Transmittal

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To: Robert Weimer
Alaska Department of Environmental Conservation (ADEC)
555 Cordova Street
Anchorage, Alaska 95501

Subject: ADEC File ID 2100.26.003

No. of Copies	Description/Title	Drawing No./ Document Ref.	Issue
1	Second Semiannual 2018 Groundwater Monitoring Report	Report 29	

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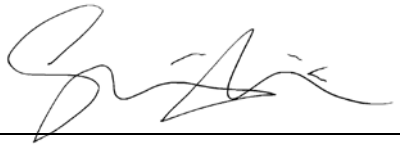
Should you have any questions or require additional information, please contact Siobhan Pritchard at (720) 974-0935

Copy to: Eric Hetrick (*electronic copy*)
Stephen M. Ellis
Ciri Land Development Company, LLC

Completed by: Siobhan Pritchard [Please Print] Signed: 

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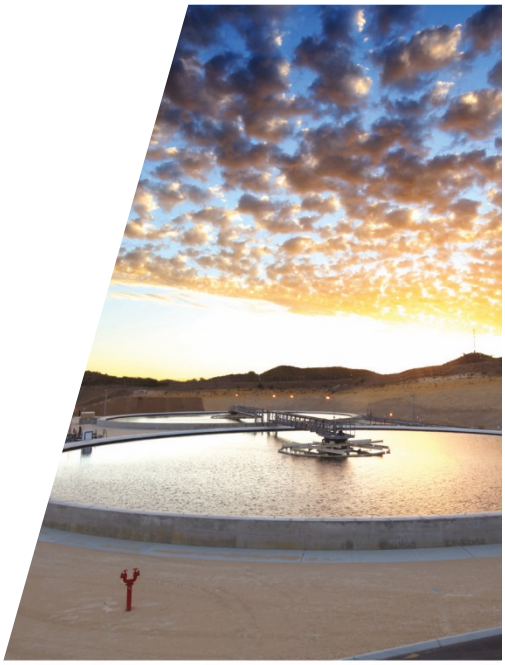
GHD
14998 West 6th Avenue Suite 800 Golden Colorado 80401 USA
T 720 974 0935 F 720 974 0936 W www.ghd.com



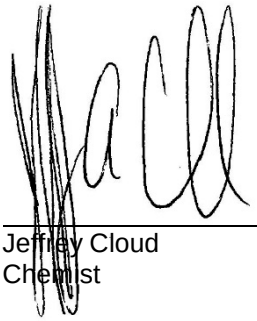
Second Semiannual 2018 Groundwater Monitoring Report

Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska
ADEC File ID: 2100.26.003
Hazard ID: 23820

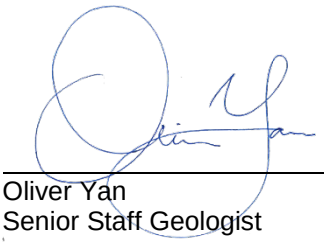
Chevron Environmental Management Company

Second Semiannual 2018 Groundwater Monitoring Report

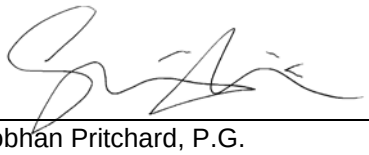
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska
ADEC File ID: 2100.26.003
Hazard ID: 23820



Jeffrey Cloud
Chemist



Oliver Yan
Senior Staff Geologist



Siobhan Pritchard, P.G.
Senior Project Geologist

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Acronyms and Abbreviations

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
BTEX	benzene, toluene, ethylbenzene, and xylenes
COPCs	constituents of potential concern
CSM	conceptual site model
DRO	diesel range organics
ft btoc	feet below top of casing
EPA	Environmental Protection Agency
GAC	granulated active carbon
GRO	gasoline range organics
mg/L	milligrams per liter
No.	number
P.G.	Professional Geologist
™	trademark
UST	underground storage tank
VOC	volatile organic compounds

1. Introduction

GHD is submitting this *Second Semiannual 2018 Groundwater Monitoring Report* to the Alaska Department of Environmental Conservation (ADEC) on behalf of Chevron Environmental Management Company (Chevron) for Chevron-branded service station 95799. GHD performed groundwater monitoring and sampling in accordance with the ADEC's August 2017 *Field Sampling Guidance*. 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 to evaluate petroleum hydrocarbon attenuation.

1.1 Site Description and Background

The site is located at 2500 Seward Highway in Anchorage, Alaska (Figure 1). The property's legal description is LAMPERT BLK 4 LT 1A. The latitude and longitude are 61.197668 ^{0} north and 149.868651 ^{0} west. The site is an active Chevron-branded service station consisting of a station building, three underground storage tanks (USTs), product dispensers, and piping.

Land use surrounding the site is primarily commercial. Businesses are located to the north, south and west of the site. Residences are located to the east across Seward Highway.

Four onsite and two offsite groundwater monitoring wells are monitored and sampled semiannually and one onsite well is monitored semiannually (Figure 2). Site photographs are included in Appendix A.

1.2 Hydrogeology

The site is located in south central Alaska, between the northern Knik Arm and the southern Turnagain Arm of Cook Inlet. Historical static groundwater depths have ranged between 8.04 to 16.00 feet below top of casing (ft btoc) according to groundwater data collected since 1989. Static groundwater depths ranged from 10.69 (OS-3) to 14.18 ft btoc (MW-15) on October 16, 2018. Groundwater flow was to the northwest with a gradient of 0.01, consistent with historical data (Figure 2).

1.3 Conceptual Site Model

GHD completed a conceptual site model (CSM) for this site. Human health CSM scoping and graphics forms are included 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
Benzene	0.0046	0.022

mg/L - milligrams per liter
mg/kg - milligrams per kilogram
DRO - diesel 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

GHD gauged and sampled groundwater monitoring wells MW-1R, MW-2R, MW-11R, MW-15, OS-2, and OS-3, and gauged MW-14 on October 16, 2018. GHD's monitoring data package is presented in Appendix C.

2.1 Low-Flow Purging and Sampling

Each monitoring well was opened and the cap removed to allow groundwater levels to stabilize and equilibrate. Depth to groundwater and total well depth was measured and recorded with a water level meter capable of 0.01 foot accuracy. A QED™ Sample Pro bladder pump with a self-contained compressor and control unit was used to purge groundwater from the well. Clean, disposable Teflon lined tubing and a bladder was 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 was adjusted so that drawdown was limited to 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 that 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 are considered stable when three successive readings are within the following ADEC limits:

- ± 3 percent for temperature (minimum of ± 0.2°C),
- ± 0.1 for pH,
- ± 3 percent for conductivity,
- ± 10 mv for redox potential,

- ± 10 percent for dissolved oxygen, and
- ± 10 percent of turbidity.

2.2 Data Quality

All field instruments were calibrated prior to mobilization according to the manufacturer's specifications and calibration was checked and documented onsite on a daily basis. Calibration forms are included in Appendix C. Field staff are trained in routine maintenance and operation of instrumentation. All reusable sampling equipment was decontaminated 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 10 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°C). 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 and an ADEC lab checklist was completed.

2.3 Purged Groundwater Disposal

Approximately 6.65 gallons of groundwater not used for sampling was filtered through granular activated carbon (GAC) and purged to the ground in the ADEC approved discharge areas within the planter areas surrounding the site to ensure infiltration and no offsite runoff.

3. Results and Findings

3.1 Groundwater Analytical Methods

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

- DRO by Alaska Series Method AK 102
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by SW-846 Method 8260

3.2 Groundwater Sampling Results

No petroleum hydrocarbons were detected above cleanup levels in wells MW-1R, MW-2R, MW-15 or OS-3. The highest DRO detected was 2.8 milligrams per liter (mg/L) in the duplicate sample from MW-11R. Well OS-2 contained the highest benzene concentration at 0.014 mg/L. Hydrocarbon concentrations in groundwater are presented in Figure 2. Current groundwater analytical data are presented in Table 1. Historical groundwater analytical data are included in Table 2 and groundwater PAH analytical data are presented in Table 3. The laboratory analytical report is included in Appendix D. Hydrocarbon concentration graphs are presented in Appendix E.

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

4. Conclusions and Recommendations

No petroleum hydrocarbons were detected above cleanup levels with the exception of DRO in MW-11R and benzene in OS-2. GHD will continue semiannual groundwater monitoring and sampling in 2019.

about GHD

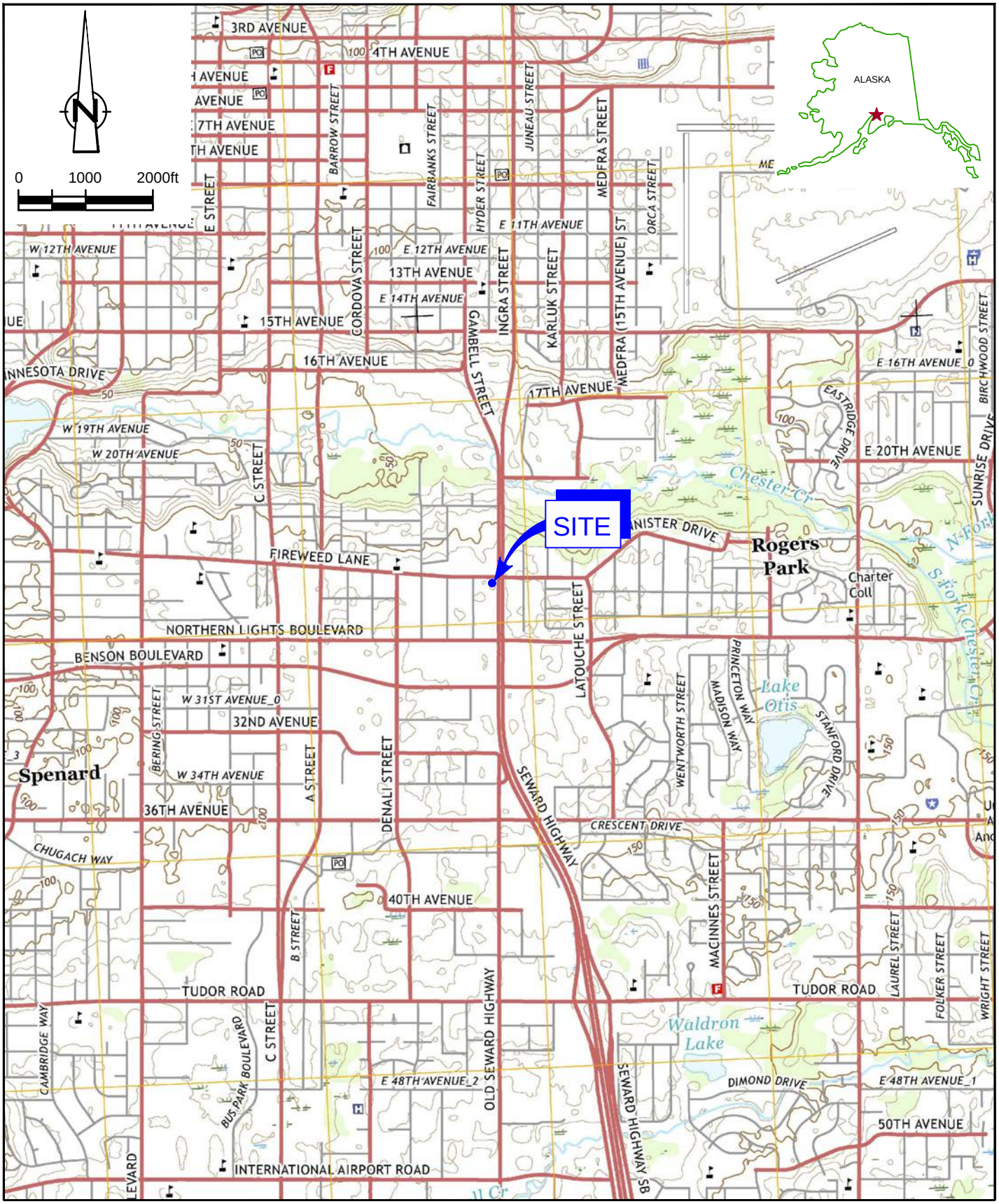
GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

Oliver Yan
Oliver.Yan@ghd.com
907-420-0700

Siobhan Pritchard
Siobhan.Pritchard@ghd.com
720-974-0963

www.ghd.com

Figures



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

CHEVRON-BRANDED SERVICE STATION 95799
2500 SEWARD HIGHWAY
ANCHORAGE, ALASKA

620914-940418

Nov 14, 2018

VICINITY MAP

FIGURE 1

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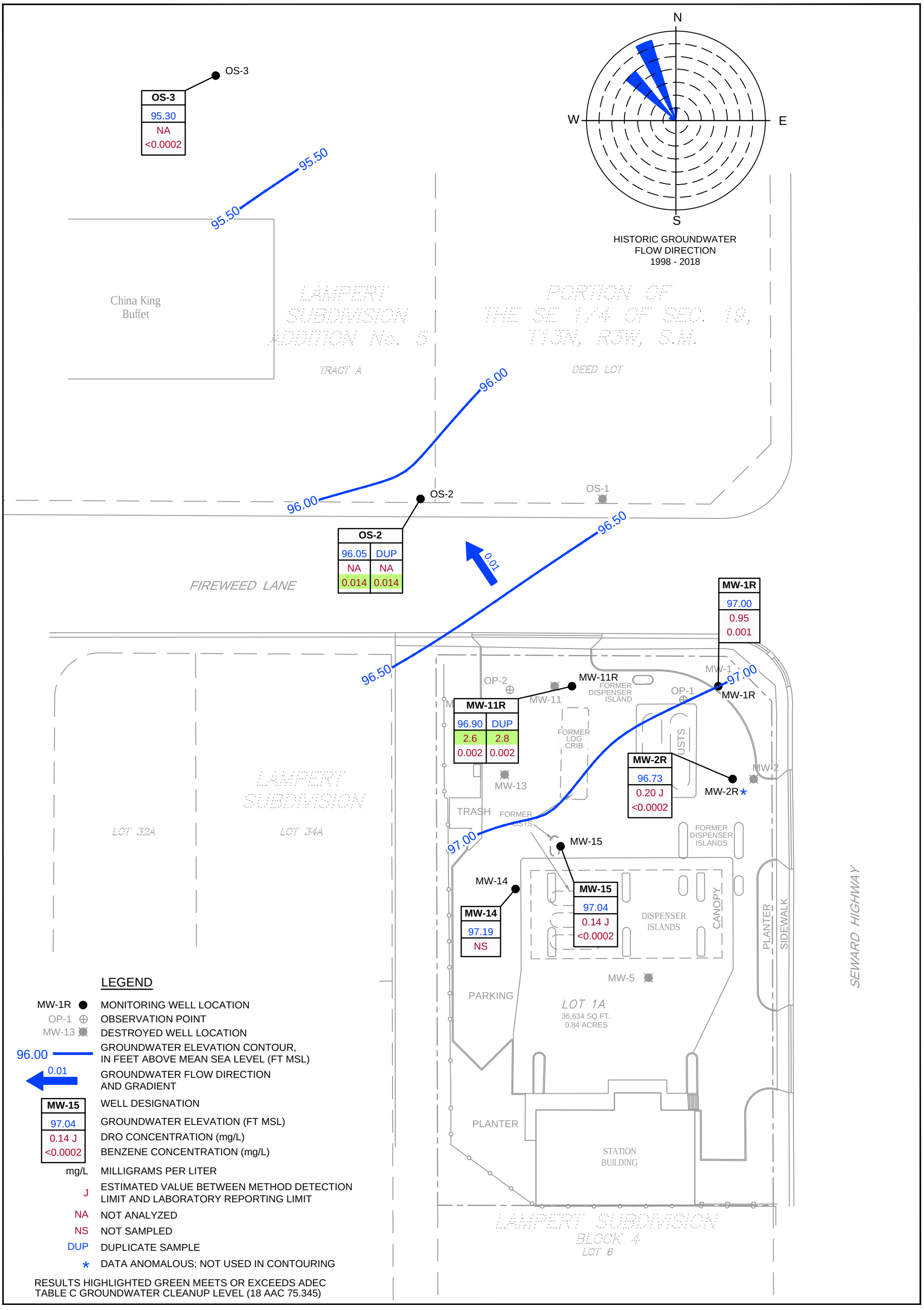

