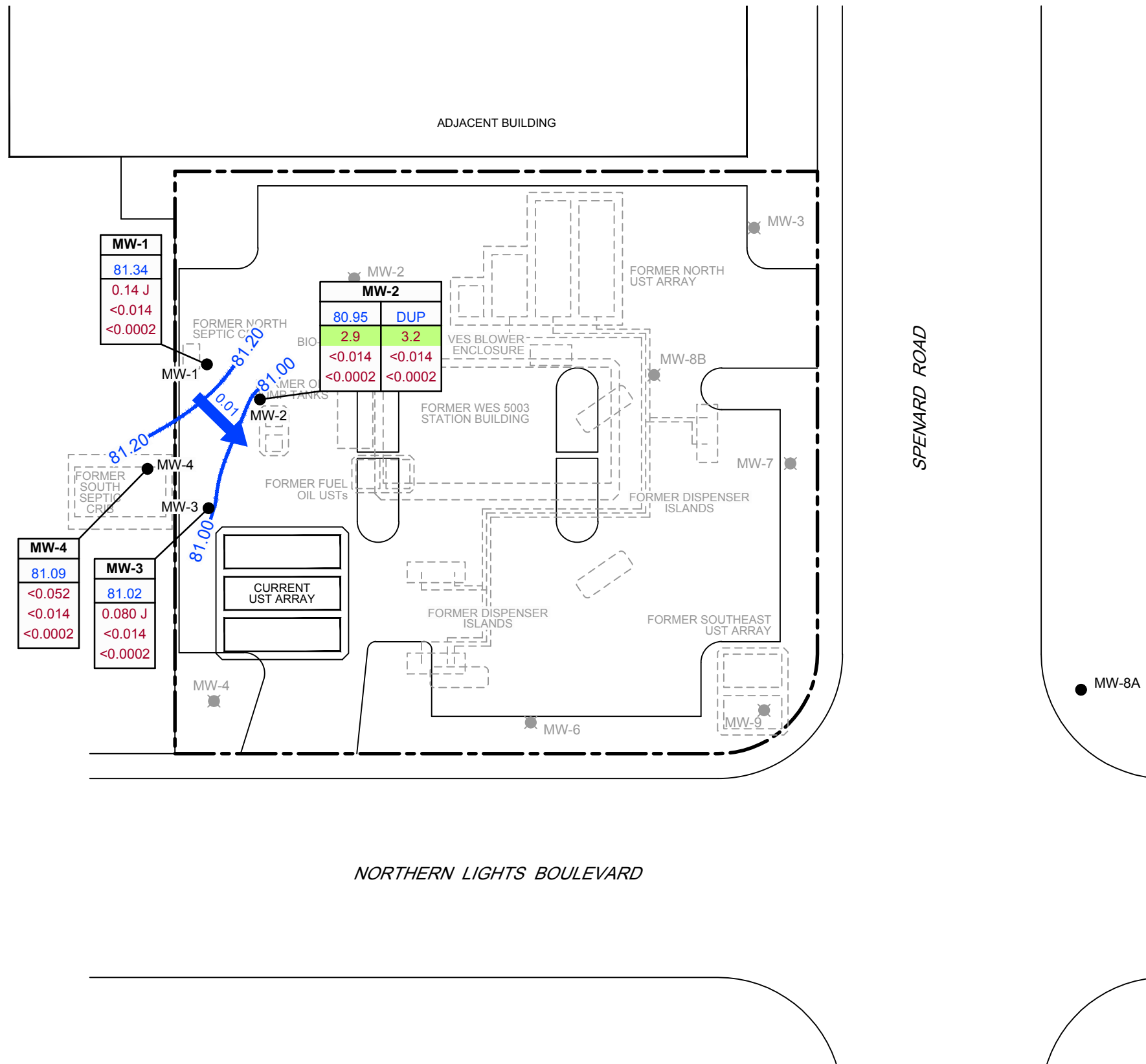
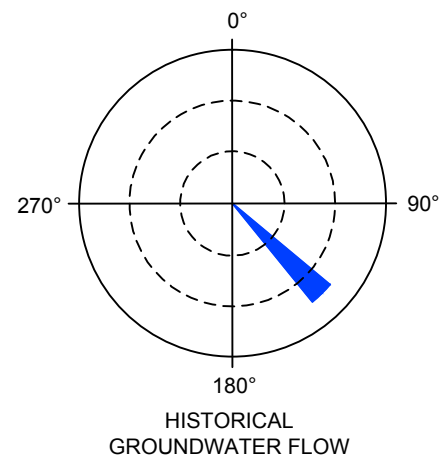
Nov 28, 2018

VICINITY MAP

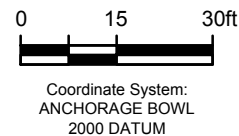
FIGURE 1

- LEGEND**
- MONITORING WELL LOCATION
 - DESTROYED WELL LOCATION
 - 81.20 — GROUNDWATER ELEVATION CONTOUR, IN FEET ABOVE MEAN SEA LEVEL (FT MSL), DASHED WHERE INFERRED
 - ← 0.01 — GROUNDWATER FLOW DIRECTION AND GRADIENT
- | MW-3 | |
|---------|--------------------------------|
| 81.02 | GROUNDWATER ELEVATION (FT MSL) |
| 0.080 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
 - DUP DUPLICATE SAMPLE

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 - OCTOBER 22, 2018

82676-940418
Dec 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	10/22/2018	98.09	16.75	81.34	0.14 J	<0.014	0.22 J	<0.0002	<0.0002	<0.0002	<0.0005
MW-2	10/22/2018	97.86	16.91	80.95	2.9 / 3.2	<0.014 / <0.014	2.1 / 2.3	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0005 / <0.0005
MW-3	10/22/2018	97.53	16.51	81.02	0.080 J	<0.014	<0.083	<0.0002	<0.0002	<0.0002	<0.0005
MW-4	10/22/2018	97.30	16.21	81.09	<0.052	<0.014	<0.084	<0.0002	<0.0002	<0.0002	<0.0005
QA-T	10/22/2018	--	--	--	--	<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 msl 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-1	10/22/2018	98.09	16.75	--	--	81.34	0.14 J	<0.014	0.22 J	<0.0002	<0.0002	<0.0002	<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-2	10/22/2018	97.86	16.91	--	--	80.95	2.9 / 3.2	<0.014 / <0.014	2.1 / 2.3	<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-3	10/22/2018	97.53	16.51	--	--	81.02	0.080 J	<0.014	<0.083	<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
MW-4	10/22/2018	97.30	16.21	--	--	81.09	<0.052	<0.014	<0.084	<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
QA-T	10/22/2018	--	--	--	--	--	--	<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.

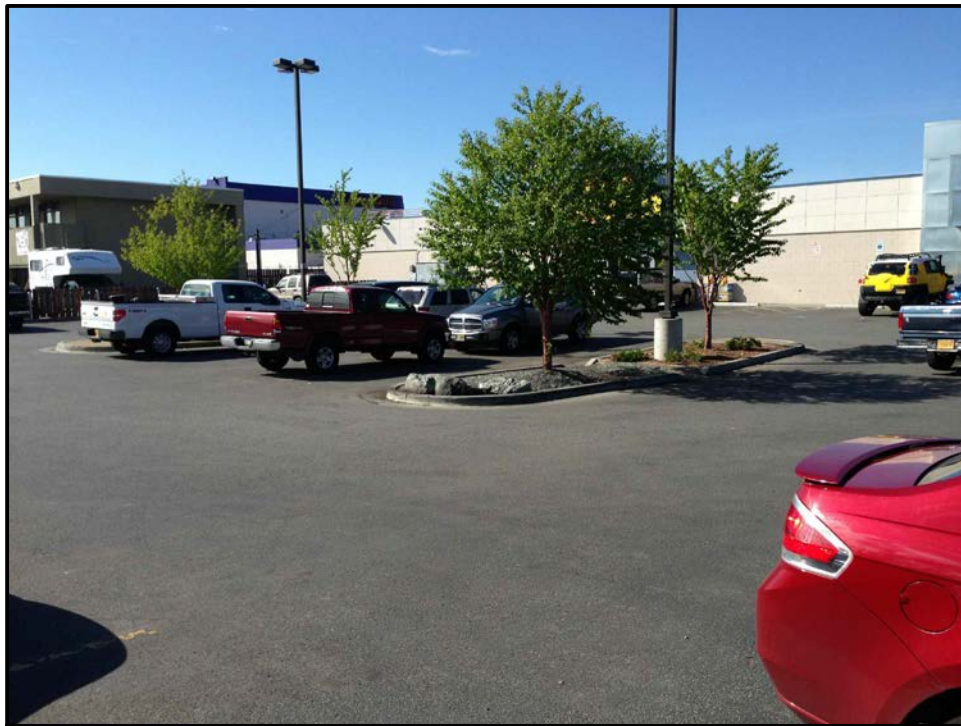


PHOTO 2 - VIEW OF SITE FACING NORTHWEST.