LEGEND

MW-1R ●	MONITORING WELL LOCATION
OP-1 ⊕	OBSERVATION POINT
MW-13 ✱	DESTROYED WELL LOCATION
96.00	GROUNDWATER ELEVATION CONTOUR, IN FEET ABOVE MEAN SEA LEVEL (FT MSL)
0.01	GROUNDWATER FLOW DIRECTION AND GRADIENT
MW-15 / 97.04 / 0.14 J / <0.0002	WELL DESIGNATION; GROUNDWATER ELEVATION (FT MSL); DRO CONCENTRATION (mg/L); BENZENE CONCENTRATION (mg/L)
mg/L	MILLIGRAMS PER LITER
J	ESTIMATED VALUE BETWEEN METHOD DETECTION LIMIT AND LABORATORY REPORTING LIMIT
NA	NOT ANALYZED
NS	NOT SAMPLED
DUP	DUPLICATE SAMPLE
*	DATA ANOMALOUS; NOT USED IN CONTOURING

RESULTS HIGHLIGHTED GREEN MEETS OR EXCEEDS ADEC TABLE C GROUNDWATER CLEANUP LEVEL (18 AAC 75.345)

0 20 40ft

GHD

CHEVRON-BRANDED SERVICE STATION 95799
2500 SEWARD HIGHWAY
ANCHORAGE, ALASKA

GROUNDWATER ELEVATION CONTOUR AND HYDROCARBON CONCENTRATION MAP - OCTOBER 16, 2018

620914-940418
Nov 21, 2018

FIGURE 2

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Tables

Table 1

Current Groundwater Analytical Results
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS		PRIMARY VOCS			
					DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels					**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**
MW-1R	10/16/2018	110.10	13.10	97.00	0.95	-	0.001	<0.0002	<0.0002	<0.0005
MW-2R	10/16/2018	109.85	13.12	96.73	0.20 J	-	<0.0002	<0.0002	<0.0002	0.002 J
MW-11R	10/16/2018	110.15	13.25	96.90	**2.6 / 2.8**	-	0.002	<0.0002	0.001	0.006
MW-14	10/16/2018[1]	110.90	13.71	97.19	-	-	-	-	-	-
MW-15	10/16/2018	111.22	14.18	97.04	0.14 J	-	<0.0002	<0.0002	<0.0002	<0.0005
OS-2	10/16/2018	109.68	13.63	96.05	-	-	**0.014 / 0.014**	<0.0002 / <0.0002	<0.0002 / <0.0002	0.0008 J / 0.0008 J
OS-3	10/16/2018	105.99	10.69	95.30	-	-	<0.0002	<0.0002	<0.0002	<0.0005
QA	10/16/2018	-	-	-	-	-	<0.0002	<0.0002	<0.0002	<0.0005

Notes and Abbreviations

TOC = top of casing
DTW = depth to water
GWE = groundwater elevation
DRO = diesel range organics by Alaska Series Method AK102
GRO = gasoline range organics by Alaska Series Method AK101
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
1 = Monitor only

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**
MW-1	12/01/1989**	99.49	13.53	85.96	-	-	-	-	-	-	-	-
MW-1	09/01/1990**	99.49	13.84	85.65	-	-	-	-	-	-	-	-
MW-1	01/01/1991**	99.49	14.40	85.09	-	-	-	-	-	-	-	-
MW-1	03/01/1991**	99.49	14.66	84.83	-	-	-	-	-	-	-	-
MW-1	08/01/1991**	99.49	14.41	85.08	-	-	-	-	-	-	-	-
MW-1	11/01/1991**	99.49	14.11	85.38	-	-	-	**0.021**	0.003	**0.036**	0.072	-
MW-1	02/01/1992**	99.49	14.40	85.09	-	-	-	**0.018**	0.011	**0.027**	0.063	-
MW-1	05/01/1992**	99.49	13.26	86.23	-	-	-	**0.016**	ND	**0.029**	0.052	-
MW-1	08/01/1992	99.49	13.64	85.85	-	-	-	**0.016**	ND	**0.03**	0.055	-
MW-1	05/01/1993**	99.49	13.56	85.93	ND	-	1.8	**0.035**	0.002	**0.053**	0.13	-
MW-1	08/01/1993**	99.49	13.82	85.67	ND	-	1.3	**0.06**	0.002	**0.051**	0.089	-
MW-1	11/01/1993**	99.41	13.64	85.77	ND	-	**11.0**	**0.07**	0.003	**0.034**	0.056	-
MW-1	03/01/1994**	99.41	14.64	84.77	ND	-	0.89	**0.033**	0.0012	**0.026**	0.058	-
MW-1	06/01/1994**	99.41	14.17	85.24	ND	-	1.6	**0.034**	0.0014	**0.043**	0.097	-
MW-1	08/01/1994**	99.41	14.63	84.78	ND	-	0.82	**0.011**	ND	**0.021**	**0.48**	-
MW-1	12/13/1994	99.41	15.10	84.31	-	-	0.2	0.0007	ND	0.0031	0.0087	-
MW-1	03/22/1995	99.41	15.20	84.21	-	-	ND	ND	ND	0.00063	0.0028	-
MW-1	06/22/1995	99.41	14.18	85.23	-	-	0.68	0.0032	0.00059	0.0062	0.019	-
MW-1	08/28/1995	99.41	14.38	85.03	-	-	0.42	0.0026	0.0006	0.0053	0.016	-
MW-1	11/16/1995	99.41	14.48	84.93	-	-	0.48	0.0032	ND	0.0053	0.014	-
MW-1	01/31/1996	99.41	15.00	84.41	-	-	0.2	0.00097	ND	0.0019	0.0055	-
MW-1	06/01/1996	99.41	15.02	84.39	-	-	0.111 / 0.136	0.000633 / <0.0005	<0.0005 / <0.0005	0.00107 / 0.000588	0.00366 / 0.00199	-
MW-1	08/21/1996	99.26	15.16	84.10	-	-	0.135 / 0.134	0.000709 / 0.000795	<0.0005 / 0.000684	0.00111 / 0.00116	0.00412 / 0.0045	-
MW-1	10/15/1996	99.26	15.35	83.91	-	-	0.101 / 0.106	0.000727 / 0.000794	<0.0005 / <0.0005	0.00061 / 0.000642	0.00296 / 0.00301	-
MW-1	04/28/1997	99.26	15.53	83.73	-	-	<0.05 / <0.05	<0.0005 / <0.0005	<0.0005 / 0.000826	<0.0005 / <0.0005	<0.001 / <0.001	-
MW-1	09/07/1997	99.26	14.83	84.43	-	-	<0.05 / <0.05	<0.0005 / 0.000522	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.001 / <0.001	-
MW-1	04/21/1998	99.26	16.00	83.26	-	-	<0.05	<0.001	<0.0005	<0.0005	<0.001	-
MW-1	09/23/1998	99.26	-	-	-	-	-	-	-	-	-	-
MW-1R	06/18/2008	-	12.71	-	-	**6.1**	0.4	**0.056**	0.0006	0.005	0.002	-
MW-1R	08/27/2008	109.64	12.95	96.69	-	**3.6**	0.3	**0.085**	0.001	0.009	0.005	-
MW-1R	05/12/2009	109.64	13.03	96.61	-	1.4	0.17	**0.018**	<0.0005	0.0047	0.0020	-
MW-1R	08/27/2009	109.64	13.28	96.36	-	**2.4**	0.85	**0.087**	0.0027	0.014	0.0071	-
MW-1R	06/16/2010	109.64	13.44	96.20	-	1.1	0.30	**0.073**	0.0016 J	0.0048	0.0026 J	-
MW-1R	09/05/2010	109.64	13.45	96.19	-	**1.6**	0.30	**0.071**	0.0013 J	0.0059	0.0021 J	-
MW-1R	05/22/2011	109.64	13.74	95.90	-	0.64	0.12	**0.0071**	<0.0005	<0.0005	<0.0015	-
MW-1R	09/18/2011	109.64	13.69	95.95	-	0.98	0.094 J	**0.0070**	<0.0005	0.0006 J	<0.0015	-
MW-1R	05/23/2012	109.64	12.99	96.65	-	1.3 J	0.12	0.0037	<0.0005	<0.0005	<0.0015	-
MW-1R	08/01/2012	109.64	13.24	96.40	-	1.2	0.11	0.0032	<0.0005	<0.0005	<0.0015	-
MW-1R	05/22/2013	109.64	12.08	97.56	-	**2.5**	0.068 J	0.0010 J	<0.00023	0.0016	0.018	-
MW-1R[HS]	05/22/2013	109.64	12.08	97.56	-	**3.7**	0.11	0.0016	<0.00023	0.0027	0.025	-
MW-1R	09/17/2013	109.64	11.68	97.96	-	-	-	-	-	-	-	-
MW-1R	09/18/2013	-	-	-	-	**5.8**	0.099 J	0.0035	<0.00023	0.0013	0.0016 J	-
MW-1R	05/06/2014	109.64	12.02	97.62	-	**2.7**	0.12	0.0033	0.00020 J	0.0055	0.0028 J	-
MW-1R	11/05/2014	109.64	12.60	97.04	-	0.91	0.056 J	0.0019	<0.00011	0.0023	<0.00040	-
MW-1R	05/01/2015	109.64	13.21	96.43	-	<0.71	0.20	0.0021	<0.0005	0.0055	0.0045 J	-
MW-1R	11/20/2015	109.64	12.41	97.23	-	0.74	0.039 J	<0.0005	0.0007 J	0.0008 J	0.006	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**
MW-1R	05/18/2016	109.64	13.00	96.64	-	1.0	0.16	0.002	<0.0005	0.003	0.002	-
MW-1R	10/19/2016	109.64	13.40	96.24	-	0.87	0.14	0.001	<0.0005	<0.0005	<0.0005	-
MW-1R	05/25/2017[1]	110.10	13.56	96.54	-	0.67	0.068 J	<0.0005	<0.0005	<0.0005	<0.0005	-
MW-1R	09/29/2017	110.10	13.42	96.68	-	0.81	0.074 J	0.0007 J	<0.0005	<0.0005	<0.0005	-
MW-1R	06/06/2018	110.10	13.05	97.05	-	1.2	-	0.0008 J	<0.0005	<0.0005	<0.0005	<0.0005
MW-1R	10/16/2018	110.10	13.10	97.00	-	0.95	-	0.001	<0.0002	<0.0002	<0.0005	-
MW-2	12/01/1989**	99.17	13.05	86.12	-	-	-	-	-	-	-	-
MW-2	09/01/1990**	99.17	13.48	85.69	-	-	-	-	-	-	-	-
MW-2	01/01/1991**	99.17	13.91	85.26	-	-	-	-	-	-	-	-
MW-2	03/01/1991**	99.17	14.18	84.99	-	-	-	-	-	-	-	-
MW-2	08/01/1991**	99.17	13.92	85.25	-	-	-	-	-	-	-	-
MW-2	11/01/1991**	99.17	13.65	85.52	-	-	-	0.0016	ND	ND	0.0008	-
MW-2	02/01/1992**	99.17	13.98	85.19	-	-	-	0.0019	ND	ND	ND	-
MW-2	05/01/1992**	99.17	12.76	86.41	-	-	-	0.0018	ND	ND	ND	-
MW-2	08/01/1992**	99.17	13.13	86.04	-	-	-	0.0016	0.002	0.0009	0.0033	-
MW-2	05/01/1993**	99.17	12.89	86.28	3.0	-	0.18	**0.076**	0.0007	0.0005	0.002	-
MW-2	08/01/1993**	99.17	13.49	85.68	ND	-	0.49	**0.037**	0.17	0.003	0.02	-
MW-2	11/01/1993**	99.17	13.26	85.91	ND	-	0.33	**0.011**	0.074	0.003	0.017	-
MW-2	03/01/1994**	99.17	14.28	84.89	3.8	-	0.45	0.0024	0.003	0.016	0.082	-
MW-2	06/01/1994**	99.17	13.81	85.36	ND	-	0.41	0.0039	0.0013	**0.025**	0.094	-
MW-2	08/01/1994**	99.17	14.24	84.93	ND	-	0.36	0.0007	0.0022	**0.025**	0.072	-
MW-2	12/13/1994	99.17	14.75	84.42	16.0	-	0.42	0.0008	ND	0.006	0.0076	-
MW-2	03/22/1995	99.17	14.80	84.37	23.0	-	0.27	ND	ND	0.00091	0.0089	-
MW-2	06/22/1995	99.17	13.79	85.38	5.0	-	0.18	ND	0.0055	0.007	0.031	-
MW-2	08/28/1995	99.17	13.97	85.20	6.2	-	0.22	ND	ND	0.029	0.073	-
MW-2	11/16/1995	99.17	14.09	85.08	4.0	-	0.29	ND	ND	0.037	0.045	-
MW-2	01/31/1996	99.17	14.59	84.58	5.2	-	0.24	ND	ND	0.038	0.063	-
MW-2	04/21/1998	99.17	14.60	84.57	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
MW-2	09/23/1998	99.17	-	-	-	-	-	-	-	-	-	-
MW-2R	06/18/2008	-	12.76	-	-	**10**	**4.4**	**0.031**	0.0008	**0.020**	**0.74**	-
MW-2R	08/27/2008	109.85	13.01	96.84	-	**8.7**	**2.8**	**0.030**	<0.0005	0.013	**0.373**	-
MW-2R	05/12/2009	109.85	13.13	96.72	-	1.0	1.6	**0.0089**	<0.0005	0.0053	0.099	-
MW-2R	08/27/2009	109.85	13.33	96.52	-	**1.8**	2.1	**0.013**	<0.0005	0.0064	0.13	-
MW-2R	06/16/2010	109.85	13.53	96.32	-	**1.6**	0.23	**0.0082**	<0.0005	0.0007 J	0.018	-
MW-2R	09/05/2010	109.85	13.41	-	-	1.0	0.42	**0.020**	<0.0005	0.0015 J	0.036	-
MW-2R	05/22/2011	109.85	13.84	96.01	-	0.31	0.20	0.0028	<0.0005	0.0006 J	0.014	-
MW-2R	09/18/2011	109.85	13.76	96.09	-	**14**	1.3	**0.0079**	<0.0005	0.0019 J	0.096	-
MW-2R	05/23/2012	109.85	13.06	96.79	-	0.30 J	0.057 J	<0.0005	<0.0005	<0.0005	0.0043 J	-
MW-2R	08/01/2012	109.85	13.31	96.54	-	1.2	0.37	<0.0005	<0.0005	0.0006 J	0.012	-
MW-2R	05/22/2013	109.85	12.15	97.70	-	**1.5**	0.13	0.00024 J	0.00026 J	0.0012	0.031	-
MW-2R[HS]	05/22/2013	109.85	12.15	97.70	-	**1.9**	0.15	0.00027 J	0.00032 J	0.0014	0.033	-
MW-2R	09/17/2013	109.85	11.71	98.14	-	-	-	-	-	-	-	-
MW-2R	09/18/2013	-	-	-	-	0.49 J	<0.050	<0.00024	<0.00023	0.00031 J	0.0055	-
MW-2R	05/06/2014	109.85	12.02	97.83	-	**2.0**	0.16	0.00054 J	0.00027 J	0.00054 J	0.037	-
MW-2R	11/05/2014	109.85	12.59	97.26	-	1.0	0.55	0.00057 J	0.00036 J	0.0010	0.046	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**
MW-2R	05/01/2015	109.85	13.22	96.63		<0.53	0.40	<0.0005	<0.0005	0.0006 J	0.033	-
MW-2R	11/20/2015	109.85	12.46	97.39	-	0.21 J	0.23	<0.0005	0.002	0.001	0.022	-
MW-2R	05/18/2016	109.85	13.06	96.79	-	0.17 J	0.037 J	<0.0005	<0.0005	<0.0005	0.001	-
MW-2R	10/19/2016	109.85	13.45	96.40	-	0.21 J	0.11	<0.0005	<0.0005	<0.0005	0.005	-
MW-2R	05/25/2017[1]	109.85	13.61	96.24	-	1.4	0.53	<0.0005	<0.0005	<0.0005	0.019	-
MW-2R	09/29/2017	109.85	13.49	96.36	-	0.24 J	0.11	<0.0005	<0.0005	<0.0005	0.005	-
MW-2R	06/07/2018	109.85	13.08	96.77	-	0.57	-	<0.0005	<0.0005	<0.0005	0.007	<0.0005
MW-2R	10/16/2018	109.85	13.12	96.73	-	0.20 J	-	<0.0002	<0.0002	<0.0002	0.002 J	-
MW-5	12/01/1989**	100.06	13.79	86.27	-	-	-	-	-	-	-	-
MW-5	09/01/1990**	100.06	14.11	85.95	-	-	-	-	-	-	-	-
MW-5	01/01/1991**	100.06	14.70	85.36	-	-	-	-	-	-	-	-
MW-5	03/01/1991**	100.06	14.96	85.10	-	-	-	-	-	-	-	-
MW-5	08/01/1991**	100.06	14.71	85.35	-	-	-	-	-	-	-	-
MW-5	11/01/1991**	100.06	14.40	85.66	-	-	-	ND	ND	ND	ND	-
MW-5	02/01/1992**	100.06	14.72	85.34	-	-	-	ND	ND	ND	ND	-
MW-5	05/01/1992**	100.06	13.43	86.63	-	-	-	ND	ND	ND	ND	-
MW-5	08/01/1992**	100.06	13.81	86.25	-	-	-	ND	ND	ND	ND	-
MW-5	05/01/1993**	100.06	13.66	86.40	ND	-	ND	0.0006	0.0007	ND	0.001	-
MW-5	08/01/1993**	100.06	13.96	86.10	-	-	ND	ND	ND	ND	ND	-
MW-5	11/01/1993**	100.06	14.00	86.06	-	-	ND	ND	ND	ND	ND	-
MW-5	06/22/1995	100.06	14.55	85.51	-	-	-	-	-	-	-	-
MW-5	08/28/1995	99.91	-	-	-	-	-	-	-	-	-	-
MW-5	04/21/1998	99.91	15.10	84.81	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
MW-5	09/23/1998	99.91	-	-	-	-	-	-	-	-	-	-
MW-11	12/01/1989**	99.19	13.36	85.83	-	-	-	-	-	-	-	-
MW-11	09/01/1990**	99.19	13.79	85.40	-	-	-	-	-	-	-	-
MW-11	01/01/1991**	99.19	14.29	84.90	-	-	-	-	-	-	-	-
MW-11	03/01/1991**	99.19	14.50	84.69	-	-	-	-	-	-	-	-
MW-11	08/01/1991**	99.19	-	-	-	-	-	-	-	-	-	-
MW-11	11/01/1991**	99.19	13.98	85.21	-	-	-	**0.68**	**1.8**	**4.1**	**21.0**	-
MW-11	02/01/1992**	99.19	14.22	84.97	-	-	-	**0.59**	**1.3**	**0.71**	**3.7**	-
MW-11	05/01/1992**	99.19	13.07	86.12	-	-	-	**0.35**	**1.2**	**0.62**	**3.0**	-
MW-11	08/01/1992**	99.19	13.38	85.81	-	-	-	**0.29**	**1.4**	**0.98**	**4.7**	-
MW-11	12/01/1994**	99.19	-	-	-	-	-	-	-	-	-	-
MW-11	03/22/1995	99.19	15.50	83.69	-	-	-	-	-	-	-	-
MW-11	06/22/1995	99.19	14.14	85.05	52.0	-	**6.9**	**0.0063**	0.021	**0.061**	**0.53**	-
MW-11	08/28/1995	99.19	14.39	84.80	80.0	-	**3.7**	**0.01**	0.037	**0.039**	**0.32**	-
MW-11	11/16/1995	99.19	14.50	84.69	20.0	-	**5.0**	**0.008**	0.019	**0.035**	**0.26**	-
MW-11	01/31/1996	99.19	15.00	84.19	20.0	-	**6.3 / 4.7**	**0.008 / 0.0085**	0.018 / 0.019	**0.029 / 0.029**	0.18 / 0.18	-
MW-11	06/01/1996	99.19	14.95	84.24	20.0	-	**2.21**	**0.00528**	0.0103	**0.0198**	0.152	-
MW-11	08/21/1996	98.90	15.02	83.88	11.2	-	1.65	0.00424	0.00815	**0.0159**	0.103	-
MW-11	10/15/1996	98.90	15.30	83.60	16.6	-	**2.3**	**0.00478**	0.00974	**0.0155**	0.104	-
MW-11	04/28/1997	98.90	15.35	83.55	18.6	-	0.972	0.00351	0.00675	0.0072	0.0711	-
MW-11	09/07/1997	98.90	14.68	84.22	4.2	-	1.42	0.00415	0.00567	0.0109	**0.199**	-
MW-11	04/21/1998	98.90	14.75	84.15	3.4	-	<0.05	<0.0005	<0.0005	<0.0005	0.00319	-

Table 2

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Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**
MW-11	09/23/1998	98.90	-	-	-	-	-	-	-	-	-	-
MW-11R	06/18/2008	-	12.82	-	-	**32**	2.1	**0.16**	0.005	0.014	0.097	-
MW-11R	08/27/2008	109.64	13.07	96.57	-	**25 / 21**	1.5 / 1.8	**0.23 / 0.23**	0.002 / 0.002	0.006 / 0.006	0.040 / 0.039	-
MW-11R	05/12/2009	109.64	13.15	96.49	-	**4.5 / 5.3**	1.1 / 1.1	**0.21 / 0.21**	0.0009 / 0.001	0.0020 / 0.0020	0.0089 / 0.0089	-
MW-11R	08/27/2009	109.64	13.41	96.23	-	**6.6 / 6.7**	2.0 / 1.7	**0.28 / 0.26**	0.0023 / 0.0019 J	0.0050 / 0.0042	0.030 / 0.025	-
MW-11R	06/16/2010	109.64	13.62	96.02	-	**3.8 / 4.2**	1.1 / 1.2	**0.19 / 0.20**	0.0021 / 0.0022	0.0028 / 0.0029	0.016 / 0.017	-
MW-11R	09/05/2010	109.64	14.53	95.11	-	**2.5 / 2.3**	1.1 / 1.1	**0.21 / 0.22**	0.0015 J / 0.0016 J	0.0015 J / 0.0017 J	0.0069 / 0.0079	-
MW-11R	05/22/2011	109.64	13.89	95.75	-	1.2 J / **2.0 J**	0.56 / 0.56	**0.076 / 0.084**	0.0009 J / 0.0009 J	0.001 J / 0.0010 J	0.0046 J / 0.0048 J	-
MW-11R	09/18/2011	109.64	13.84	95.80	-	**27 J / 4.6 J**	0.72 / 0.79	**0.056 / 0.069**	0.0008 J / 0.0009 J	0.0011 J / 0.0011 J	0.0090 / 0.0087	-
MW-11R	05/23/2012	109.64	13.14	96.50	-	**4.1 J / 5.0 J**	0.63 / 0.62	**0.040 / 0.038**	0.0006 J / 0.0006 J	0.0013 J / 0.0012 J	0.0079 / 0.0072	-
MW-11R	08/01/2012	109.64	13.41	96.23	-	**14 / 14**	0.23 / 0.20	**0.010 / 0.011**	<0.0005 / <0.0005	0.0006 J / 0.0007 J	0.0040 J / 0.0043 J	-
MW-11R	05/22/2013	109.64	12.13	97.51	-	**3.3 / 2.6**	0.55 / 0.54	**0.023 / 0.022**	<0.00023 / <0.00023	0.0024 / 0.0023	0.010 / 0.010	-
MW-11R[HS]	05/22/2013	109.64	12.13	97.51	-	**4.1 / 4.3**	0.53 / 0.55	**0.028 / 0.029**	0.00029 J / 0.00030 J	0.0025 / 0.0028	0.012 / 0.013	-
MW-11R	09/17/2013	109.64	11.73	97.91	-	-	-	-	-	-	-	-
MW-11R	09/18/2013	-	-	-	-	**4.7 / 5.0**	0.33 / 0.27	**0.019 / 0.023**	0.00049 J / 0.00048 J	0.0018 / 0.0018	0.0090 / 0.0086	-
MW-11R	05/06/2014	109.64	12.13	97.51	-	**2.4 / 2.4**	0.32 / 0.34	**0.012 / 0.013**	0.00034 J / <0.00048	0.0014 / 0.0018	0.0077 / 0.0090	-
MW-11R	11/05/2014	109.64	12.72	96.92	-	1.2 / 1.1	0.38 / 0.33	**0.0087 / 0.0093**	<0.00031 J / <0.00028 J	0.0016 / 0.0015	0.0067 / 0.0065	-
MW-11R	05/01/2015	109.64	13.34	96.30	-	<0.65 / <0.63	0.52 / 0.50	**0.0066 / 0.0063**	<0.0005 / <0.0005	0.0014 J / 0.0014 J	<0.0080 / <0.0070	-
MW-11R	11/20/2015	109.64	12.58	97.06	-	**2.5 / 2.3**	0.44 / 0.45	0.004 / 0.004	0.007 / 0.007	0.005 / 0.005	0.036 / 0.035	-
MW-11R	05/18/2016	109.64	13.17	96.47	-	**1.6**	0.37	0.002	<0.0005	0.0006 J	0.003	-
MW-11R	10/19/2016	109.64	13.58	96.06	-	<0.051J / 1.2 J	0.25 / 0.27	0.003 / 0.002	<0.0005 / <0.0005	0.0007 J / <0.0005	0.003 / 0.002	-
MW-11R	05/25/2017[1]	110.15	13.74	96.41	-	1.1 / 1.3	0.47 / 0.43	0.001 J / 0.001 J	<0.0005 / <0.0005	<0.0005 / <0.0005	0.002 / 0.002	-
MW-11R	09/29/2017	110.15	13.61	96.54	-	0.86 / 1.1	0.40 / 0.45	0.002 / 0.001	<0.0005 / <0.0005	<0.0005 / <0.0005	0.001 / 0.001	-
MW-11R	06/06/2018	110.15	13.21	96.94	-	**1.8 / 1.9**	-	0.001 / 0.001	<0.0005 / <0.0005	<0.0005 / <0.0005	0.002 / 0.002	<0.0005 / <0.0005
MW-11R	10/16/2018	110.15	13.25	96.90	-	**2.6 / 2.8**	-	0.002	<0.0002	0.001	0.006	-
MW-12	08/01/1991**	98.67	13.75	84.92	-	-	-	-	-	-	-	-
MW-12	11/01/1991**	98.67	13.39	85.28	-	-	-	0.0009	0.0038	0.0007	0.0044	-
MW-12	02/01/1992**	98.67	13.69	84.98	-	-	-	ND	ND	ND	ND	-
MW-12	05/01/1992**	98.67	12.47	86.20	-	-	-	ND	ND	ND	ND	-
MW-12	08/01/1992**	98.67	12.82	85.85	-	-	-	ND	ND	ND	ND	-
MW-12	05/01/1993**	98.67	12.66	86.01	-	-	ND	ND	ND	ND	ND	-
MW-12	08/01/1993**	98.67	12.97	85.70	-	-	ND	ND	ND	ND	ND	-
MW-12	11/01/1993**	98.67	12.99	85.68	-	-	0.71	ND	ND	ND	ND	-
MW-12	03/01/1994**	98.67	14.12	84.55	-	-	0.37	-	-	-	-	-
MW-12	06/01/1994**	98.67	13.53	85.14	-	-	ND	-	-	-	-	-
MW-12	08/01/1994**	98.67	14.04	84.63	-	-	ND	-	-	-	-	-
MW-12	12/13/1994	98.67	-	-	-	-	-	-	-	-	-	-
MW-12	03/22/1995	98.67	-	-	-	-	-	-	-	-	-	-
MW-12	06/22/1995	98.67	13.57	85.10	-	-	ND	-	-	-	-	-
MW-12	08/28/1995	98.67	13.74	84.93	-	-	ND	ND	ND	ND	ND	-
MW-12	11/16/1995	98.67	13.82	84.85	-	-	ND	ND	ND	ND	ND	-
MW-12	01/31/1996	98.67	14.25	84.42	-	-	ND	ND	ND	ND	ND	-
MW-12	04/28/1997	98.67	14.98	83.69	-	-	<0.05	<0.0005	<0.0005	<0.0005	0.00168	-
MW-12	04/21/1998	98.67	-	-	-	-	-	-	-	-	-	-
MW-12	09/23/1998	98.67	-	-	-	-	-	-	-	-	-	-