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: CEMC 306448	GHD Project Manager: S. PRITCHARD	Field Rep: O. YAN/T. WEAVER
Project Number: 621048	Date: 10/22/18	Site Address: 2730 SPENARD RD. ANCHORAGE, AK
Scope of Work: PERFORM GW MONITORING/SAMPLING → GAGE WELLS → COLLECT GW SAMPLES		Weather: SUNNY - LOW 50s.
Equipment: YSI-55 (11100450); TURBIDITY METER (20106168); MP-50; INTERFACE PROM (200814)		+ WATER LEVEL METER (06784)

Time	Activity/Comments	SWA
0831	DRIVE BY 49324 TO CONFIRM SYSTEM RUNNING	
0840	PICK UP SUPPLIES @ TTT; HEAD TO SITE	
0900	ARRIVE ON SITE → NOTIFY PM; PERFORM SAFETY TAILGATE	
0924	START GAC'ING WELLS; START GETTING UP AROUND WELL MW-4;	
0942	START LF-PURGE SAMPLING @ MW-4; COLLECT GW PARAMETER READINGS	
1018	COLLECT MW-4-W-181022 GW SAMPLE; DECON EQUIPMENT; PURGE <u>0.90 GAL</u> THROUGH GAC	
1022	SET UP @ WELL MW-3	
1024	START LF PURGE SAMPLING OF WELL MW-3; COLLECT GW PARAMETER READINGS.	
1055	COLLECT SAMPLE MW-3-W-181022; DECON EQUIPMENT; PURGE <u>0.80 GAL</u> THROUGH GAC	
1102	SET UP ON WELL MW-1	
1107	START LF PURGE SAMPLING OF WELL MW-1; COLLECT GW PARAMETER READINGS.	
1138	COLLECT MW-1-W-181022 GW SAMPLE; PURGE <u>0.75 GAL</u> THROUGH GAC; DECON EQUIPMENT	
1144	BREAK FOR LUNCH	
1200	SET UP ON WELL MW-2	
1204	START LF PURGE SAMPLING; COLLECT GW PARAMETER DATA;	
1236	COLLECT MW-2-W-181022/DUP-1-W-181022 GW SAMPLES; DECON EQUIPMENT; PURGE <u>1.0 GAL</u> THROUGH GAC	
1250	PACK SAMPLES; SITE CLEAN-UP; PURGE <u>2.0 GAL</u> OF DECON WATER THROUGH GAC.	
1305	HEAD TO PEREX	
1315	HEAD TO TTT TO DROP OFF EQUIPMENT RENTALS	
1335	BACK @ OFFICE; OFFLOAD EQUIPMENT	
	TOTAL PURGED THROUGH GAC = 5.45 GAL	

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 Monitoring Field Sheet

Project Name: 306449 (ADEC File ID: 2100.26.116)
Field Staff: O. Yan / T. Weaver

Project Number: 082676
Date: OCTOBER 22, 2018

Well ID	Time	DTW (ft - btoc)	DTB (ft-btoc)	DTP (ft-btoc)	Product Thickness (feet)	Amount of Product Removed (feet)	Casing Diameter (inches)	PID (ppm)	Comments
MW-1	936	16.75	24.71	--	--	--	2"	--	
MW-2	933	16.91	24.60	--	--	--	2"	--	
MW-3	929	16.51	24.59	--	--	--	2"	--	
MW-4	924	16.21	24.61	--	--	--	2"	--	

Purge Groundwater Volume (stored in 55-gallon drum): 5.45 gallons Volume logged on Disposal Log?

DTP - depth to product; DTW - depth to water; DTB - depth to bottom; ft-btoc - feet below top of casing; ppm - parts per million



Groundwater Sampling Form

Project No. 082676 PM Siobhan Pritchard Well ID MW-1 Date 10/22/18 Page 1 of 4

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

Screen 10-25 Casing 2" 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) 16.75 Total Depth (ft-btoc) 24.71 Water Column / Gallons in Well 7.96 / 1.274

Sample ID MW-1-W-181028

Dup ID —

Sample Time 1130 Start — End —

No-Purge Method Sampler Length (in) <u>36</u> <input type="checkbox"/> Depth of Screen <u>—</u> Weights <u>—</u> <input type="checkbox"/> 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 <u>Bladder</u> <input checked="" type="checkbox"/> Other <input type="checkbox"/> Flow rate (ml/minute) <u>60 - 135</u> Did well Dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				Pump Intake (ft-btoc) <u>17.40</u> Volumes Purged <u>0.75 GAL</u> Purge Time: Start <u>1107</u> End <u>1137</u>			
---	--	--	--	---	--	--	--	---	--	--	--

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
1112	5	60	16.75	0.10	9.30	0.373	5.98	6.30	222.3	72.01	CLEAR
1117	10	135	16.84	0.20	9.64	0.398	5.47	6.21	221.4	48.33	" "
1122	15	115	16.88	0.35	9.93	0.417	5.29	6.18	218.6	18.23	" "
1127	20	115	16.88	0.50	10.06	0.426	5.30	6.19	217.4	12.52	" "
1132	25	115	16.88	0.60	10.14	0.429	5.14	6.20	216.6	6.19	" "

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-DGA by 8260B <input checked="" type="checkbox"/> once in 2018	should be included in Full Scan VOC		
		Total: 8	

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

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

Well Information
 Well Location: ONSITE - STORE 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-2 Date 10/22/18 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) 16.91 Total Depth (ft-btoc) 29.60 Water Column / Gallons in Well 7.69 / 1.230

Sample ID MW-2-W-181022
 Dup ID PUP-1-W-181022
 Sample Time 1236 Start _____ End _____

No-Purge Method
 Sampler Length (in) 36 Depth of Screen 30
Low-Flow Sampling
 Weights _____ Position _____ Suspended
 Bottom Bottom set
 Yes No

Low Flow Method
 Pump type Bladder Other
 Pump Intake (ft-btoc) 17.50
 Volumes Purged 1.0 GAL
 Flow rate (ml/minute) 125-155 Purge Time: Start 1204
 Did well Dewater? Yes No End 1234

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
1209	5	155	16.78	0.10	9.99	0.364	2.27	6.28	211.5	121.0	CLEAR
1214	10	125	16.78	0.25	10.18	0.369	1.89	6.23	213.4	60.11	" "
1219	15	125	16.78	0.45	10.27	0.372	1.98	6.23	212.4	38.05	" "
1224	20	125	16.78	0.60	10.31	0.374	2.08	6.24	211.1	24.91	" "
1229	25	125	16.78	0.80	10.36	0.371	2.27	6.26	209.4	10.22	" "

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 8/8

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
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Well Information

Well Location: ONSITE 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 10/22/18 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 Sampled by T. Weaver
 Setting (ft-btoc) 10-25 Diameter (in.) 2" SS O. Yan

Static Water Level (ft-btoc) 16.51 Total Depth (ft-btoc) 21.51 Water Column / Gallons in Well 8.08 / 1.293

Sample ID MW-3-W-181022

Dup ID —

Sample Time 1055 Start — End —

No-Purge Method Sampler Length (in) <u>36</u> <input type="checkbox"/> Depth of Screen <u>30</u> <input type="checkbox"/> Low-Flow Sampling Weights <u>Bottom</u> <input type="checkbox"/> Position <u>—</u> Suspended <input type="checkbox"/> Bottom set <input type="checkbox"/> Did well Dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				Low Flow Method Pump type Bladder <input checked="" type="checkbox"/> Other <input type="checkbox"/> Pump Intake (ft-btoc) <u>17.10</u> Volumes Purged <u>0.80 GAL</u> Flow rate (ml/minute) <u>120</u> Purge Time: Start <u>1027</u> End <u>1054</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
1027	5	120	16.51	0.05	9.49	0.408	4.94	6.09	235.7	78.00	CLEAR
1034	10	120	16.51	0.15	9.74	0.412	4.85	6.19	231.5	69.95	" "
1039	15	120	16.51	0.30	9.97	0.424	4.71	6.32	225.7	25.41	" "
1044	20	120	16.51	0.45	10.04	0.434	4.73	6.34	225.2	20.49	" "
1049	25	120	16.51	0.60	10.03	0.439	4.76	6.35	225.3	13.52	" "