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Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**
MW-13	07/03/1999	109.98	14.24	95.74	-	-	0.804	0.00178	0.00623	0.0273	0.235	<0.01
MW-13	10/12/1999	109.98	13.93	96.05	-	-	1.44	<0.005	<0.005	0.0256	0.175	<0.05
MW-13	05/17/2000	109.98	13.43	96.55	-	-	1.020 / <0.08	0.00103 / <0.0005	0.00213 / <0.0005	0.00485 / <0.0005	0.0456 / <0.001	<0.002 / <0.002
MW-13	09/26/2000	109.98	13.51	96.47	-	-	0.57	<0.00132	<0.00058	<0.00089	<0.0445	<0.001
MW-13	05/04/2001	109.98	13.52	96.46	-	-	0.498	0.00119	0.00114	0.0023	0.0163	0.00133 / <0.005
MW-13	10/03/2001	109.98	13.94	96.04	-	-	0.35	0.000798	0.000608	0.00112	0.0112	0.00112
MW-13	05/07/2002	109.98	14.91	95.07	-	0.579 / 0.73	0.362	0.000786	0.00069	0.000849	0.00645	<0.001
MW-13	09/19/2002	109.98	14.00	95.98	-	0.594	0.273	0.00037	<0.0005	<0.0005	0.00439	<0.001 / <0.002
MW-13	05/29/2003	109.98	14.33	95.65	-	0.61	0.16	<0.0005	<0.0005	<0.0005	<0.001	<0.002
MW-13	10/01/2003	109.98	14.39	95.59	-	-	-	-	-	-	-	-
MW-13	06/02/2004	109.98	13.56	96.42	-	-	-	-	-	-	-	-
MW-13	09/20/2004	109.98	13.95	96.03	-	-	-	-	-	-	-	-
MW-13	05/12/2005	109.98	-	-	-	-	-	-	-	-	-	-
MW-14	09/05/2010	-	14.18	-	-	0.16 J	0.38	**0.022**	<0.0005	**0.076**	0.058	-
MW-14	05/22/2011	-	14.60	-	-	0.26 J	0.043 J	**0.0082**	<0.0005	0.0047	<0.0015	-
MW-14	09/18/2011	-	14.50	-	-	<0.50	0.011 J	0.0034	<0.0005	<0.0005	<0.0015	-
MW-14	05/23/2012	-	13.83	-	-	**1.6**	0.049 J	0.0039	<0.0005	<0.0005	<0.0015	-
MW-14	08/01/2012	-	14.03	-	-	0.42	0.020 J	0.0039	<0.0005	<0.0005	<0.0015	-
MW-14	05/22/2013	-	12.70	-	-	0.82	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-
MW-14[HS]	05/22/2013	-	12.70	-	-	1.4	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-
MW-14	09/17/2013	-	12.28	-	-	-	-	-	-	-	-	-
MW-14	09/18/2013	-	-	-	-	1.1	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-
MW-14	05/06/2014	-	12.60	-	-	0.24 J	<0.050	0.00031 J	<0.00011	<0.00016	<0.00040	-
MW-14	11/05/2014	-	13.18	-	-	0.29 J	<0.050	0.00018 J	<0.00011	<0.00016	<0.00040	-
MW-14	05/01/2015	-	13.85	-		<0.053	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
MW-14	11/20/2015	-	-	-		-	-	-	-	-	-	-
MW-14	05/18/2016	-	13.75	-	-	<0.051	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	-
MW-14	10/19/2016	-	14.22	-	-	0.058 J	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	-
MW-14	05/25/2017[1]	110.90	14.33	96.57	-	0.089 J	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	-
MW-14	09/29/2017	110.90	14.22	96.68	-	0.063 J	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	-
MW-14	06/06/2018	110.90	13.78	97.12	-	-	-	-	-	-	-	-
MW-14	10/16/2018	110.90	13.71	97.19	-	-	-	-	-	-	-	-
MW-15	09/05/2010	-	14.58	-	-	0.56	0.010 J	0.0007 J	<0.0005	<0.0005	<0.0015	-
MW-15	05/22/2011	-	14.97	-	-	0.18 J	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
MW-15	09/18/2011	-	14.89	-	-	<0.50	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
MW-15	05/23/2012	-	14.22	-	-	0.21 J	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
MW-15	08/01/2012	-	14.22	-	-	0.22 J	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
MW-15	05/22/2013	-	13.11	-	-	0.22 J	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-
MW-15[HS]	05/22/2013	-	13.11	-	-	0.84	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-
MW-15	09/17/2013	-	12.70	-	-	-	-	-	-	-	-	-
MW-15	09/18/2013	-	-	-	-	1.0	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-
MW-15	05/06/2014	-	13.02	-	-	0.099 J	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	-
MW-15	11/05/2014		13.62	-	-	0.19 J	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	-
MW-15	05/01/2015	-	14.25	-	-	<0.057	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-

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Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**
MW-15	11/20/2015	-	13.50	-	-	**1.7**	**39**	**0.043**	**4.4**	**1.3**	**7.8**	-
MW-15	05/18/2016	-	14.13	-	-	0.15 J / 0.19 J	1.0 / 1.1	<0.0005 / <0.0005	0.004 / 0.004	0.003 / 0.003	**0.30 / 0.29**	-
MW-15	10/19/2016	-	14.58	-	-	0.060 J	0.028 J	<0.0005	<0.0005	<0.0005	<0.0005	-
MW-15	05/25/2017[1]	111.22	14.73	96.49	-	<0.052	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	-
MW-15	09/29/2017	111.22	14.60	96.62	-	0.48	0.037 J	<0.0005	<0.0005	<0.0005	<0.0005	-
MW-15	06/06/2018	111.22	14.17	97.05	-	0.10 J	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
MW-15	10/16/2018	111.22	14.18	97.04	-	0.14 J	-	<0.0002	<0.0002	<0.0002	<0.0005	-
OS-1	09/01/1990**	98.97	13.66	85.31	-	-	-	-	-	-	-	-
OS-1	01/01/1991**	98.97	14.16	84.81	-	-	-	-	-	-	-	-
OS-1	03/01/1991**	98.97	14.39	84.58	-	-	-	-	-	-	-	-
OS-1	08/01/1991**	98.97	14.23	84.74	-	-	-	-	-	-	-	-
OS-1	11/01/1991**	98.97	13.58	85.39	-	-	-	ND	ND	ND	0.003	-
OS-1	02/01/1992**	98.97	14.20	84.77	-	-	-	0.002	ND	ND	0.004	-
OS-1	05/01/1992**	98.97	13.03	85.94	-	-	-	**0.015**	ND	0.001	0.002	-
OS-1	08/01/1992**	98.97	13.38	85.59	-	-	-	**0.06**	ND	**0.016**	0.019	-
OS-1	05/01/1993**	98.97	13.20	85.77	ND	-	0.20	**0.023**	ND	0.013	0.032	-
OS-1	08/01/1993**	98.97	13.52	85.45	ND	-	0.22	**0.028**	ND	**0.017**	0.03	-
OS-1	11/01/1993**	98.97	13.46	85.51	ND	-	0.20	**0.011**	0.0005	0.007	0.02	-
OS-1	03/01/1994**	98.97	14.44	84.53	ND	-	1.70	**0.012**	ND	0.0011	0.011	-
OS-1	06/01/1994**	98.97	13.97	85.00	ND	-	ND	**0.01**	ND	ND	0.0064	-
OS-1	08/01/1994**	98.97	14.46	84.51	ND	-	ND	**0.009**	ND	ND	0.0075	-
OS-1	04/21/1998	98.97	14.60	84.37	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
OS-1	04/27/1999	98.97	13.91	85.06	-	-	0.114	0.00279	0.00124	0.00325	0.00603	<0.005
OS-1	10/12/1999	98.97	14.25	84.72	-	-	<0.05	0.00205	<0.0005	<0.0005	<0.0005	<0.005
OS-1	05/17/2000	98.97	13.75	85.22	-	-	<0.08	<0.0005	<0.0005	<0.0005	<0.001	<0.002
OS-1	09/26/2000	98.97	13.90	85.07	-	-	<0.05 / <0.05	<0.0002 / 0.00246	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.001 / <0.001	<0.001 / <0.001
OS-1	05/04/2001	98.97	13.85	85.12	-	-	0.253	**0.00772**	0.000638	0.00331	0.00648	**1.15** / <0.005
OS-1	10/03/2001	98.97	14.26	84.71	-	-	<0.05	0.00167	<0.0005	<0.0005	<0.001	<0.001
OS-1	05/07/2002	98.97	14.56	84.41	-	-	<0.05	0.000529	0.000577	<0.0005	<0.001	<0.001
OS-1	09/19/2002	98.97	14.32	84.65	-	-	<0.05	0.000507	<0.0005	<0.0005	<0.001	<0.001 / <0.002
OS-1	05/29/2003	98.97	14.64	84.33	-	-	0.012	<0.0005	<0.0005	<0.0005	<0.001	<0.002
OS-1	10/01/2003	98.97	14.73	84.24	-	-	-	-	-	-	-	-
OS-1	06/02/2004	98.97	13.88	85.09	-	-	-	-	-	-	-	-
OS-1	09/20/2004	98.97	14.10	84.87	-	-	-	-	-	-	-	-
OS-1	05/12/2005	98.97	13.76	85.21	-	-	-	-	-	-	-	-
OS-1	09/30/2005	98.97	13.76	85.21	-	-	-	-	-	-	-	-
OS-1	05/15/2006	98.97	14.03	84.94	-	-	-	<0.0005	<0.0005	<0.0005	<0.001	-
OS-1	09/23/2006	98.97	13.58	85.39	-	-	-	<0.0005	<0.0007	<0.0008	<0.0016	-
OS-1	05/16/2007	98.97	13.81	85.16	-	-	-	0.0007	<0.0005	<0.0005	<0.0005	-
OS-1	08/15/2007	98.97	-	-	-	-	-	-	-	-	-	-
OS-2	09/01/1990**	98.55	13.40	85.15	-	-	-	-	-	-	-	-
OS-2	01/01/1991**	98.55	13.88	84.67	-	-	-	-	-	-	-	-
OS-2	03/01/1991**	98.55	14.13	84.42	-	-	-	-	-	-	-	-
OS-2	08/01/1991**	98.55	13.96	84.59	-	-	-	-	-	-	-	-
OS-2	11/01/1991**	98.55	13.87	84.68	-	-	-	**0.56**	0.097	**0.069**	**0.25**	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**
OS-2	02/01/1992**	98.55	13.89	84.66	-	-	-	**0.071**	0.15	**0.086**	**0.42**	-
OS-2	05/01/1992**	98.55	12.72	85.83	-	-	-	**0.038**	0.072	**0.062**	**0.29**	-
OS-2	08/01/1992**	98.55	13.06	85.49	-	-	-	**0.029**	0.009	**0.045**	**0.2**	-
OS-2	05/01/1993**	98.55	12.86	85.69	ND	-	0.57	**0.018**	0.001	**0.037**	0.11	-
OS-2	08/01/1993**	98.55	13.19	85.36	ND	-	0.32	**0.019**	ND	**0.032**	0.052	-
OS-2	11/01/1993**	98.55	13.15	85.40	ND	-	0.73	**0.022**	0.006	**0.037**	0.081	-
OS-2	03/01/1994**	98.55	14.16	84.39	1.30	-	0.85	**0.029**	0.02	**0.038**	0.13	-
OS-2	06/01/1994**	98.55	13.69	84.86	ND	-	1.00	**0.05**	0.014	**0.06**	0.17	-
OS-2	08/01/1994**	98.55	14.19	84.36	ND	-	1.50	**0.056**	0.0072	**0.066**	0.19	-
OS-2	12/13/1994	98.55	-	-	-	-	-	-	-	-	-	-
OS-2	03/22/1995	98.55	-	-	-	-	-	-	-	-	-	-
OS-2	06/22/1995	98.55	13.70	84.85	1.60	-	1.60	**0.038**	0.012	**0.048**	0.16	-
OS-2	08/28/1995	98.55	13.86	84.69	6.30	-	1.50	**0.048**	0.0078	**0.063**	**0.25**	-
OS-2	11/16/1995	98.55	13.96	84.59	1.80	-	1.70	**0.045**	0.002	**0.051**	0.16	-
OS-2	01/31/1996	98.55	14.44	84.11	2.00	-	1.30	**0.054**	0.0018	**0.053**	0.14	-
OS-2	06/01/1996	98.55	14.44	84.11	-	-	0.861	**0.0463**	<0.0025	**0.0447**	0.0895	-
OS-2	08/21/1996	98.55	14.71	83.84	-	-	0.739	**0.0361**	0.00129	**0.0318**	0.0609	-
OS-2	10/15/1996	98.55	14.99	83.56	-	-	1.09	**0.0437**	0.00143	**0.037**	0.063	-
OS-2	04/28/1997	98.55	14.95	83.60	-	-	0.687	**0.0282**	0.000719	**0.0265**	0.0255	-
OS-2	09/07/1997	98.55	14.36	84.19	-	-	0.327	**0.0234**	0.00145	**0.0289**	0.0289	-
OS-2	04/21/1998	98.55	14.42	84.13	-	-	0.332	**0.0201**	<0.0005	**0.0189**	0.0137	-
OS-2	04/27/1998	98.55	13.62	84.93	-	-	0.462 / 0.450	**0.00772** / **0.00713**	0.00242 / 0.00223	0.0135 / 0.0123	0.00954 / 0.00915	0.00534 / <0.005 / 0.00514
OS-2	09/23/1998	98.55	14.16	84.39	-	-	0.233 / 0.248	**0.017** / **0.0187**	<0.0005 / <0.0008	0.00856 / 0.0105	<0.006 / 0.00663	-
OS-2	10/12/1999	98.55	13.97	84.58	-	-	0.307 / 0.308	**0.0107** / **0.011**	0.00065 / 0.00075	0.0138 / 0.0148	0.00058 / 0.00062	<0.005 / <0.005
OS-2	05/17/2000	98.55	13.43	85.12	-	-	0.279	**0.00912**	0.000801	0.00419	0.00148	<0.002
OS-2	09/26/2000	98.55	13.55	85.00	-	-	0.268	**0.0105**	<0.0015	0.00663	<0.0113	<0.001
OS-2	05/04/2001	98.55	13.55	85.00	-	-	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001
OS-2	10/03/2001	98.55	13.98	84.57	-	-	0.301 / 0.309	**0.0104** / **0.0105**	0.000854 / 0.000777	0.00834 / 0.00816	0.0101 / 0.0102	0.00124 / 0.00117
OS-2	05/07/2002	98.55	14.25	84.30	-	-	0.314	**0.0147**	0.00127	0.0101	0.003	<0.001
OS-2	09/19/2002	98.55	14.03	84.52	-	-	0.231	**0.0134**	0.00527	0.00632	0.0018	<0.001 / <0.002
OS-2	05/29/2003	98.55	14.35	84.20	-	-	0.26	**0.016**	<0.0005	0.003	<0.001	<0.002
OS-2	10/01/2003	98.55	14.40	84.15	-	-	-	**0.016**	<0.0005	0.002	0.0018	-
OS-2	06/02/2004	98.55	13.59	84.96	-	-	-	**0.02**	<0.0002	0.0004	0.0016	-
OS-2	09/20/2004	98.55	13.86	84.69	-	-	-	**0.042**	0.0003	0.0007	0.0033	-
OS-2	05/12/2005	98.55	13.43	85.12	-	-	-	**0.74**	0.0011	0.0009	0.0022	-
OS-2	09/30/2005	98.55	13.41	85.14	-	-	-	**0.74**	0.0031	0.0023	0.0047	-
OS-2	05/15/2006	98.55	13.71	84.84	-	-	-	**0.19**	0.003	0.004	0.011	-
OS-2	09/23/2006	98.55	13.22	85.33	-	-	-	**0.25** / **0.24**	<0.0007 / 0.0008	0.005 / 0.006	0.01 / 0.01	-
OS-2	05/16/2007	98.55	13.48	85.07	-	-	-	**0.130** / **0.130**	0.002 / 0.002	0.005 / 0.005	0.01 / 0.01	-
OS-2	08/15/2007	98.55	13.71	84.84	-	1.20 / 1.20	-	**0.014** / **0.120**	0.0009 / <0.0005	0.004 / 0.002	0.0088 / 0.005	-
OS-2	06/18/2008	98.55	13.20	85.35	-	0.69	-	**0.089**	0.002	0.006	0.014	-
OS-2	08/27/2008	109.68	13.44	96.24	-	0.83	-	**0.073**	0.002	0.006	0.015	-
OS-2	05/12/2009	109.68	13.42	96.26	-	0.85	-	**0.079**	0.0018	0.0058	0.014	-
OS-2	08/27/2009	109.68	13.75	95.93	-	0.92	-	**0.12**	0.0014 J	0.0059	0.013	-
OS-2	08/01/2012	109.68	13.79	95.89	-	0.90	-	**0.15**	0.0008 J	0.0007 J	0.0037 J	-
OS-2	05/22/2013	109.68	12.42	97.26	-	1.2	-	**0.059**	0.00051 J	<0.00024	0.0017 J	-
OS-2[HS]	05/22/2013	109.68	12.42	97.26	-	**2.1**	-	**0.060**	0.00060 J	<0.00024	0.0020 J	-

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Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**
OS-2	09/17/2013	109.68	12.09	97.59	-	-	-	-	-	-	-	-
OS-2	09/18/2013	-	-	-	-	**1.6**	-	**0.0086**	<0.00023	<0.00024	<0.00072	-
OS-2	05/06/2014	109.68	12.57	97.11	-	0.43	-	**0.018**	<0.00011	<0.00016	<0.00040	-
OS-2	11/05/2014								Unable to Locate.			
OS-2	05/01/2015	109.68	-	-	-	-	-	-	-	-	-	-
OS-2	11/20/2015	109.68	12.94	96.74	-	0.30	-	**0.013**	0.002	0.002	0.011	-
OS-2	05/18/2016	109.68	13.52	96.16	-	0.48	-	**0.010**	<0.0005	<0.0005	<0.0005	-
OS-2	10/19/2016	109.68	13.93	95.75	-	0.57	-	**0.024**	<0.0005	<0.0005	<0.0005	-
OS-2	05/25/2017[1]	109.68	14.08	95.60	-	0.48	-	**0.025**	<0.0005	<0.0005	<0.0005	-
OS-2	09/29/2017	109.68	13.94	95.74	-	0.37	-	**0.021**	<0.0005	<0.0005	<0.0005	-
OS-2	06/07/2018	109.68	13.56	96.12	-	-	-	**0.016 / 0.017**	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005
OS-2	10/16/2018	109.68	13.63	96.05	-	-	-	**0.014 / 0.014**	<0.0002 / <0.0002	<0.0002 / <0.0002	0.0008 J / 0.0008 J	-
OS-3	08/01/1991**	93.78	9.94	83.84	-	-	-	-	-	-	-	-
OS-3	11/01/1991**	93.78	9.50	84.28	-	-	-	ND	ND	ND	ND	-
OS-3	02/01/1992**	93.78	9.78	84.00	-	-	-	ND	ND	ND	ND	-
OS-3	05/01/1992**	93.78	8.81	84.97	-	-	-	ND	ND	ND	ND	-
OS-3	08/01/1992**	93.78	8.13	85.65	-	-	-	0.0005	ND	ND	ND	-
OS-3	05/01/1993**	93.78	8.89	84.89	ND	-	ND	0.002	ND	ND	ND	-
OS-3	08/01/1993**	93.78	9.21	84.57	ND	-	ND	**0.005**	ND	ND	ND	-
OS-3	11/01/1993**	93.78	9.10	84.68	ND	-	ND	0.003	ND	ND	ND	-
OS-3	03/01/1994**	93.78	9.99	83.79	ND	-	ND	0.0041	ND	ND	ND	-
OS-3	06/01/1994**	93.78	9.59	84.19	ND	-	ND	0.002	ND	ND	ND	-
OS-3	08/01/1994**	93.78	10.09	83.69	ND	-	ND	0.0023	ND	ND	ND	-
OS-3	12/13/1994	93.78	10.36	83.42	-	-	ND	0.0021	ND	ND	ND	-
OS-3	03/22/1995	93.78	11.70	82.08	ND	-	ND	0.00056	ND	ND	ND	-
OS-3	06/22/1995	93.78	9.57	84.21	-	-	ND	ND	ND	ND	ND	-
OS-3	08/28/1995	93.78	9.76	84.02	-	-	ND	ND	0.00055	ND	ND	-
OS-3	11/16/1995	93.78	9.88	83.90	-	-	ND	ND	ND	ND	ND	-
OS-3	01/31/1996	93.78	10.29	83.49	-	-	ND	ND	ND	ND	ND	-
OS-3	06/01/1996	93.78	10.27	83.51	-	-	<0.05	<0.0005	0.00154	0.000558	0.00364	-
OS-3	08/21/1996	93.78	10.57	83.21	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
OS-3	10/15/1996	93.78	10.71	83.07	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
OS-3	04/28/1997	93.78	10.66	83.12	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
OS-3	09/07/1997	93.78	10.24	83.54	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
OS-3	04/21/1998	93.78	10.10	83.68	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
OS-3	09/23/1998	93.78	10.31	83.47	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
OS-3	04/27/1999	93.78	9.67	84.11	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.005
OS-3	10/12/1999	93.78	9.80	83.98	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.005
OS-3	05/17/2000	93.78	9.30	84.48	-	-	<0.08	<0.0005	<0.0005	<0.0005	<0.001	<0.002
OS-3	09/26/2000	93.78	9.49	84.29	-	-	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001
OS-3	05/04/2001	93.78	9.35	84.43	-	-	<0.05	0.000645	0.000614	<0.0005	<0.001	<0.001
OS-3	10/03/2001	93.78	9.87	83.91	-	-	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001
OS-3	05/07/2002	93.78	9.95	83.83	-	-	<0.05 / <0.05	0.000219 / 0.000259	0.000947 / 0.00154	<0.0005 / <0.0005	<0.001 / <0.00138	<0.001 / <0.001
OS-3	09/19/2002	93.78	9.83	83.95	-	-	<0.05 / <0.05	<0.0002 / <0.0002	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.001 / <0.001	<0.001 / <0.002 / <0.001 / <0.002
OS-3	05/29/2003	93.78	10.19	83.59	-	-	<0.01 / <0.01	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.001 / <0.001	<0.002 / <0.002
OS-3	10/01/2003	93.78	10.26	83.52	-	-	-	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0015 / <0.0015	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**
OS-3	06/02/2004	93.78	9.48	84.30	-	-	-	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0006 / <0.0006	-
OS-3	09/20/2004	93.78	10.08	83.70	-	-	-	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0006 / <0.0006	-
OS-3	05/12/2005	93.78	9.34	84.44	-	-	-	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0002 / <0.0002	<0.0006 / <0.0006	-
OS-3	09/30/2005	93.78	9.33	84.45	-	-	-	**0.8** / <0.0002	0.0032 / <0.0002	0.0022 / <0.0002	0.0044 / <0.0006	-
OS-3	05/15/2006	93.78	9.51	84.27	-	-	-	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.0005 / <0.0005	<0.001 / <0.001	-
OS-3	09/23/2006	93.78	-	-	-	-	-	-	-	-	-	-
OS-3	05/16/2007	93.78	9.27	84.51	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	-
OS-3	08/15/2007	93.78	9.62	84.16	-	-	-	<0.0005	<0.0005	<0.0005	<1.0	-
OS-3	06/18/2008	93.78	9.11	84.67	-	0.68	-	<0.0005	<0.0005	<0.0005	<0.0005	-
OS-3	08/27/2008	104.87	9.32	95.55	-	0.063	-	<0.0005	<0.0005	<0.0005	<0.0005	-
OS-3	05/12/2009	104.87	9.15	95.72	-	-	-	<0.0005	<0.0005	<0.0005	<0.0015	-
OS-3	08/27/2009	104.87	9.50	95.37	-	-	-	<0.0005	<0.0005	<0.0005	<0.0015	-
OS-3	08/01/2012	104.87	9.63	95.24	-	-	-	<0.0005	<0.0005	<0.0005	0.0041 J	-
OS-3	05/22/2013	104.87	8.23	96.64	-	-	-	<0.00024	<0.00023	<0.00024	<0.00072	-
OS-3[HS]	05/23/2013	104.87	8.23	96.64	-	-	-	<0.00024	<0.00023	<0.00024	<0.00072	-
OS-3	09/17/2013	104.87	8.04	96.83	-	-	-	-	-	-	-	-
OS-3	09/18/2013	-	-	-	-	-	-	<0.00024	<0.00023	<0.00024	<0.00072	-
OS-3	05/06/2014	104.87	-	-	-	-	-	-	-	-	-	-
OS-3	11/05/2014	104.87	10.40	94.47	-	-	-	<0.00015	<0.00011	<0.00016	<0.00040	-
OS-3	05/01/2015	104.87	10.88	93.99	-	-	-	<0.0005	<0.0005	<0.0005	<0.0015	-
OS-3	11/20/2015	104.87	10.21	94.66	-	-	-	<0.0005	0.003	0.003	0.024	-
OS-3	05/18/2016	104.87	10.63	94.24	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	-
OS-3	10/19/2016	104.87	11.02	93.85	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	-
OS-3	05/25/2017[1]	105.99	11.06	94.93	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	-
OS-3	09/29/2017	105.99	10.63	95.36	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	-
OS-3	06/07/2018	105.99	10.68	95.31	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
OS-3	10/16/2018	105.99	10.69	95.30	-	-	-	<0.0002	<0.0002	<0.0002	<0.0005	-
Trip Blank	11/16/1995	-	-	-	-	-	ND	ND	ND	ND	ND	-
Trip Blank	06/01/1996	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
Trip Blank	08/21/1996	-	-	-	-	-	<0.05	<0.0005	0.001	<0.0005	<0.001	-
Trip Blank	10/15/1996	-	-	-	-	-	<0.05	<0.0005	0.000713	<0.0005	<0.001	-
Trip Blank	04/28/1997	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
Trip Blank	09/07/1997	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
Trip Blank	04/21/1998	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
Trip Blank	09/23/1998	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.001	-
Trip Blank	04/27/1999	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.005
Trip Blank	10/12/1999	-	-	-	-	-	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.005
Trip Blank	05/17/2000	-	-	-	-	-	<0.08	<0.0005	<0.0005	<0.0005	<0.001	<0.002
Trip Blank	09/26/2000	-	-	-	-	-	<0.05	<0.0002	0.000957	<0.0005	<0.001	<0.001
Trip Blank	05/04/2001	-	-	-	-	-	<0.05	-	-	-	-	-
Trip Blank	10/03/2001	-	-	-	-	-	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001
Trip Blank	09/19/2002	-	-	-	-	-	<0.05	<0.0002	0.000756	<0.0005	0.00119	<0.001
Trip Blank	05/29/2003	-	-	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.002
Trip Blank	10/01/2003	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0015	-
Trip Blank	06/02/2004	-	-	-	-	-	-	<0.0002	<0.0002	<0.0002	<0.0006	-
Trip Blank	09/20/2004	-	-	-	-	-	-	<0.0002	<0.0002	<0.0002	<0.0006	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**
Trip Blank	05/12/2005	-	-	-	-	-	-	<0.0002	<0.0002	<0.0002	<0.0006	-
Trip Blank	09/30/2005	-	-	-	-	-	-	<0.0002	<0.0002	<0.0002	<0.0006	-
Trip Blank	05/15/2006	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	-
Trip Blank	09/23/2006	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	08/27/2008	-	-	-	-	-	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	-
Trip Blank	04/29/2009	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
Trip Blank	08/19/2009	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
Trip Blank	06/10/2010	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
Trip Blank	08/27/2010	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
Trip Blank	05/22/2011	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
Trip Blank	09/12/2011	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
Trip Blank	05/23/2012	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
Trip Blank	08/01/2012	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
Trip Blank-1	05/22/2013	-	-	-	-	-	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-
Trip Blank-2	05/22/2013	-	-	-	-	-	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-
Trip Blank	09/18/2013	-	-	-	-	-	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	-
Trip Blank	05/06/2014	-	-	-	-	-	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	-
Trip Blank	11/05/2014	-	-	-	-	-	<0.050	<0.00015	0.00023 J	<0.00016	<0.00040	-
Trip Blank	05/01/2015	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	-
Trip Blank	11/20/2015	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	-
Trip Blank	05/18/2016	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	-
Trip Blank	10/19/2016	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	-
Trip Blank	05/25/2017	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	-
Trip Blank	09/29/2017	-	-	-	-	-	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	-
Trip Blank	06/07/2018	-	-	-	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	10/16/2018	-	-	-	-	-	-	<0.0002	<0.0002	<0.0002	<0.0005	-

Table 2

Historical Groundwater Analytical Results
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS			PRIMARY VOCS				
					TPH	DRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels						**1.5**	**2.2**	**0.0046**	**1.1**	**0.015**	**0.19**	**0.14**

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
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
MTBE = methyl tert-butyl ether
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
ND = Not detected above laboratory method detection limits
HS = collected via hydrosleeve
** = the date was defaulted to the first of the month because the historical didn't give a specific date, only month and year
1 = Wells re-surveyed November 17, 2016 by Lounsbury and Associates, Inc.

Table 3

Groundwater PAH Analytical Results
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	PAH							
		Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels		**0.53**	**0.26**	**0.043**	**0.00012**	**0.000034**	**0.00034**	**0.00026**	**0.0008**
MW-1R	06/06/2018	0.0002	0.00002 J	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
MW-2R	06/16/2010	0.000028 J	<0.0000095	<0.0000095	<0.0000095	<0.0000095	<0.0000095	<0.0000095	<0.0000095
MW-2R	06/07/2018	<0.00001	0.00002 J	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
MW-11R	06/16/2010	0.000067 / 0.000061	<0.000070 / <0.000060	0.000011 J / <0.000010	0.000021 J / 0.000018 J	<0.0000098 / <0.000010	0.000032 J / 0.000012 J	0.000020 J / 0.000014 J	<0.0000098 / <0.000010
MW-11R	06/06/2018	0.0003 / <0.00001	<0.00001 / <0.00001	<0.00001 / <0.00001	<0.00001 / <0.00001	<0.00001 / <0.00001	0.00002 J / 0.00003 J	0.00001 J / 0.00002 J	<0.00001 / <0.00001
MW-15	06/06/2018	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
OS-2	06/07/2018	0.00004 J / 0.00003 J	<0.00001 / <0.00001	<0.00001 / <0.00001	<0.00001 / <0.00001	<0.00001 / <0.00001	<0.00001 / <0.00001	<0.00001 / <0.00001	<0.00001 / <0.00001
OS-3	06/07/2018	<0.00001	<0.00001	<0.00001	0.00002 J	0.00002 J	0.00006	0.00004 J	0.00002 J

Table 3

Groundwater PAH Analytical Results
Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Location	Date	PAH							
		Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels		**0.002**	**0.000034**	**0.26**	**0.29**	**0.00019**	**0.0017**	**0.17**	**0.12**
MW-1R	06/06/2018	<0.00001	<0.00001	<0.00001	0.0003	<0.00001	0.001	<0.00003	<0.00002
MW-2R	06/16/2010	<0.0000095	<0.0000095	<0.0000095	0.000088	<0.0000095	0.0014	0.000064	<0.0000095
MW-2R	06/07/2018	<0.00001	<0.00001	<0.00001	0.00002 J	<0.00001	0.001	<0.00003	<0.00002
MW-11R	06/16/2010	0.000029 J / 0.000021 J	<0.0000098 / <0.000010	<0.0000098 / 0.000022 J	0.00025 / 0.00023	<0.0000098 / <0.000010	0.0027 / 0.0023	0.00015 / 0.00013	0.000046 J / 0.000034 J
MW-11R	06/06/2018	0.00002 J / 0.00002 J	<0.00001 / <0.00001	0.00001 J / 0.00001 J	<0.00001 / <0.00001	<0.00001 / <0.00001	0.0002 / **0.002**	<0.00003 / <0.00003	<0.00002 / <0.00002
MW-15	06/06/2018	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0002	<0.00003	<0.00002
OS-2	06/07/2018	<0.00001 / <0.00001	<0.00001 / <0.00001	<0.00001 / <0.00001	0.00002 J / 0.00001 J	<0.00001 / <0.00001	0.0009 / 0.0009	<0.00003 / <0.00003	<0.00002 / <0.00002
OS-3	06/07/2018	0.00004 J	<0.00001	0.00005 J	<0.00001	0.00003 J	0.0002	<0.00003	0.00005 J

Notes and Abbreviations

PAHs = poly aromatic hydrocarbons by Method SW8270

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

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

Appendix A
Site Photographs

Photo 1.
View of site looking north

Photo 2.
View of site looking west through dispenser islands

Photo 3.
View of site looking north from the east side of the site

Photo 4.
View of site looking south from the north end of the site

Photo 5.
View of site looking east through the dispenser islands

Appendix B
Human Health Conceptual Site Model Scoping and Graphics Forms

Print Form

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

Site Name: Chevron 95799

File Number: 2100.26.003

Completed by: GHD Services, Inc.