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	1 ✓	
1,2-DCA by 8260B <input checked="" type="checkbox"/> - once in 2018	should be included in Full Scan VOC		

TOTAL: 8

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	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: ONITE Well Locked at Arrival: Yes / No

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

Well Completion: Flush Mount / Stick Up

Additional Notes

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Groundwater Sampling Form

Project No. 082676 PM Siobhan Pritchard Well ID MW-4 Date 10/22/18 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) 16.21 Total Depth (ft-btoc) 24.6 Water Column / Gallons in Well 8.4 / 1.344

Sample ID MW-4-W-181022

Dup ID

Sample Time 1010 Start End

No-Purge Method		Low Flow Method	
Sampler Length (in) 36 <input type="checkbox"/>	Depth of Screen 30 <input type="checkbox"/>	Pump type Bladder <input checked="" type="checkbox"/>	Pump Intake (ft-btoc) 16.80
Low-Flow Sampling		Other <input type="checkbox"/>	Volumes Purged 0.90 GAL
Weights <input type="checkbox"/>	Position Suspended <input type="checkbox"/>	Flow rate (ml/minute) 105 - 130	Purge Time: Start 9:12
Bottom <input type="checkbox"/>	Bottom set <input type="checkbox"/>	Did well Dewater? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	End 10:17
W/ Screen/Baler used to collect non volatile samples 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
0947	5	130	16.21	0.10	10.21	0.503	8.28	4.57	234.0	96.65	CLEAR
0952	10	105	16.21	0.25	10.22	0.465	5.58	5.34	230.0	69.60	" "
0957	15	105	16.21	0.40	10.14	0.470	5.25	5.62	281.4	57.33	" "
1002	20	105	16.21	0.55	10.03	0.476	5.28	5.82	231.3	42.70	" "
1007	25	105	16.21	0.70	10.02	0.483	5.37	5.92	231.2	33.09	" "

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-DGA by 8260B <input checked="" type="checkbox"/>	once in 2018 should be included in Full Scan VOC		

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: OFFSITE Well Locked at Arrival: Yes No
Condition of Well: GOOD Well Locked at Departure: Yes / No
Well Completion: Flush Mount / Stick Up

Additional Notes



Portable GAC Volume Tracking Log

Site ID	Project No.	Date	Volume Filtered through GAC (gallons)	Filter location description
92609	620911	6/11/18	6.35 GAL	CENTER OF SITE IN THE VICINITY OF MW-3/MW-9 PLANTER AREA
92609	620911	6/12/18	4.35 GAL	" "
95414	062327	6/18/18	5.10 GAL	PURGED THROUGH PLANTER NEAR MW-3/MW-2- AT CENTER OF SITE
95414	062327	6/19/18	6.30 GAL	PLANTER UPGRADIENT OF MW-10, PLANTER/SIDE OF SITE, EAST OF MW-5.
351860	065008	6/19/18	5.50 GAL	PLANTER WESTERN SIDE OF SITE.
351860	065009	6/20/18	6.10 GAL	SOUTH WEST SIDE OF SITE.
211078	622233	7/12/18	4.20 GAL	CENTER OF SITE
95414	062327	08/08/18	4.10 GAL	PURGE WATER THROUGH GAC AT PLANTER AREA BETWEEN CHEVON/ARCTIC ROAD RUNNING
95414	062327	08/08/18	3.40 GAL	↓
306447	082676	08/09/18	4.40 GAL	PLANTER BETWEEN SITE (UP GRADIENT).
211081	062324	08/20/18	0.9 GAL	PLANTER NE OF STATION
211079	065003	08/20/18	5.15 GAL	FENCED AREA BEHIND MARKET
211083	065004	08/21/18	12.1 GAL	GRASS SW OF ALSTATE
211079	065003	9/22/18	4.2 GAL	FENCED AREA BEHIND MARKET
91518	062325	9/28/18	6.1 GAL	PLANTER SOUTH OF WENDY'S
90430	065001	8/29/18	8.1 GAL	CENTER OF THE SITE (BETWEEN MW-7/MW-5K)
92555	062326	8/30/18	6.7 GAL	PLANTER ALONG 9TH AVENUE, FIX IT SITE
92555	062326	8/31/18	6.75 GAL	PLANTER CENTER AND CENTER OF SITE.
91252	622059	9/4/18	11 GAL	PLANTER EAST OF SITE (UPGRADIENT) BY STATION SIGN.
91356	622232	9/5/18	6.8 GAL	PLANTER AREA BY THE CHEVON STATION BY STATION BUILDING
306451	621048	9/6/18	3.5 GAL	SOUTH OF STATION BUILDING
92609	620911	9/10/18	4.75 GAL	CENTER OF SITE;
92609	620911	9/11/18	5.45 GAL	CENTER OF SITE;
96097	062328	9/13/18	6.5 GAL	CENTER OF SITE → PLANTER IN BETWEEN RILEY'S AND SITE
96097	062328	9/14/18	5.6 GAL	CENTER OF SITE → PLANTER IN BETWEEN RILEY'S AND SITE
98557	060361	9/25/18	14.4 GAL	PLANTER AREA BY STATION BUILDING
99014	062329	9/26/18	8.9 GAL	PLANTER BY CHEVON STATION SIGN
99014	062329	9/27/18	9.0 GAL	PLANTER BY THOMPSON PROPERTY, ALONG BUILDING
99014	062329	9/28/18	6.5 GAL	PLANTER BY THOMPSON PROPERTY, ALONG BUILDING
211074	612064	10/6/18	5.7 GAL	GRASS SOUTH OF DP-40
211074	612064	10/6/18	10.35 GAL	GRASS SOUTH OF DP-40
306448	621049	10/10/18	4.8 GAL	CENTER OF SITE
95799	620914	10/16/18	6.65 GAL	VARIOUS → PLANTER AREA ONSITE.
96489	620914	10/17/18	7.3 GAL	ONSITE → PLANTER NEXT TO STATION BUILDING.
97324	612061	10/18/18	5.5 GAL	ONSITE BY SYSTEM BUILDING.
306449	082676	10/22/18	5.45 GAL	ONSITE BY PLANTER NEAR BUILDING

TTT Environmental

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

INSTRUMENT RENTAL FUNCTION/CHECKLIST

Company Name: GHD
 Rental Description: I/F probe - 100 FT 5/8

Sales Order #: 5182626
 Serial #: 0814

Item Description	Qty	Checked Out?	Checked In?	Damaged / Missing?
Interface Probe	1	1		
Cushioned carrying case	1	1		
Spare Battery (9V)	1 or 2	1		
Optional				
Operators manual		1		
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>)	
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]
 Declared Value: \$1,350

Signature (Check-in): _____

- * 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.