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)*

- ☒ USTs
- ☐ ASTs
- ☒ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☐ Other:

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

- ☐ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☐ Other:

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

- ☐ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☐ Air
- ☐ Sediment
- ☐ Groundwater
- ☐ Surface water
- ☐ Biota
- ☐ Other:

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

- ☒ Residents (adult or child)
- ☒ Commercial or industrial worker
- ☒ Construction worker
- ☐ Subsistence harvester (i.e. gathers wild foods)
- ☐ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☒ Trespasser
- ☐ Recreational user
- ☐ Farmer
- ☐ Other:

* 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: 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: Incomplete

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 ground-water 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: 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: Incomplete

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: Incomplete

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: 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 contaminted 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: 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 - PM_{10}). 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 95799

Completed By: GHD Services, Inc.

Date Completed: 7/6/17

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

(1) *Check the media that could be directly affected by the release.*

(2) *For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.*

Media	Transport Mechanisms	
☐ Surface Soil (0-2 ft bgs)	☐ Direct release to surface soil	check soil
	☐ Migration to subsurface	check soil
	☐ Migration to groundwater	check groundwater
	☐ Volatilization	check air
	☐ Runoff or erosion	check surface water
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☑ Subsurface Soil (2-15 ft bgs)	☐ Direct release to subsurface soil	check soil
	☑ Migration to groundwater	check groundwater
	☑ Volatilization	check air
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☐ Ground-water	☐ Direct release to groundwater	check groundwater
	☐ Volatilization	check air
	☐ Flow to surface water body	check surface water
	☐ Flow to sediment	check sediment
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☐ Surface Water	☐ Direct release to surface water	check surface water
	☐ Volatilization	check air
	☐ Sedimentation	check sediment
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	
☐ Sediment	☐ Direct release to sediment	check sediment
	☐ Resuspension, runoff, or erosion	check surface water
	☐ Uptake by plants or animals	check biota
	☐ Other (list):	

(3) *Check all exposure media identified in (2).*

(4) *Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5) *Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.*

Current & Future Receptors

Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ soil	☑ Incidental Soil Ingestion	C/F	C/F	C/F	C/F			
	☐ Dermal Absorption of Contaminants from Soil							
	☐ Inhalation of Fugitive Dust							
☑ groundwater	☑ Ingestion of Groundwater	C/F	C/F	C/F	C/F			
	☐ Dermal Absorption of Contaminants in Groundwater							
	☐ Inhalation of Volatile Compounds in Tap Water							
☑ air	☑ Inhalation of Outdoor Air	C/F	C/F	C/F	C/F			
	☑ Inhalation of Indoor Air	C/F	C/F	C/F	C/F			
	☐ Inhalation of Fugitive Dust							
☐ surface water	☐ Ingestion of Surface Water							
	☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Inhalation of Volatile Compounds in Tap Water							
☐ sediment	☐ Direct Contact with Sediment							
☐ biota	☐ Ingestion of Wild or Farmed Foods							

Revised, 10/01/2010

Appendix C
Monitoring Data Package

DAILY FIELD REPORT

Project Name: CHEVRON 95799	GHD Project Manager: S. PRITCHARD	Field Rep: O. YAN / T. WEAVER
Project Number: 6209M	Date: 10/16/18	Site Address: 2500 JEWARD HWY ANCHORAGE, AK
Scope of Work: Perform gw Monitoring / Sampling		
Equipment: MP-50 / YSI-556 (04D1023); TURBIDITY METER (15652); WATER LEVEL METER (06784)		Weather: RAINY — 50s

Time	Activity/Comments	SWA
0745	LOAD VEHICLE; HEAD TO TO TTT TO PICK UP EQUIPMENT	
0807	HEAD TO OFFSITE	
0814	ARRIVE ORSITE; NOTIFY PM; CONDUCT TAILGATE SAFETY MEETING	
0852	START GAUGING WELL FOR ELEVATION	
0948	FINISH W/ GAUGING WELLS → SET UP ON OS-3 WELL.	
0956	START LF PURGE SAMPLING @ OS-3 → COLLECT GW PARAMETER READINGS.	
1028	COLLECT OS-3-W-181016 GW SAMPLE; DECON EQUIPMENT; PURGE 0.5 GAL THROUGH GAC	
1035	SET UP ON WELL MW-2	
1043	START LF PURGE SAMPLING; COLLECT GW PARAMETER READINGS	
1114	COLLECT MW-2R-W-181016; DECON EQUIPMENT; PURGE 0.8 GAL THROUGH GAC	
1124	SET UP @ MW-15	
1129	START LF-PURGE SAMPLING; COLLECT GW PARAMETER READINGS	
1200	COLLECT SAMPLE MW-15-W-181016; DECON EQUIPMENT; PURGE 0.55 GAL THROUGH GAC	
1208	BREAK FOR LUNCH.	
1235	SET UP ON MW-1R	
1238	START LF PURGE SAMPLING @ MW-1R; COLLECT GW PARAMETER READINGS.	
1309	COLLECT SAMPLE MW-1R-W-181016; DECON EQUIPMENT; PURGE 1.0 GAL THROUGH GAC	
1317	SET UP ON WELL MW-11R	
1324	START LF PURGE SAMPLING @ MW-11R; COLLECT GW PARAMETER READINGS.	
1355	COLLECT MW-11R-W-181016 / DUP-1-W-181016 SAMPLES; DECON EQUIPMENT; PURGE 0.7 GAL	
	THROUGH GAC	
1412	SET UP ON WELL OS-2;	
1415	START LF PURGE SAMPLING; COLLECT GW PARAMETER READINGS	
1446	COLLECT OS-2-W-181016 / DUP-2-W-181016 (BTEX) GW SAMPLE; DECON EQUIPMENT	
	& FILTER 0.7 GAL PURGE & 2.4 GAL DECON WATER THROUGH GAC & LOAD TRUCK	
1503	MOB BACK TO OFFICE & UNPACK	

10/16/18

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: NA Lab COC Review: ✓

Groundwater Monitoring Field Sheet

Project Name: 95799 (ADEC File ID: 2100.26.003)
Project Number: 620914
Field Staff: T. Weaver / O. Yan
Date: OCTOBER 16, 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-1R	0852	13.10	29.96	--	--	--	2"	--	SOFT BOTTOM
MW-2R	0856	13.12	22.75	--	--	--	2"	--	
MW-11R	0927	13.25	23.41	--	--	--	2"	--	
MW-15	0906	14.18	24.53	--	--	--	2"	--	
OS-2	0938	13.63	18.66	--	--	--	2"	--	
OS-3	0842	10.69	15.41	--	--	--	2"	--	SOFT BOTTOM
MW-14	0915	13.71	29.48	--	--	--	2"	--	GAUGE ONLY

GAC Filtered Water Volume: 6.65 gallons

Volume logged on *Portable GAC Volume Tracking 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. 620914 PM Siobhan Pritchard Well ID MW-1R Date 10/16/18 Page 1 of 6

Site ID / Location 95799 / 2500 Seward Highway, Anchorage, Alaska (ADEC 2100.026.003)

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

Static Water Level (ft-btoc) 13.10 Total Depth (ft-btoc) 24.46 Water Column / Gallons in Well 11.36 / 1.817

Sample ID MW-1R-W-181016

Dup ID —

Sample Time 1309 Start End

No-Purge Method (crossed out; "Low-Flow Sampling")

Sampler Length (in) 36 ☐ 30 ☐ Depth of Sample

Weights Position: Bottom ☐ Suspended ☐ Bottom set ☐

Was Teflon Baler used to collect non volatile samples Yes ☐ No ☐

Low Flow Method

Pump type: Bladder ☒ Other ☐

Pump Intake (ft-btoc) 13.70

Volumes Purged 1.0GAL

Flow rate (ml/minute) 110 – 145

Purge Time: Start 1238 End 1308

Did well Dewater? Yes ☐ No ☒

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
1243	5	145	13.11	0.10	10.71	0.314	9.04	6.22	24.7	28.1	CLEAR
1248	10	130	13.13	0.35	10.34	0.328	8.80	6.25	12.3	15.3	" "
1253	15	110	13.12	0.50	10.04	0.325	9.23	6.26	6.8	8.57	" "
1258	20	110	13.12	0.65	10.09	0.345	9.23	6.27	8.6	5.89	" "
1303	25	110	13.12	0.90	10.10	0.326	9.21	6.27	6.8	4.23	" "

Constituents Sampled		Container	Number	Preservative
BTEX by 8260	■	40 mL vial	3	HCl
VOCs by 8260	■ ~~1SA18 event only~~	~~Included in above~~		
HVOCs by 8260	☐			
GRO by AK 101	☐			
DRO by AK 102	■	250 mL amber	2	HCl
RRO by AK 103	☐			
Lead by 6010	☐			
PAHs by 8270	■ ~~1SA18 event only~~	~~1L amber~~	~~2~~	None
Alkalinity by 2320B	☐			
Methane by RSK175	☐			
Sulfate by EPA 300	☐			
Nitrate/Nitrite by EPA 300	☐			
Ferrous Iron	☐			
			TOTAL: 5	

Well Casing Volumes

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

Field Test Results:

N/A Ferrous Iron mg/L Nitrate mg/L Other

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. 620914 PM Siobhan Pritchard Well ID MW-2R Date 10/16/18 Page 2 of 6

Site ID / Location 95799 / 2500 Seward Highway, Anchorage, Alaska (ADEC 2100.026.003)

Screen Setting (ft-btoc) 9 Casing Diameter (in.) 2" Well Material x PVC / SS Sampled by T. Weaver / O. Yan

Static Water Level (ft-btoc) 13.12 Total Depth (ft-btoc) 22.75 Water Column / Gallons in Well 9.63 / 1.541 Sample ID MW-2R-W-181016 Dup ID —

Sample Time 1114 Start End

No-Purge Method

Sampler Length (in) 36 ☐ 30 ☐ Depth of Sampl

Weights — Position Supended ☐ Bottom set ☐ Bottom ☐

Was Teflon Baler used to collect non volatile samples Yes ☐ No ☐

Low-Flow Sampling

Low Flow Method

Pump type Bladder ☒ Other ☐ Pump Intake (ft-btoc) 13.85

Flow rate (ml/minute) 130-155 Volumes Purged 0.8 GAL

Did well Dewater? Yes ☐ No ☒ Purge Time: Start 1043 End 1113

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
1048	5	156	13.13	0.05	10.50	0.262	12.81	6.18	75.7	50.6	CLEAR
1053	10	130	13.13	0.15	10.37	0.284	6.39	6.99	40.8	40.3	" "
1058	15	130	13.13	0.3	10.04	0.293	4.39	6.56	11.9	29.9	" "
1103	20	130	13.13	0.45	10.17	0.291	3.25	6.61	-10.5	26.8	" "
1108	25	130	13.13	0.60	10.16	0.269	2.95	6.61	-14.3	22.23	" "

Constituents Sampled		Container	Number	Preservative
BTEX by 8260	■	40 mL vial	3	HCl
VOCs by 8260	■ 1SA18 event only	Included in above		
HVOCs by 8260	☐			
GRO by AK 101	☐			
DRO by AK 102	■	250 mL amber	2	HCl
RRO by AK 103	☐			
Lead by 6010	☐			
PAHs by 8270	■ 1SA18 event only	1L amber	2	None
Alkalinity by 2320B	☐			
Methane by RSK175	☐			
Sulfate by EPA 300	☐			
Nitrate/Nitrite by EPA 300	☐			
Ferrous Iron	☐			
			TOTAL: 5	

Well Casing Volumes

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

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

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. 620914 PM Siobhan Pritchard Well ID MW-11R Date 10/16/18 Page 3 of 6

Site ID / Location 95799 / 2500 Seward Highway, Anchorage, Alaska (ADEC 2100.026.003)

Screen Setting (ft-btoc) 9 Casing Diameter (in.) 2" Well Material x PVC / SS Sampled by T. Weaver / O. Yan

Static Water Level (ft-btoc) 13.25 Total Depth (ft-btoc) 23.41 Water Column / Gallons in Well 10.16 / 1.626

Sample ID MW-11R-W-181016 Dup ID DUP-1-W-181018

Sample Time 1355 Start End

No-Purge Method

Sampler Length (in) 36 ☐ 30 ☐ Depth of Sampl

Weights Position Supended ☐ Bottom set ☐ Bottom ☐

Was Teflon Baler used to collect non volatile samples Yes ☐ No ☐

Low-Flow Sampling

Low Flow Method

Pump type Bladder ☒ Other ☐ Pump Intake (ft-btoc) 13.90

Flow rate (ml/minute) 130 - 150 Volumes Purged 0.70 GAL

Did well Dewater? Yes ☐ No ☒ Purge Time: Start 1324 End 1354

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
1329	5	—	13.25	0.05	12.63	0.001	13.78	6.40	26.8	—	—
1334	10	150	13.25	0.10	11.97	0.467	10.74	6.41	-33.8	48.2	CLEAR
1339	15	130	13.25	0.20	11.22	0.963	10.86	6.44	-27.4	44.0	" "
1344	20	130	13.25	0.35	10.92	0.456	11.16	6.45	-20.6	34.1	" "
1349	25	130	13.25	0.50	10.89	0.462	11.21	6.46	-14.5	26.6	" "
~~1354~~	~~30~~ 09 minutes										

Constituents Sampled		Container	Number	Preservative
BTEX by 8260	■	40 mL vial	3	HCl
VOCs by 8260	~~■ 1SA18 event only~~	~~Included in above~~		
HVOCs by 8260	☐			
GRO by AK 101	☐			
DRO by AK 102	■	250 mL amber	2/2	HCl
RRO by AK 103	☐			
Lead by 6010	☐			
PAHs by 8270	~~■ 1SA18 event only~~	~~1L amber~~	~~2~~	None
Alkalinity by 2320B	☐			
Methane by RSK175	☐			
Sulfate by EPA 300	☐			
Nitrate/Nitrite by EPA 300	☐			
Ferrous Iron	☐			
			TOTAL: 7	