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CALIBRATION/INSPECTION REPORT

Calibration Date: 10/19/2018
Report Date (check-out): 10/19/2018

Company Name: GHD
Rental Description: HF Scientific Micro TPW Turbidimeter

S/O #: S182626
Serial #: HFTBWturb-11.201106168

CALIBRATION*					
Sensor	Zero Value	Calibration*		Alarm Level	
		Desired reading	Instrument reading	Low	High
NTU	na	1000 NTU	1000 NTU	N/A	N/A
NTU	na	10.0 NTU	10.0 NTU	N/A	N/A
NTU	na	0.02 NTU	0.02 NTU	N/A	N/A

* Calibrated per manufacturer specifications

CALIBRATION SOLUTION INFORMATION						
Components	Conc.	Lot #	Manuf.	Accuracy	Fill Date	Exp. Date
Formazin Solution	1000	70603	ProCal	+/- 1%	N/A	06/2019
Formazin Solution	10.0	70663	ProCal	+/- 1%	N/A	06/2019
Formazin Solution	0.02	70601	ProCal	+/- 0.02	N/A	06/2019

Calibrated by: Steve Ziegler Signature: _____

Item Description	Qty	Checked Out?	Checked In?	Damaged / Missing?
HF Scientific Micro TPW Turbidimeter	1	✓		
Manual	1	✓		
Sample vials	3	✓		
In reclosable bag:				
Silicone Oil, Kim Wipes, 4 Spare AAA Batteries	1	✓		

Instrument Function Test / Inspection (Correct all deficiencies)	Pre-rental Check-out	Post-rental Check-in (Tag any "damaged" or "No's" for Service to correct)	
Inspect instrument for cracks & damage, LCD for proper display, and light chamber for water/dust/debris:		No Damage	Damaged
Ensure spare batteries in kit are unused and contacts sealed with white tape:	Yes	Yes	No
Dispose of any secondary calibration standard vial or sample vial that has excessive scratches, cracks, or staining:		Yes	No
HF Scientific recommends TPW Turbidimeters are recalibrated at least once every three months. Calibrated since the last rental?:	Yes		
Rental checklist completed?:	Yes	Yes	

Comments: _____

Signature (Check-out): [Signature] Signature (Check-in): _____

TTT Environmental

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INSTRUMENT RENTAL FUNCTION/CHECKLIST

Company Name: ETH

S/O #: 5182626

Rental Description: YSI 556

Serial #: 0450

Item Description	Checked Out?	Checked In?	Damaged / Missing?
556 Multi parameter meter with barometer	✓		
Wrist strap	✓		
4 meter probe assembly w/ pH/ORP, cond./temp, & DO	✓		
Pelican carrying case	✓		
556 Quick-start Guide & CD in ziploc bag	✓		
YSI 5511 Maintenance kit (including the following):	✓		
Probe installation/removal tool	✓		
DO sensor set screw	✓		
Allen wrench for DO sensor set screw	✓		
DO sensor port plug	✓		
Conductivity probe cleaning brush	✓		
O-Rings for DO sensor	✓		
2 - Replacement Flow cell O-ring	✓		
DO membrane kit (w/2 replacement caps & instructions)	✓		
DO membrane solution (at least 1/4 full)	✓		
Probe Sensor Guard	✓		
Transport/Calibration cup	✓		
Stainless Steel sampling cup	✓		
Optional:			
Flow cell (including the following):	✓		
2 each hose barbs: 3/16", 1/4", 3/8", 1/2"	✓		
Optional - 2 each YSI body couplings	✓		
Both upper and lower o-rings in place on flow cell	✓		

Instrument Function Test / Inspection (Correct all deficiencies)	
Pelican case general condition, rubber seal, TTT label, & foam in place and in good condition:	Yes
TTT property tag in place on top of instrument:	Yes
Instrument display face plate in good condition (only minor scratches and smears); And backlight functions properly:	Yes
Date and Time set correctly (Esc/system setup/date & time):	Yes
Shutoff time set to 60 min. (Esc/system setup/shut off time):	Yes
All data deleted (Esc/file/delete all files/delete):	Yes
Battery power bar (lower right hand corner) shows at least 30%:	Yes

Signature (Check-out): [Signature] Signature (Check-in): _____

Declared Value: \$3,700

- * By renting with TTT customer agrees to the rental terms and conditions (copy available upon request).
- * 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.
- * TTT suggests calibrating/bump testing instruments prior to each days use.

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CALIBRATION/INSPECTION REPORT

Calibration Date: 10/19/2018
Report Date (check-out): 10/19/2018

Company Name: GHD
Rental Description: YSI 556

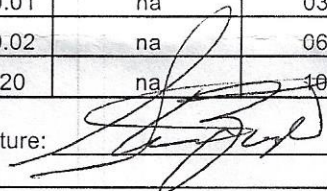
S/O #: S182626
Serial #: 556-11.H100450

CALIBRATION*					
Sensor	Zero Value	Calibration*			
		Desired reading	Instrument reading	other	Slope/Gain
Spec. Conductivity/Cond.	na	1.413 @25 C	1.413 @ 19.60 C	1.413/1267	0.99
pH	na	7.01 @20 C	7.02 @ 19.72 C	-20.6	
pH	na	4.00 @20 C	4.00 @ 19.82 C	148.4	169
pH	na	10.06 @20 C	10.05 @ 19.90 C	-193.0	172
ORP	na	240mV @25 C	240.0 @ 20.05 C	-18.8	
D.O.	na	100% @25 C	97.1 % 19.24 C	B.P.= 29.05	0.73
			8.95 mg/L		

* Calibrated per manufacturer specifications

CALIBRATION SOLUTION INFORMATION						
Components	Conc.	Lot #	Manuf.	Accuracy	Fill Date	Exp. Date
Specific Conductivity	1.413	WZ2	OAKTON	--	na	01/20
pH	7.00@25C	17E1S	YSI	+/- 0.01	na	05/19
pH	4.01@25C	18C1R	YSI	+/- 0.01	na	03/20
pH	10.01@25C	17F3T	YSI	+/- 0.02	na	06/19
ORP	240mV	2079	Hanna	+/- 20	na	10/22

Calibrated by: Steve Ziegler

Signature: 

INSTRUMENT INSPECTION		
Item	Pre-rental Check-out	Post-rental Check-in
		("Damaged" or "No" may indicate customer charge)
Inspect all instrument components for cracks, damage, etc:		No Damage Damaged
Meter (battery cover screws) & cable?:		No Damage Damaged
Cable is plugged into handheld?:	Yes	Yes No
Instrument powers on/off properly?:	Yes	Yes No
Battery power bar (lower right hand corner) shows at least 30%?:	Yes	
Display/LCD contrast is correct and no black streaks in LCD screen exist?:	Yes	Yes No
All display readings are positive (excluding pHmV & ORP)?:	Yes	Yes No
Probe inspection?:		No Damage Damaged
Probe transport cup is attached & contains 1/4" tap water or pH 4 buffer?:	Yes	Yes No
Calibrated within the last 10 days?:	Yes	
Rental checklist completed?:	Yes	Yes

Comments: _____

Signature (Check-out): 

Signature (Check-in): _____

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: November 09, 2018 11:38

Project: 306449

Account #: 10880
Group Number: 2001336
PO Number: 0015274506
Release Number: HETRICK
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-181022 Grab Groundwater	10/22/2018 11:38	9864061
MW-2-W-181022 Grab Groundwater	10/22/2018 12:36	9864062
MW-3-W-181022 Grab Groundwater	10/22/2018 10:55	9864063
MW-4-W-181022 Grab Groundwater	10/22/2018 10:18	9864064
DUP-1-WD-181022 Grab Groundwater	10/22/2018	9864065
QA-1-T-181022 NA Water	10/22/2018	9864066

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

Project Name: 306449
ELLE Group #: 2001336

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: 9864061**

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken:
The sample was re-extracted within the method required holding time and the sample surrogate(s) is compliant.
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits in the second trial.
All results are reported from the first trial.

Batch #: 182980012A (Sample number(s): 9864061-9864065)

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9864061

Sample Description: MW-1-W-181022 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864061
ELLE Group #: 2001336
Matrix: Groundwater

Project Name: 306449

Submission Date/Time: 10/23/2018 10:30

Collection Date/Time: 10/22/2018 11:38

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-1-W-181022 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864061
ELLE Group #: 2001336
Matrix: Groundwater

Project Name: 306449

Submittal Date/Time: 10/23/2018 10:30
Collection Date/Time: 10/22/2018 11:38

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.	0.14 J	0.053	0.26	1
13222	C25-C36 RRO	n.a.	0.22 J	0.085	0.26	1

The recovery for the sample surrogate(s) is outside the QC acceptance limits as noted on the QC Summary. The following action was taken:
The sample was re-extracted within the method required holding time and the sample surrogate(s) is compliant.
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits in the second trial.
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	E183065AA	11/03/2018 05:15	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E183065AA	11/03/2018 05:15	Don V Viray	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18296C20A	10/24/2018 22:30	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	18296C20A	10/24/2018 22:30	Linda C Pape	1
13222	AK 102/103-SV	AK 102-SV 4/8/02	1	182980012A	10/31/2018 01:13	Nicholas R Rossi	1
13225	Mini-Ext. AK 102/103SV,DRO/RRO	AK 102-SV 4/8/02	1	182980012A	10/26/2018 09:00	David S Schrum	1

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

Sample Description: MW-2-W-181022 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864062
ELLE Group #: 2001336
Matrix: Groundwater

Project Name: 306449

Submission Date/Time: 10/23/2018 10:30

Collection Date/Time: 10/22/2018 12:36

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-2-W-181022 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864062
ELLE Group #: 2001336
Matrix: Groundwater

Project Name: 306449

Submittal Date/Time: 10/23/2018 10:30
Collection Date/Time: 10/22/2018 12:36

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.	2.9	0.051	0.26	1
13222	C25-C36 RRO	n.a.	2.1	0.083	0.26	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	E183065AA	11/03/2018 05:35	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E183065AA	11/03/2018 05:35	Don V Viray	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18296C20A	10/24/2018 22:57	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	18296C20A	10/24/2018 22:57	Linda C Pape	1
13222	AK 102/103-SV	AK 102-SV 4/8/02	1	182980012A	10/31/2018 01:39	Heather E Williams	1
13225	Mini-Ext. AK 102/103SV,DRO/RRO	AK 102-SV 4/8/02	1	182980012A	10/26/2018 09:00	David S Schrum	1

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

Sample Description: MW-3-W-181022 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864063
ELLE Group #: 2001336
Matrix: Groundwater

Project Name: 306449

Submission Date/Time: 10/23/2018 10:30

Collection Date/Time: 10/22/2018 10:55

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	0.003	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-181022 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864063
ELLE Group #: 2001336
Matrix: Groundwater

Project Name: 306449

Submittal Date/Time: 10/23/2018 10:30
Collection Date/Time: 10/22/2018 10:55

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.	0.080 J	0.051	0.26	1
13222	C25-C36 RRO	n.a.	N.D.	0.083	0.26	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	E183065AA	11/03/2018 05:55	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E183065AA	11/03/2018 05:55	Don V Viray	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18296C20A	10/24/2018 23:25	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	18296C20A	10/24/2018 23:25	Linda C Pape	1
13222	AK 102/103-SV	AK 102-SV 4/8/02	1	182980012A	10/31/2018 02:06	Heather E Williams	1
13225	Mini-Ext. AK 102/103SV,DRO/RRO	AK 102-SV 4/8/02	1	182980012A	10/26/2018 09:00	David S Schrum	1

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

Sample Description: MW-4-W-181022 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864064
ELLE Group #: 2001336
Matrix: Groundwater

Project Name: 306449

Submission Date/Time: 10/23/2018 10:30

Collection Date/Time: 10/22/2018 10:18

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	0.004	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-181022 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864064
ELLE Group #: 2001336
Matrix: Groundwater

Project Name: 306449

Submittal Date/Time: 10/23/2018 10:30
Collection Date/Time: 10/22/2018 10:18

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.	N.D.	0.052	0.26	1
13222	C25-C36 RRO	n.a.	N.D.	0.084	0.26	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	E183065AA	11/03/2018 06:16	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E183065AA	11/03/2018 06:16	Don V Viray	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18296C20A	10/24/2018 23:52	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	18296C20A	10/24/2018 23:52	Linda C Pape	1
13222	AK 102/103-SV	AK 102-SV 4/8/02	1	182980012A	10/31/2018 02:32	Heather E Williams	1
13225	Mini-Ext. AK 102/103SV,DRO/RRO	AK 102-SV 4/8/02	1	182980012A	10/26/2018 09:00	David S Schrum	1

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

Sample Description: DUP-1-WD-181022 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864065
ELLE Group #: 2001336
Matrix: Groundwater

Project Name: 306449

Submission Date/Time: 10/23/2018 10:30

Collection Date/Time: 10/22/2018

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	0.002	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: DUP-1-WD-181022 Grab Groundwater
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864065
ELLE Group #: 2001336
Matrix: Groundwater

Project Name: 306449

Submittal Date/Time: 10/23/2018 10:30
Collection Date/Time: 10/22/2018

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.	3.2	0.053	0.27	1
13222	C25-C36 RRO	n.a.	2.3	0.086	0.27	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	E183065AA	11/03/2018 06:36	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E183065AA	11/03/2018 06:36	Don V Viray	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18296C20A	10/25/2018 00:20	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	18296C20A	10/25/2018 00:20	Linda C Pape	1
13222	AK 102/103-SV	AK 102-SV 4/8/02	1	182980012A	10/31/2018 02:59	Heather E Williams	1
13225	Mini-Ext. AK 102/103SV,DRO/RRO	AK 102-SV 4/8/02	1	182980012A	10/26/2018 09:00	David S Schrum	1

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

Sample Description: QA-1-T-181022 NA Water
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864066
ELLE Group #: 2001336
Matrix: Water

Project Name: 306449

Submission Date/Time: 10/23/2018 10:30
Collection Date/Time: 10/22/2018

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.	0.0004	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: QA-1-T-181022 NA Water
Facility# 306449
2730 Spenard Road - Anchorage, AK

ChevronTexaco
ELLE Sample #: WW 9864066
ELLE Group #: 2001336
Matrix: Water

Project Name: 306449

Submittal Date/Time: 10/23/2018 10:30
Collection Date/Time: 10/22/2018

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	E183065AA	11/03/2018 01:54	Don V Viray	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	E183065AA	11/03/2018 01:54	Don V Viray	1
01438	TPH-GRO AK water C6-C10	AK 101	1	18296C20A	10/24/2018 17:55	Linda C Pape	1
01146	GC VOA Water Prep	SW-846 5030B	1	18296C20A	10/24/2018 17:55	Linda C Pape	1

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

Quality Control Summary

Client Name: ChevronTexaco
Reported: 11/09/2018 11:38

Group Number: 2001336

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: E183065AA	Sample number(s): 9864061-9864066		
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: 11/09/2018 11:38

Group Number: 2001336

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: 18296C20A	Sample number(s): 9864061-9864066		
TPH-GRO AK water C6-C10	N.D.	0.014	0.10
Batch number: 182980012A	Sample number(s): 9864061-9864065		
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: E183065AA	Sample number(s): 9864061-9864066								
Acetone	0.150	0.143	0.150	0.156	95	104	54-157	8	30
Benzene	0.0200	0.0214	0.0200	0.0215	107	107	80-120	0	30
Bromodichloromethane	0.0200	0.0221	0.0200	0.0221	111	111	71-120	0	30
Bromoform	0.0200	0.0209	0.0200	0.0214	104	107	51-120	3	30
Bromomethane	0.0200	0.0160	0.0200	0.0161	80	81	53-128	1	30
2-Butanone	0.150	0.150	0.150	0.149	100	99	59-135	1	30
Carbon Disulfide	0.0200	0.0184	0.0200	0.0185	92	93	65-128	1	30
Carbon Tetrachloride	0.0200	0.0221	0.0200	0.0230	111	115	64-134	4	30
Chlorobenzene	0.0200	0.0221	0.0200	0.0223	110	111	80-120	1	30
Chloroethane	0.0200	0.0176	0.0200	0.0176	88	88	55-123	0	30
Chloroform	0.0200	0.0223	0.0200	0.0226	111	113	80-120	1	30
Chloromethane	0.0200	0.0188	0.0200	0.0185	94	93	56-121	1	30
Cyclohexane	0.0200	0.0206	0.0200	0.0210	103	105	68-126	2	30
1,2-Dibromo-3-chloropropane	0.0200	0.0209	0.0200	0.0212	105	106	47-131	1	30
Dibromochloromethane	0.0200	0.0220	0.0200	0.0221	110	111	71-120	1	30
1,2-Dibromoethane	0.0200	0.0215	0.0200	0.0217	107	109	77-120	1	30
1,2-Dichlorobenzene	0.0200	0.0223	0.0200	0.0226	112	113	80-120	1	30
1,3-Dichlorobenzene	0.0200	0.0225	0.0200	0.0227	113	114	80-120	1	30
1,4-Dichlorobenzene	0.0200	0.0226	0.0200	0.0223	113	112	80-120	1	30
Dichlorodifluoromethane	0.0200	0.0158	0.0200	0.0160	79	80	41-127	1	30