Well Casing Volumes

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

Field Test Results:

N/A Ferrous Iron mg/L Nitrate mg/L Other

Well Information

Well Location: GOOD

Condition of Well: ONSITE

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Additional Notes

GHD

Groundwater Sampling Form

Project No. 620914 PM Siobhan Pritchard Well ID MW-15 ~~MW-11R~~ Date 10/16/18 Page 4 of 6

Site ID / Location 95799 / 2500 Seward Highway, Anchorage, Alaska (ADEC 2100.026.003)

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

Static Water Level (ft-btoc) 14.18 Total Depth (ft-btoc) 24.53 Water Column / Gallons in Well 10.35 / 1.656

Sample ID MW-15-W-181016

Dup ID —

Sample Time 1200 Start End

No-Purge Method (Low-Flow Sampling)

Sampler Length (in) 36 ☐ 30 ☐ Depth of Sample

Weights Top Bottom ☐ Position Suspended ☐ Bottom set ☐

Was Teflon Baler used to collect non volatile samples Yes ☐ No ☐

Low Flow Method

Pump type Bladder ☒ Other ☐

Pump Intake (ft-btoc) 14.80

Volumes Purged 0.55 GAL

Flow rate (ml/minute) 105 -175

Purge Time: Start 1129 End 1159

Did well Dewater? Yes ☐ No ☒

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
1134	5	175	14.19	0.05	9.83	0.796	17.20	5.90	94.9	47.7	CLEAR
1139	10	105	14.19	0.15	9.20	0.860	8.04	5.75	102.2	35.9	" "
1144	15	105	14.20	0.25	9.01	0.867	7.25	5.71	106.3	24.1	" "
1149	20	105	14.19	0.35	9.03	0.856	6.61	5.75	106.5	21.1	" "
1154	25	105	14.19	0.45	9.11	0.873	6.14	5.77	102.1	19.7	" "

Constituents Sampled		Container	Number	Preservative
BTEX by 8260	■	40 mL vial	3	HCl
VOCs by 8260	■ ~~1SA18 event only~~	~~Included in above~~		
HVOCs by 8260	☐			
GRO by AK 101	☐			
DRO by AK 102	■	250 mL amber	2	HCl
RRO by AK 103	☐			
Lead by 6010	☐			
PAHs by 8270	■ ~~1SA18 event only~~	~~1L amber~~	~~2~~	None
Alkalinity by 2320B	☐			
Methane by RSK175	☐			
Sulfate by EPA 300	☐			
Nitrate/Nitrite by EPA 300	☐			
Ferrous Iron	☐			
		TOTAL =		

Well Casing Volumes

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

Field Test Results:

N/A Ferrous Iron mg/L Nitrate mg/L Other

Well Information

Well Location: ONSITE - BY CANOPY

Condition of Well: GOOD

Well Completion: Flush Mount (boxed) / Stick Up

Well Locked at Arrival: Yes (circled) / No

Well Locked at Departure: Yes (circled) / No

Additional Notes

Groundwater Sampling Form

Project No. 620914 PM Siobhan Pritchard Well ID OS-2 Date 10/16/18 Page 5 of 6

Site ID / Location 95799 / 2500 Seward Highway, Anchorage, Alaska (ADEC 2100.026.003)

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

Static Water Level (ft-btoc) 13.63 Total Depth (ft-btoc) 18.66 Water Column / Gallons in Well 5.03 / 0.805

Sample ID DS-2-W-181016 Dup ID DUP-2-W-181016

Sample Time 1946 Start End

No-Purge Method

Sampler Length (in) 36 ☐ 30 ☐ Depth of Sampl

Weights Position Supended ☐ Bottom set ☐

Was Teflon Baler used to collect non volatile samples Yes ☐ No ☐

Low-Flow Sampling

Low Flow Method

Pump type Bladder ☒ Other ☐ Pump Intake (ft-btoc) 14.10

Volumes Purged 0.7

Flow rate (ml/minute) 120 Purge Time: Start 1415

Did well Dewater? Yes ☐ No ☒ End 1445

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
1420	5	120	13.63	0.10	10.79	0.454	7.83	6.70	-25.2	18.1	CLEAR
1425	10	120	13.63	0.25	10.37	0.320	5.77	6.63	-32.8	10.7	" "
1430	15	120	13.63	0.30	10.11	0.299	5.20	6.63	-36.1	7.23	" "
1435	20	120	13.63	0.40	10.01	0.308	4.62	6.63	-36.0	5.41	" "
1440	25	120	13.63	0.55	9.89	0.301	4.35	6.62	-35.3	4.37	" "

Constituents Sampled			Container	Number	Preservative
BTEX by 8260	■		40 mL vial	3/3	HCl
VOCs by 8260	■	~~1SA18 event only~~	~~Included in above~~		
HVOCs by 8260	☐				
GRO by AK 101	☐				
DRO by AK 102	☐				
RRO by AK 103	☐				
Lead by 6010	☐				
PAHs by 8270	■	~~1SA18 event only~~	1L amber	~~2~~	None
Alkalinity by 2320B	☐				
Methane by RSK175	☐				
Sulfate by EPA 300	☐				
Nitrate/Nitrite by EPA 300	☐				
Ferrous Iron	☐				
				TOTAL: 6	

Well Casing Volumes

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

Field Test Results:

N/A Ferrous Iron mg/L Nitrate mg/L Other

Well Information

Well Location: OFFSITE - 425 E FIREWEED

Condition of Well: GOOD

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Additional Notes

Well located offsite across Fireweed Lane

Groundwater Sampling Form

GHD

Project No. 620914 | PM Siobhan Pritchard | Well ID OS-3 | Date 10/16/18 | Page 6 of 6

Site ID / Location 95799 / 2500 Seward Highway, Anchorage, Alaska (ADEC 2100.026.003)

Screen Setting (ft-btoc): ____ | Casing Diameter (in.): 2" | Well Material: x PVC / SS | Sampled by: T. Weaver, O. Yan

Static Water Level (ft-btoc): 10.69 | Total Depth (ft-btoc): 15.41 | Water Column / Gallons in Well: 4.72 / 0.755

Sample ID: OS-3-W-181016

Dup ID: –

Sample Time: 1028 | Start ____ | End ____

No-Purge Method (Low-Flow Sampling)

Sampler Length (in) 36 ☐ 30 ☐ | Depth of Sample ____ | Weights ____ Bottom ☐ | Position: Supended ☐ Bottom set ☐

Was Teflon Baler used to collect non volatile samples Yes ☐ No ☐

Low Flow Method

Pump type: Bladder ☒ Other ☐ | Pump Intake (ft-btoc): 11.15

Volumes Purged: 0.5 GAL

Flow rate (ml/minute): 50 – 120 | Purge Time: Start 0956 End 1026

Did well Dewater? Yes ☐ No ☒

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
1001	5	<50	10.78	0.05	10.49	0.278	20.45	5.15	242.0	—	CLOUDY
1006	10	120	10.80	0.10	10.68	0.273	10.54	5.27	228.1	87.7	CLEAR
1011	15	60	10.82	0.15	10.47	0.256	9.42	5.59	207.9	66.8	" "
1016	20	60	10.83	0.20	10.37	0.263	9.09	5.72	193.5	53.7	" "
1021	25	60	10.84	0.30	10.26	0.276	8.95	5.77	186.5	38.6	" "

Constituents Sampled			Container	Number	Preservative
BTEX by 8260	■		40 mL vial	3	HCl
VOCs by 8260	■	~~1SA18 event only~~	~~Included in above~~		
HVOCs by 8260	☐				
GRO by AK 101	☐				
DRO by AK 102	☐				
RRO by AK 103	☐				
Lead by 6010	☐				
PAHs by 8270	■	~~1SA18 event only~~	~~1L amber~~	~~2~~	None
Alkalinity by 2320B	☐				
Methane by RSK175	☐				
Sulfate by EPA 300	☐				
Nitrate/Nitrite by EPA 300	☐				
Ferrous Iron	☐				

Well Casing Volumes

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

Field Test Results: N/A

Ferrous Iron ____ mg/L | Nitrate ____ mg/L | Other ____

Well Information

Well Location: OFFSITE – 725 E FIREWEED LN. | Well Locked at Arrival: (Yes) / No

Condition of Well: GOOD | Well Locked at Departure: (Yes) / No

Well Completion: [Flush Mount] / Stick Up

Additional Notes

Well located offsite across Fireweed Lane ✓

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-6 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	065008	6/20/18	6.10 GAL	SOUTH WEST SIDE OF SITE
211078	622233	6/12/18	4.20 GAL	CENTER OF SITE
95414	062327	08/08/18	4.10 GAL	PURGE WATER THROUGH GAC AT PLANTER AREA BETWEEN CHEVRON/ARCTIC ROAD RUNNING ↓ ↓
95414	062327	08/08/18	3.40 GAL	
306449	082676	08/09/18	4.40 GAL	PLANTER BETWEEN SITE (UPGRADIENT).
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 ALSTATE1
211079	065003	8/22/18	4.2 GAL	FENCED AREA BEHIND MARKET
91518	062325	8/28/18	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 CENTERED 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 CHEVRON STATION BY STATION BUILDIN
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 RILEYS AND SITE
98557	060361	9/25/18	14.4 GAL	PLANTER AREA BY STATION BUILDIN
99014	062329	9/26/18	8.9 GAL	PLANTER BY CHEVRON STATION SIGN
99014	062329	9/27/18	9.0 GAL	PLANTER BY THRIFTY PROPERTY, ALONG BUILDIN
99014	062329	9/28/18	6.5 GAL	PLANTER BY THRIFTY PROPERTY, ALONG BUILDIN
211074	612064	10/5/18	5.7 GAL	GRASS SOUTH OF DP-4D
211074	612064	10/9/18	10.35 GAL	GRASS SOUTH OF DP-4D
306448	621049	10/10/18	4.8 GAL	CENTER OF SITE
95799	620914	10/16/18	6.65 GAL	VARIOUS → PLANTER AREAS ONSITE.

TTT Environmental

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

CALIBRATION/INSPECTION REPORT

Calibration Date: 10/15/2018

Report Date (check-out): 10/15/2018

Company Name: GHD

Rental Description: YSI 556

S/O #: S182517

Serial #: 556-04.D8023AF

CALIBRATION*

Sensor	Zero Value	Calibration*			
		Desired reading	Instrument reading	other	Slope/Gain
Spec. Conductivity/Cond.	na	1.413 @25 C	1.413 @ 18.84 C	1.413/1247	1.01
pH	na	7.01 @20 C	7.03 @ 19.00 C	-3.4	
pH	na	4.00 @20 C	4.00 @ 19.19 C	167.6	171
pH	na	10.06 @20 C	10.07 @ 19.27 C	-172.6	169
ORP	na	240mV @25 C	240.0 @ 19.58 C	-11.5	
D.O.	na	100% @25 C	99.0 % 18.12 C	B.P.=29.62	0.917
			9.34 mg/L		

* Calibrated per manufacturer specifications

CALIBRATION SOLUTION INFORMATION

Components	Conc.	Lot #	Manuf.	Accuracy	Fill Date	Exp. Date
Specific Conductivity	**100%**	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	-	na	10/20

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):

Phone: (907) 770-9041 **Fax: (907) 770-9046** **Email: info@tttenviro.com** **www.tttenviro.com**

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INSTRUMENT RENTAL FUNCTION/CHECKLIST

Company Name: EHD

Rental Description: YSI 556

S/O #: S182517

Serial #: 10259AF

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 (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.

Phone: (907) 770-9041 **Fax: (907) 770-9046** **Email: info@tttenviro.com** **www.tttenviro.com**

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CALIBRATION/INSPECTION REPORT

Calibration Date: 10/15/2018
Report Date (check-out): 10/15/2018

Company Name: GHD
Rental Description: HACH 2100P Turbidity Meter

S/O #: S182517
Serial #: 2100P-06.15652

CALIBRATION*					
Sensor	Zero Value	Calibration*		Alarm Level	
		Desired reading	Instrument reading	Low	High
NTU	na	800 NTU	800 NTU	na	na
NTU	na	100 NTU	100 NTU	na	na
NTU	na	20 NTU	20.0 NTU	na	na
NTU	na	<0.1 NTU	0.0 NTU	na	na

* Calibrated per manufacturer specifications

CALIBRATION SOLUTION INFORMATION						
Components	**Conc.**	**Lot #**	**Manuf.**	**Accuracy**	**Fill Date**	**Exp. Date**
Formazin Solution	800	A8165	HACH	na	na	September-19
Formazin Solution	100	A8170	HACH	na	na	September-19
Formazin Solution	20	A8165	HACH	na	na	September-19
Formazin Solution	<0.1	A8135	HACH	na	na	August-19

Calibrated by: Steve Ziegler Signature:

Item Description	Qty	Checked Out?	Checked In?	Damaged / Missing?
2100P Turbidity meter	1	✓		
Secondary Cal. Check Standards (0-10, 0-100, 0-1000)	1 - each	✓		
Manual	1	✓		
Sample vials	3	✓		
In reclosable bag:				
Silicone Oil, Kim Wipes, 4 Spare AA 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 tab in light chamber under lid to ensure it has not been broken off (tab shall hold vial firmly in place):		No Damage Damaged
With no vial in light chamber, lid closed and inst. on press RANGE until AUTO RNG is displayed on bottom center then press read. Reading is ≤ 0.1 NTU:	Yes	Yes No
Dispose of any secondary calibration standard vial or sample vial that has excessive scratches, cracks, or staining:		Yes No
Calibrated since the last rental?:	Yes	
Rental checklist completed?:	Yes	Yes

Comments:

Signature (Check-out): Signature (Check-in):

Phone: (907) 374-9040 fbxcounter1@tttenviro.com www.tttenviro.com

Field Data Record Form
Meter, Water Level
(QSF-251D)

Control number: 06784
Date (mm/dd/yyyy): 10/16/18
User (print name): YAN, OLIVER

Project number: 620914
Project name: CERC 95799

Location: 2500 SEWARD HWY ANCHORAGE, AK

Additional equipment control numbers and descriptions:

Field procedure before use:

	Check when completed
• Check for broken or missing parts.	
• Check battery	☑
• Check operation of buzzer.	☑
• Check operation of signal light.	☑
• Test probe in water to ensure unit operates, both visually and audibly.	☑
• Check cable.	☑

Filing: Field file

Signature:

Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

For Eurofins Lancaster Laboratories use only
Acct. # _____ Group # _____ Sample # _____
Instructions on reverse side correspond with circled numbers.