*- 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: 11/09/2018 11:38

Group Number: 2001336

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	0.0216	0.0200	0.0219	108	110	80-120	2	30
1,2-Dichloroethane	0.0200	0.0220	0.0200	0.0229	110	114	73-124	4	30
1,1-Dichloroethene	0.0200	0.0207	0.0200	0.0209	103	104	80-131	1	30
cis-1,2-Dichloroethene	0.0200	0.0219	0.0200	0.0220	109	110	80-120	0	30
trans-1,2-Dichloroethene	0.0200	0.0213	0.0200	0.0212	107	106	80-120	0	30
1,2-Dichloropropane	0.0200	0.0218	0.0200	0.0220	109	110	80-120	1	30
cis-1,3-Dichloropropene	0.0200	0.0214	0.0200	0.0215	107	108	75-120	1	30
trans-1,3-Dichloropropene	0.0200	0.0204	0.0200	0.0206	102	103	67-120	1	30
Ethylbenzene	0.0200	0.0221	0.0200	0.0222	110	111	80-120	0	30
Freon 113	0.0200	0.0199	0.0200	0.0202	100	101	73-139	2	30
2-Hexanone	0.100	0.101	0.100	0.101	101	101	56-135	1	30
Isopropylbenzene	0.0200	0.0229	0.0200	0.0232	114	116	80-120	2	30
Methyl Acetate	0.0200	0.0192	0.0200	0.0194	96	97	54-136	1	30
Methyl Tertiary Butyl Ether	0.0200	0.0199	0.0200	0.0205	100	102	69-122	3	30
4-Methyl-2-pentanone	0.100	0.102	0.100	0.103	102	103	62-133	1	30
Methylcyclohexane	0.0200	0.0205	0.0200	0.0207	102	103	67-121	1	30
Methylene Chloride	0.0200	0.0206	0.0200	0.0213	103	107	80-120	4	30
Styrene	0.0200	0.0219	0.0200	0.0220	109	110	80-120	1	30
1,1,2,2-Tetrachloroethane	0.0200	0.0214	0.0200	0.0217	107	109	72-120	1	30
Tetrachloroethene	0.0200	0.0224	0.0200	0.0232	112	116	80-120	3	30
Toluene	0.0200	0.0218	0.0200	0.0222	109	111	80-120	2	30
1,2,4-Trichlorobenzene	0.0200	0.0228	0.0200	0.0227	114	113	63-120	1	30
1,1,1-Trichloroethane	0.0200	0.0218	0.0200	0.0220	109	110	67-126	1	30
1,1,2-Trichloroethane	0.0200	0.0224	0.0200	0.0228	112	114	80-120	2	30
Trichloroethene	0.0200	0.0217	0.0200	0.0220	109	110	80-120	1	30
Trichlorofluoromethane	0.0200	0.0184	0.0200	0.0185	92	92	55-135	1	30
Vinyl Chloride	0.0200	0.0185	0.0200	0.0187	93	94	56-120	1	30
Xylene (Total)	0.0600	0.0671	0.0600	0.0676	112	113	80-120	1	30
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18296C20A	Sample number(s): 9864061-9864066								
TPH-GRO AK water C6-C10	1.10	1.14			104		60-120		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 182980012A	Sample number(s): 9864061-9864065								
C10-cC25 DRO	1.00	1.12	1.00	1.07	112	107	75-125	4	20
C25-C36 RRO	1.80	2.18	1.80	2.20	121	122	75-125	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: 11/09/2018 11:38

Group Number: 2001336

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: E183065AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9864061	100	101	99	98
9864062	100	99	99	100
9864063	100	100	99	99
9864064	100	99	100	100
9864065	102	99	99	99
9864066	100	100	99	100
Blank	100	97	100	99
LCS	100	100	100	100
LCSD	100	101	100	100
Limits:	80-120	80-120	80-120	80-120

Analysis Name: TPH-GRO AK water C6-C10
Batch number: 18296C20A

	Trifluorotoluene-F
9864061	87
9864062	88
9864063	88
9864064	87
9864065	87
9864066	88
Blank	88
LCS	100
Limits:	60-120

Analysis Name: AK 102/103-SV
Batch number: 182980012A

	Orthoterphenyl	n-Triacontane-d62
9864061	72	43*
9864062	55	64
9864063	92	59
9864064	84	74
9864065	62	69
Limits:	50-150	50-150
Blank	90	89
LCS	91	74

*- 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: 11/09/2018 11:38

Group Number: 2001336

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: 182980012A

	Orthoterphenyl	n-Triacontane-d62
LCSD	88	79
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.

Chevron Generic Analysis Request/Chain of Custody



Lancaster Laboratories

Acct. # U880

For Eurofins Lancaster Laboratories use only
Group # 20133C Sample # 9864061-6C

Instructions on reverse side correspond with circled numbers.

1 Client Information				4 Matrix				5 Analyses Requested										6 Remarks							
Facility # <u>CHEVRON 306449</u>		WBS <u>08.02</u>		<input type="checkbox"/> Sediment <input checked="" type="checkbox"/> Ground <input type="checkbox"/> Surface <input type="checkbox"/> Potable <input type="checkbox"/> NPDES <input type="checkbox"/> Air		Total Number of Containers <input type="checkbox"/> BTEX + MTBE 8021 <input type="checkbox"/> 8260 <input type="checkbox"/> 8260 full scan <input type="checkbox"/> Oxygenates <input type="checkbox"/> TPH-GRO AK-101 8015 <input type="checkbox"/> 8260 <input type="checkbox"/> TPH-DRO AK-102 Silica Gel Cleanup <input type="checkbox"/> TPH-RO AK-102		<input type="checkbox"/> Lead Total <input type="checkbox"/> Diss. <input type="checkbox"/> Method <input type="checkbox"/> VPH <input type="checkbox"/> EPH <input type="checkbox"/> Method												SCR #: _____					
Site Address <u>2730 SPENARD ROAD, ANCHORAGE</u>																									
Chevron PM <u>ERIC HETRICK</u>		Lead Consultant <u>GHD</u>																							
Consultant/Office <u>5610 SILVERADO WAY, STE A2, ANCHORAGE, AK</u>																									
Consultant Project Mgr. <u>SIOBHAN PRITCHARD</u>																									
Consultant Phone # <u>(720) 974-0963</u>																									
Sampler <u>O. YAN / T. WEAVER</u>				Composite <input type="checkbox"/> Grab <input type="checkbox"/> Composite												<input type="checkbox"/> Results in Dry Weight <input type="checkbox"/> J value reporting needed <input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds <input type="checkbox"/> 8021 MTBE Confirmation <input type="checkbox"/> Confirm MTBE + Naphthalene <input type="checkbox"/> Confirm highest hit by 8260 <input type="checkbox"/> Confirm all hits by 8260 <input type="checkbox"/> Run ___ oxy's on highest hit <input type="checkbox"/> Run ___ oxy's on all hits									
2 Sample Identification		Collected																							
		Date	Time	Grab	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021	8260 full scan	Oxygenates	TPH-GRO AK-101 8015	8260	TPH-DRO AK-102 Silica Gel Cleanup	TPH-RO AK-102	Lead Total	Diss.	Method	VPH	EPH	Method				
<u>MW-1-W-181022</u>		<u>10/22/18</u>	<u>1138</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								7 Turnaround Time Requested (TAT) (please circle) Standard <u>5</u> day 4 day 72 hour 48 hour 24 hour Relinquished by <u>[Signature]</u> Date <u>10/22/18</u> Time <u>1250</u> Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____ Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____ Received by <u>[Signature]</u> Date <u>10/23/18</u> Time <u>1030</u> Temperature Upon Receipt <u>0.9</u> °C Custody Seals Intact? <input checked="" type="checkbox"/> Yes No		
<u>MW-2-W-181022</u>		<u>10/22/18</u>	<u>1236</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<u>MW-3-W-181022</u>		<u>10/22/18</u>	<u>1655</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<u>MW-4-W-181022</u>		<u>10/22/18</u>	<u>1018</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<u>DUP-1-W-181022</u>		<u>10/22/18</u>	<u>-</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
<u>QA-1-W-181022</u>		<u>-</u>	<u>-</u>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>										
8 Data Package (circle if required)		EDD (circle if required)																							
Type I - Full <u>Alaska/Type III</u>		CVX-RTBU-FI_05 (default)																							
Type VI (Raw Data)		Other: _____																							



Client: Chevron c/o GHD

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 10/23/2018 10:30
 Number of Packages: 1 Number of Projects: 1

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 ≥ 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 (25684) at 14:26 on 10/23/2018

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	0.9	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

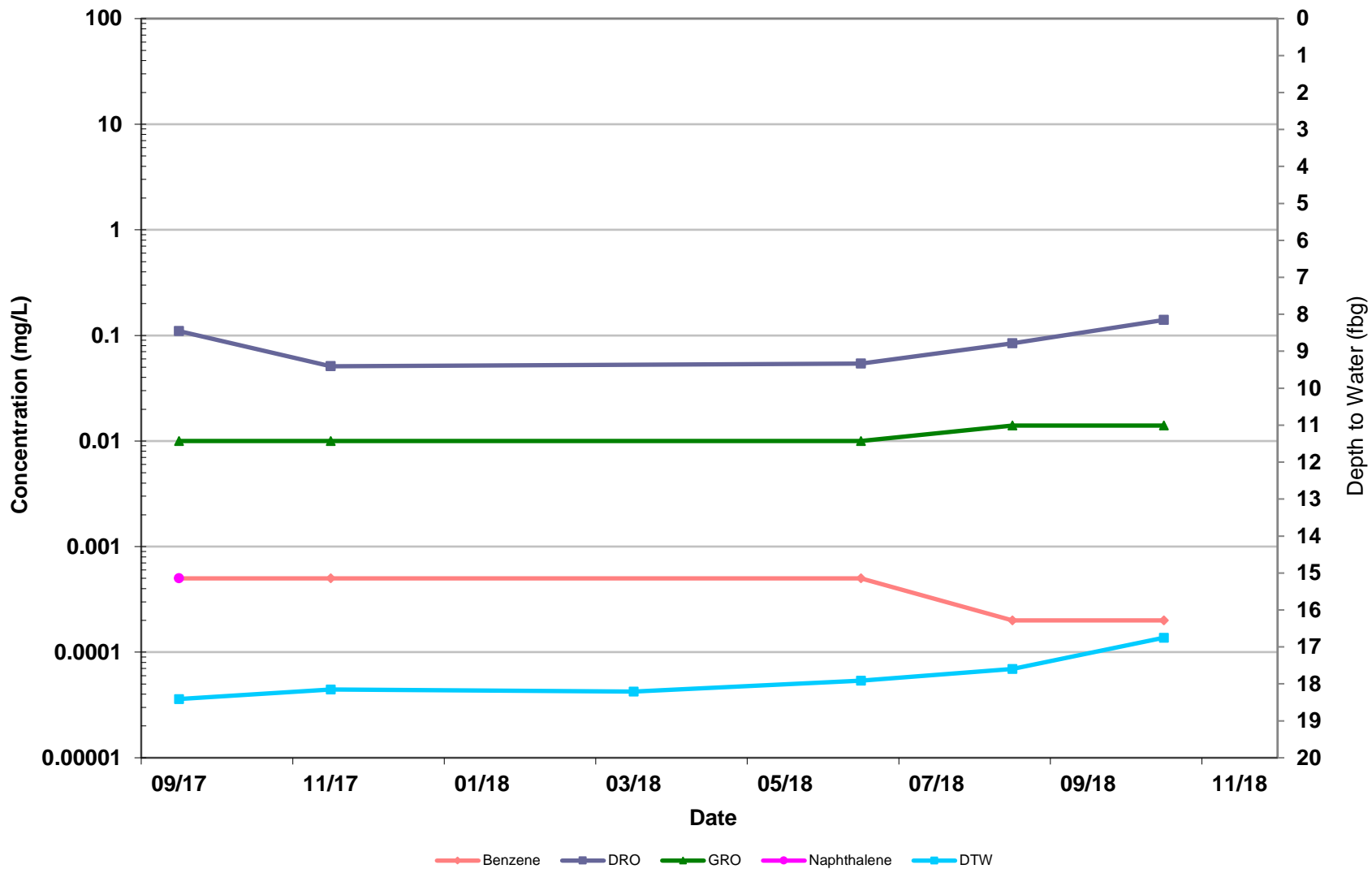
Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the 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

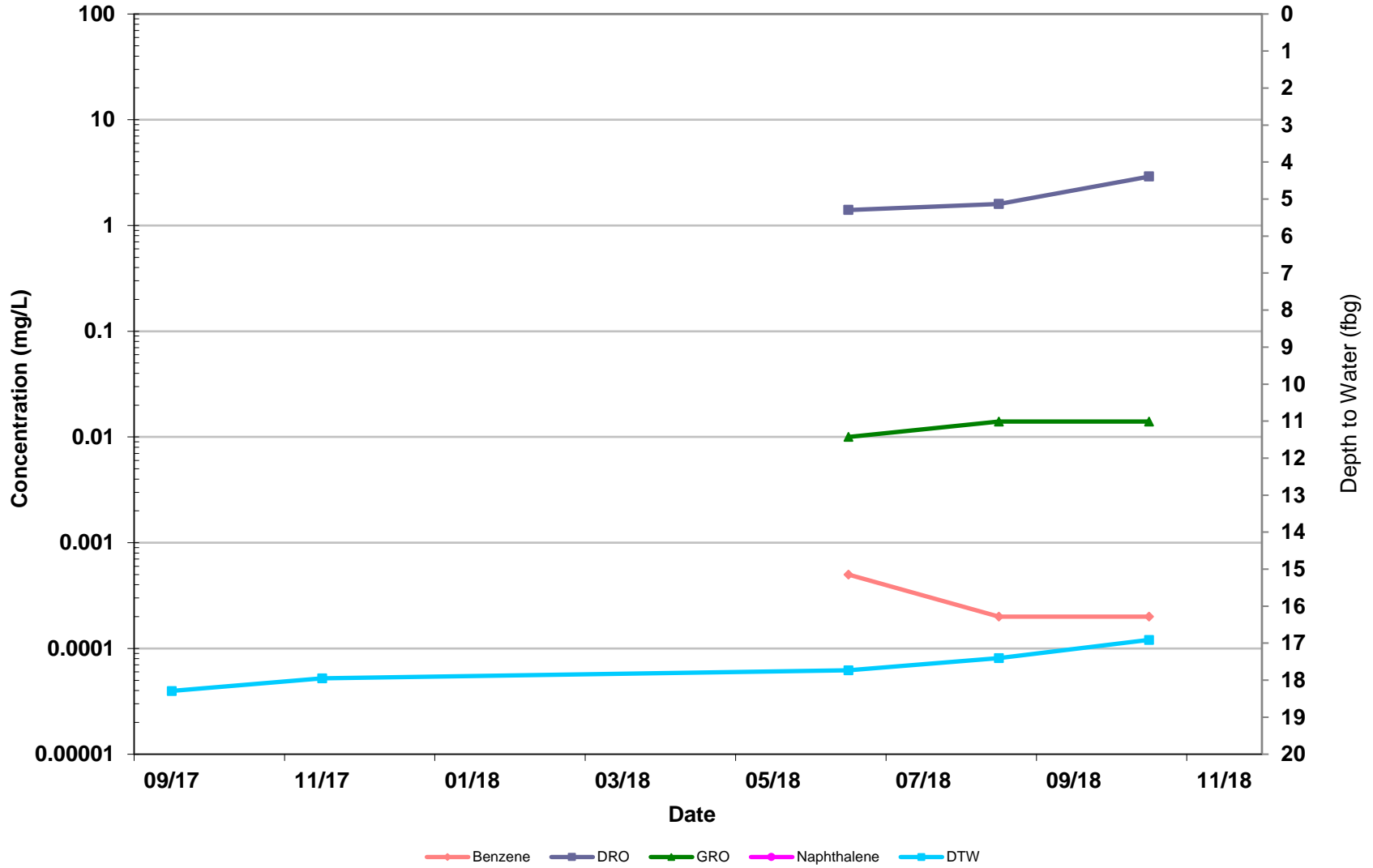
Petroleum Hydrocarbon Concentration Graphs

MW-1



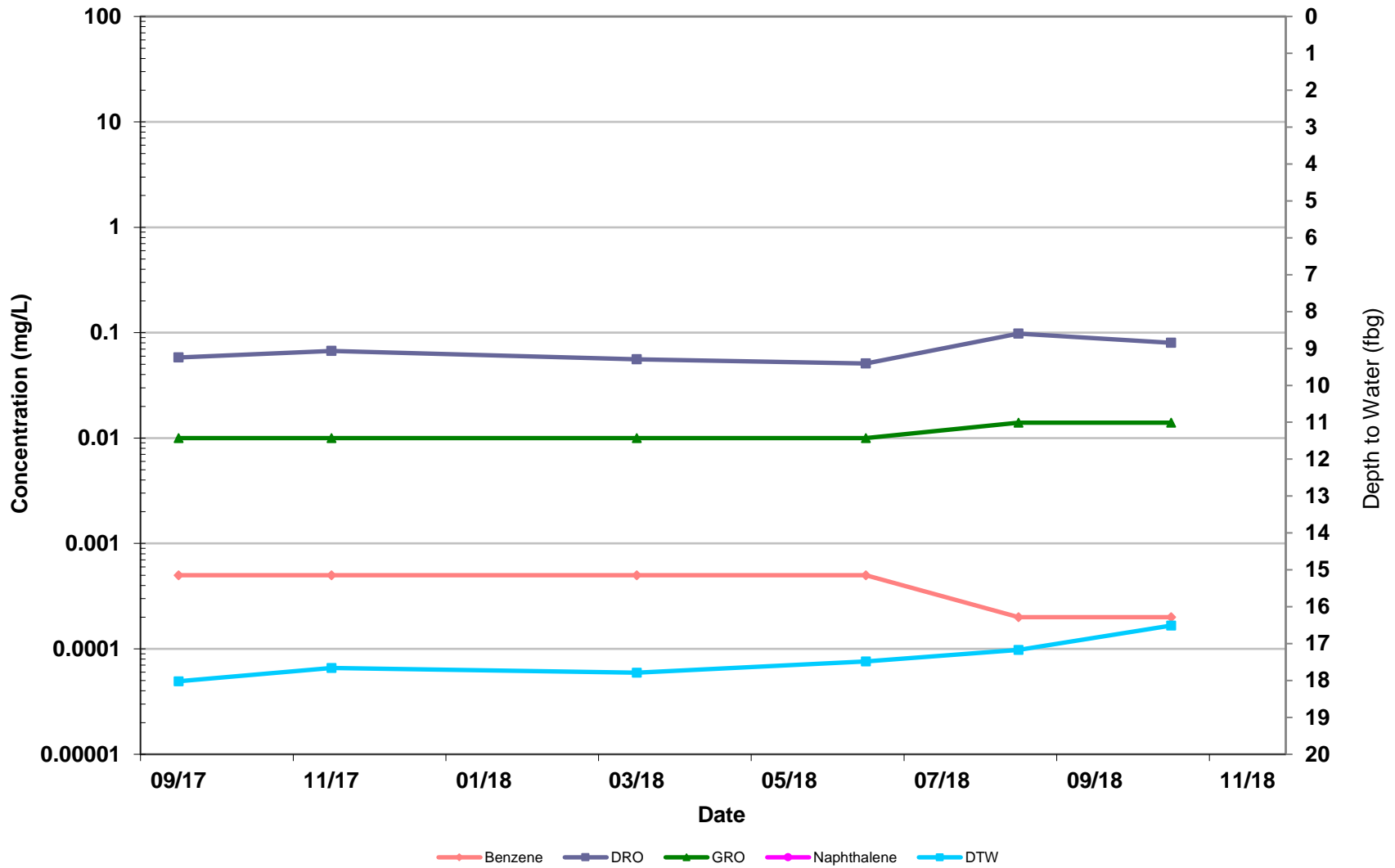
Former Unocal Service Station 4854 / Chevron 306449
2730 Spenard Road
Anchorage, Alaska

MW-2



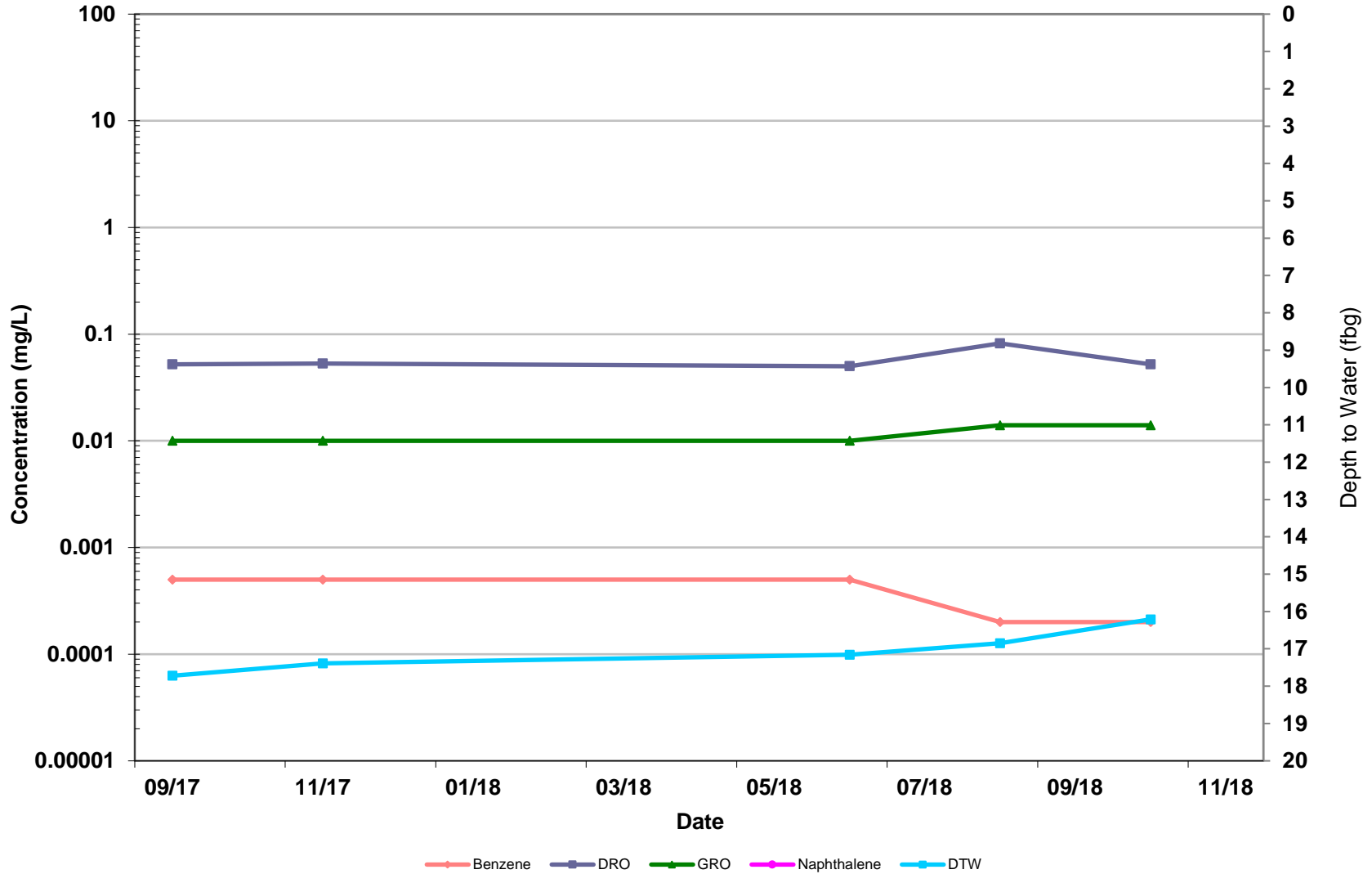
Former Unocal Service Station 4854 / Chevron 306449
2730 Spenard Road
Anchorage, Alaska

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:

November 25, 2018

CS Report Name:

Fourth Quarter 2018
Groundwater Monitoring
Report

Report Date:

November 09, 2018

Consultant Firm:

GHD Services Inc.

Laboratory Name:

Eurofins Lancaster Laboratories Environmental

Laboratory Report Number:

2001336

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:

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:

No affected samples

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

Yes No Comments:

No affected samples

vii. Data quality or usability affected?

Comments:

None

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:

Sample MW-1 had a low DRO/RRO surrogate recovery

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

Yes No Comments:

iv. Data quality or usability affected?

Comments:

The DRO and RRO results for sample MW-1 were qualified as estimated due to the implied low bias

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

November 29, 2018

To: ADEC Ref. No.: 082676

From: Jeffrey Cloud  Tel: 206-914-3141

CC: Siobhan Pritchard

**Subject: QA/QC Review
ChevronTexaco Site 306449
Job # 2001336
October 2018**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in Anchorage, Alaska during October 2018. Samples were submitted to Eurofins Lancaster Laboratories Environmental (ELLE), 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 with the exception of one low DRO/RRO surrogate recovery. The DRO and RRO results for sample MW-1 were qualified as estimated due to the implied low bias.

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).

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.