SCR #: _____

1 Client Information

Facility # CENC 95749
WBS 06.02
Site Address 2500 SEWARD HWY, ANCHORAGE AK
Chevron PM ERIC HETRICK
Lead Consultant GHD
Consultant/Office 560 SILVERADO WAY, SUITE A2, ANCHORAGE AK
Consultant Project Mgr. SIOBHAN PRITCHARD
Consultant Phone # 970-222-3220
Sampler O. YAN & T. WEAVER

4 Matrix

Soil ☐ Sediment ☐ Water ☒ Ground ☐ Potable ☐ NPDES ☐ Surface ☐ Oil ☐ Air ☐

5 Analyses Requested

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	Total Number of Containers	BTEX + MTBE 8021 ☐ 8260 ☐ + Naphth ☒	8260 full scan	Oxygenates ____	TPH-GRO 8015 ☐ 8260 ☐	TPH-DRO AK101 Silica Gel Cleanup ☐	Lead Total ☐ Diss. ☐ Method ____	VPH ☐ EPH ☐ Method ____
OS-3-W-181016	10/16/18	1024	X		3	X				X		
MW-2R-W-181016	10/16/18	1114	X		5	X				X		
MW-15-W-181016	10/16/18	1200	X		5	X				X		
MW-1R-W-181016	10/16/18	1309	X		5	X				X		
MW-11R-W-181016	10/16/18	1355	X		5	X				X		
DUP-1-W-181016	10/16/18	—	X		2					X		
DUP-2-W-181016	10/16/18	—	X		3	X						
QA-1-W-181016	—	—	—		2	X						
OS-2-W-181016	10/16/18	1446	X		3	X						

- ☐ Results in Dry Weight
- ☐ J value reporting needed
- ☐ Must meet lowest detection limits possible for 8260 compounds
- ☐ 8021 MTBE Confirmation
- ☐ Confirm MTBE + Naphthalene
- ☐ Confirm highest hit by 8260
- ☐ Confirm all hits by 8260
- ☐ Run _____ oxy's on highest hit
- ☐ Run _____ oxy's on all hits

6 Remarks

EMAIL RESULTS TO:
SIOBHAN.PRITCHARD@GHD.com

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

8 Data Package (circle if required)

Type I - Full | Alaska/Type III | Type VI (Raw Data)

EDD (circle if required)
CVX-RTBU-FI_05 (default)
Other: _____

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by	Date	Time	Received by	Date	Time

Relinquished by Commerical Carrier: UPS ____ FedEx ✓ Other ____

Temperature Upon Receipt _____ °C

Received by | Date | Time

Custody Seals Intact? Yes No

9

Appendix D
Laboratory Analytical Report

eurofins | Lancaster Laboratories Environmental

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

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: October 29, 2018 20:37

Project: 95799

Account #: 10880
Group Number: 2000596
PO Number: 0015277056
State of Sample Origin: AK

Electronic Copy To	Chevron	Attn: GHD EDD
Electronic Copy To	GHD	Attn: Jeffrey Cloud
Electronic Copy To	GHD	Attn: Sarah Gillette
Electronic Copy To	GHD	Attn: Siobhan Pritchard
Electronic Copy To	GHD	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.

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SAMPLE INFORMATION

Client Sample Description	Sample Collection Date/Time	ELLE#
OS-3-W-181016 Grab Groundwater	10/16/2018 10:28	9860960
MW-2R-W-181016 Grab Groundwater	10/16/2018 11:14	9860961
MW-15-W-181016 Grab Groundwater	10/16/2018 12:00	9860962
MW-1R-W-181016 Grab Groundwater	10/16/2018 13:09	9860963
MW-11R-W-181016 Grab Groundwater	10/16/2018 13:55	9860964
DUP-1-W-181016 Grab Groundwater	10/16/2018	9860965
DUP-2-W-181016 Grab Groundwater	10/16/2018	9860966
QA-1-W-181016 Water	10/16/2018	9860967
OS-2-W-181016 Grab Groundwater	10/16/2018 14:46	9860968

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

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-6766 • www.EurofinsUS.com/LancLabsEnv

Project Name: 95799
ELLE Group #: 2000596

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:

No additional comments are necessary.

Sample Description: **OS-3-W-181016 Grab Groundwater**
Facility# 95799
2500 Seward Hwy - Anchorage, AK

Project Name: **95799**

Submittal Date/Time: 10/19/2018 10:20
Collection Date/Time: 10/16/2018 10:28

ChevronTexaco
ELLE Sample #: WW 9860960
ELLE Group #: 2000596
Matrix: Groundwater

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**	
10945	Benzene	71-43-2	N.D.	0.0002	0.001	1
10945	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10945	Toluene	108-88-3	N.D.	0.0002	0.001	1
10945	Xylene (Total)	1330-20-7	N.D.	0.0005	0.005	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
10945	BTEX 8260B Water	SW-846 8260B	1	Z183002AA	10/27/2018 06:36	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z183002AA	10/27/2018 06:36	Anita M Dale	1

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

Sample Description: **MW-2R-W-181016 Grab Groundwater**
Facility# 95799
2500 Seward Hwy - Anchorage, AK

Project Name: **95799**

Submittal Date/Time: 10/19/2018 10:20
Collection Date/Time: 10/16/2018 11:14

ChevronTexaco
ELLE Sample #: WW 9860961
ELLE Group #: 2000596
Matrix: Groundwater

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**	
10945	Benzene	71-43-2	N.D.	0.0002	0.001	1
10945	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10945	Toluene	108-88-3	N.D.	0.0002	0.001	1
10945	Xylene (Total)	1330-20-7	0.002 J	0.0005	0.005	1
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	0.20 J	0.054	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
10945	BTEX 8260B Water	SW-846 8260B	1	Z183002AA	10/27/2018 07:00	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z183002AA	10/27/2018 07:00	Anita M Dale	1
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	182970039A	10/26/2018 16:45	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	182970039A	10/25/2018 07:00	Logan M Brosemer	1

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

Sample Description: **MW-15-W-181016 Grab Groundwater**
Facility# 95799
2500 Seward Hwy - Anchorage, AK

Project Name: **95799**

Submittal Date/Time: 10/19/2018 10:20
Collection Date/Time: 10/16/2018 12:00

ChevronTexaco
ELLE Sample #: WW 9860962
ELLE Group #: 2000596
Matrix: Groundwater

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**	
10945	Benzene	71-43-2	N.D.	0.0002	0.001	1
10945	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10945	Toluene	108-88-3	N.D.	0.0002	0.001	1
10945	Xylene (Total)	1330-20-7	N.D.	0.0005	0.005	1
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	0.14 J	0.050	0.25	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
10945	BTEX 8260B Water	SW-846 8260B	1	Z183002AA	10/27/2018 07:25	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z183002AA	10/27/2018 07:25	Anita M Dale	1
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	182970039A	10/26/2018 17:13	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	182970039A	10/25/2018 07:00	Logan M Brosemer	1

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

Sample Description: **MW-1R-W-181016 Grab Groundwater**
Facility# 95799
2500 Seward Hwy - Anchorage, AK

Project Name: **95799**

Submittal Date/Time: 10/19/2018 10:20
Collection Date/Time: 10/16/2018 13:09

ChevronTexaco
ELLE Sample #: WW 9860963
ELLE Group #: 2000596
Matrix: Groundwater

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**	
10945	Benzene	71-43-2	0.001	0.0002	0.001	1
10945	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10945	Toluene	108-88-3	N.D.	0.0002	0.001	1
10945	Xylene (Total)	1330-20-7	N.D.	0.0005	0.005	1
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	0.95	0.051	0.25	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
10945	BTEX 8260B Water	SW-846 8260B	1	Z183002AA	10/27/2018 07:49	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z183002AA	10/27/2018 07:49	Anita M Dale	1
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	182970039A	10/26/2018 17:41	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	182970039A	10/25/2018 07:00	Logan M Brosemer	1

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

Sample Description: **MW-11R-W-181016 Grab Groundwater**
Facility# 95799
2500 Seward Hwy - Anchorage, AK

Project Name: **95799**

Submittal Date/Time: 10/19/2018 10:20
Collection Date/Time: 10/16/2018 13:55

ChevronTexaco
ELLE Sample #: WW 9860964
ELLE Group #: 2000596
Matrix: Groundwater

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**	
10945	Benzene	71-43-2	0.002	0.0002	0.001	1
10945	Ethylbenzene	100-41-4	0.001	0.0002	0.001	1
10945	Toluene	108-88-3	N.D.	0.0002	0.001	1
10945	Xylene (Total)	1330-20-7	0.006	0.0005	0.005	1
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	2.6	0.050	0.25	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
10945	BTEX 8260B Water	SW-846 8260B	1	Z183002AA	10/27/2018 08:14	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z183002AA	10/27/2018 08:14	Anita M Dale	1
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	182970039A	10/26/2018 18:10	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	182970039A	10/25/2018 07:00	Logan M Brosemer	1

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

Sample Description: **DUP-1-W-181016 Grab Groundwater**
Facility# 95799
2500 Seward Hwy - Anchorage, AK

Project Name: **95799**

Submittal Date/Time: 10/19/2018 10:20
Collection Date/Time: 10/16/2018

ChevronTexaco
ELLE Sample #: WW 9860965
ELLE Group #: 2000596
Matrix: Groundwater

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC Petroleum Hydrocarbons	**AK 102-SV 4/8/02**		**mg/l**	**mg/l**	**mg/l**	
13025	DRO C10-C25	n.a.	2.8	0.050	0.25	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
13025	AK 102-SV DRO	AK 102-SV 4/8/02	1	182970039A	10/26/2018 18:38	Heather E Williams	1
13027	Mini-Ext. AK 102-SV DRO	AK 102/AK 103 04/08/02	1	182970039A	10/25/2018 07:00	Logan M Brosemer	1

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

Sample Description: **DUP-2-W-181016 Grab Groundwater**
Facility# 95799
2500 Seward Hwy - Anchorage, AK

Project Name: **95799**

Submittal Date/Time: 10/19/2018 10:20
Collection Date/Time: 10/16/2018

ChevronTexaco
ELLE Sample #: WW 9860966
ELLE Group #: 2000596
Matrix: Groundwater

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	
10945	Benzene	71-43-2	0.014	0.0002	0.001	1
10945	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10945	Toluene	108-88-3	N.D.	0.0002	0.001	1
10945	Xylene (Total)	1330-20-7	0.0008 J	0.0005	0.005	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
10945	BTEX 8260B Water	SW-846 8260B	1	Z183002AA	10/27/2018 08:38	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z183002AA	10/27/2018 08:38	Anita M Dale	1

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

Sample Description: **QA-1-W-181016 Water**
Facility# 95799
2500 Seward Hwy - Anchorage, AK

Project Name: **95799**

Submittal Date/Time: 10/19/2018 10:20
Collection Date/Time: 10/16/2018

ChevronTexaco
ELLE Sample #: WW 9860967
ELLE Group #: 2000596
Matrix: Water

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**	
10945	Benzene	71-43-2	N.D.	0.0002	0.001	1
10945	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10945	Toluene	108-88-3	N.D.	0.0002	0.001	1
10945	Xylene (Total)	1330-20-7	N.D.	0.0005	0.005	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
10945	BTEX 8260B Water	SW-846 8260B	1	Z183002AA	10/27/2018 09:03	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z183002AA	10/27/2018 09:03	Anita M Dale	1

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

Sample Description: **OS-2-W-181016 Grab Groundwater**
Facility# 95799
2500 Seward Hwy - Anchorage, AK

Project Name: **95799**

Submittal Date/Time: 10/19/2018 10:20
Collection Date/Time: 10/16/2018 14:46

ChevronTexaco
ELLE Sample #: WW 9860968
ELLE Group #: 2000596
Matrix: Groundwater

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**	
10945	Benzene	71-43-2	0.014	0.0002	0.001	1
10945	Ethylbenzene	100-41-4	N.D.	0.0002	0.001	1
10945	Toluene	108-88-3	N.D.	0.0002	0.001	1
10945	Xylene (Total)	1330-20-7	0.0008 J	0.0005	0.005	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
10945	BTEX 8260B Water	SW-846 8260B	1	Z183002AA	10/27/2018 09:27	Anita M Dale	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Z183002AA	10/27/2018 09:27	Anita M Dale	1

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

Quality Control Summary

Client Name: ChevronTexaco
Reported: 10/29/2018 20:37

Group Number: 2000596

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: Z183002AA	Sample number(s): 9860960-9860964,9860966-9860968		
Benzene	N.D.	0.0002	0.001
Ethylbenzene	N.D.	0.0002	0.001
Toluene	N.D.	0.0002	0.001
Xylene (Total)	N.D.	0.0005	0.005
Batch number: 182970039A	Sample number(s): 9860961-9860965		
DRO C10-C25	N.D.	0.050	0.25

LCS/LCSD

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
Batch number: Z183002AA	Sample number(s): 9860960-9860964,9860966-9860968								
Benzene	0.0200	0.0219	0.0200	0.0216	109	108	80-120	1	30
Ethylbenzene	0.0200	0.0211	0.0200	0.0208	106	104	80-120	2	30
Toluene	0.0200	0.0219	0.0200	0.0215	110	108	80-120	2	30
Xylene (Total)	0.0600	0.0648	0.0600	0.0638	108	106	80-120	2	30
	mg/l	mg/l	mg/l	mg/l					
Batch number: 182970039A	Sample number(s): 9860961-9860965								
DRO C10-C25	4.01	4.14	4.01	3.96	103	99	75-125	5	20

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: BTEX 8260B Water
Batch number: Z183002AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9860960	106	102	100	94
9860961	106	103	101	94
9860962	107	103	100	93

*- 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: 10/29/2018 20:37

Group Number: 2000596

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: BTEX 8260B Water
Batch number: Z183002AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
9860963	107	102	100	94
9860964	108	100	101	100
9860966	106	101	100	98
9860967	108	101	101	93
9860968	107	102	102	100
Blank	108	103	100	92
LCS	104	105	101	97
LCSD	104	105	102	96
Limits:	80-120	80-120	80-120	80-120

Analysis Name: AK 102-SV DRO
Batch number: 182970039A

	Orthoterphenyl
9860961	99
9860962	103
9860963	89
9860964	65
9860965	63
Limits:	50-150

	Orthoterphenyl
Blank	98
LCS	102
LCSD	101
Limits:	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

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Acct. # 10880 For Eurofins Lancaster Laboratories use only Group # 2000596 Sample # 9860960-68

Instructions on reverse side correspond with circled numbers.

1 Client Information

Facility # CEMC 95799 WBS 06.02

Site Address 2500 SEWARD HWY, ANCHORAGE, AK

Chevron PM ERIC HETRICK Lead Consultant GHD

Consultant/Office 5710 SILVERADO WAY, SUITE A2, ANCHORAGE, AK

Consultant Project Mgr. SIOBHAN PRITCHARD

Consultant Phone # 970-222-3220

Sampler O. YAN & T. WEAVER

4 Matrix

Soil ☐ Sediment ☐ Water ☒ Ground ☐ Potable ☐ NPDES ☐ Surface ☐ Oil ☐ Air ☐

3 Grab / Composite

5 Analyses Requested

2 Sample Identification	Collected Date	Collected Time	Grab	Composite	Total Number of Containers	BTEX + MTBE 8021 ☐ 8260 ☒ Naphth ☐	8260 full scan	Oxygenates ____	TPH-GRO 8015 ☐ 8260 ☐	TPH-DRO AK-102 Silica Gel Cleanup ☐	Lead Total ☐ Diss. ☐ Method ____	VPH ☐ EPH ☐ Method ____
OS-3-W-181016	10/16/18	1024	X		3	X						
MW-2R-W-181016	10/16/18	1114	X		5	X				X		
MW-15-W-181016	10/16/18	1200	X		5	X				X		
MW-1R-W-181016	10/16/18	1309	X		5	X				X		
MW-11R-W-181016	10/16/18	1355	X		5	X				X		
DUP-1-W-181016	10/16/18	—	X		2					X		
DUP-2-W-181016	10/16/18	—	X		3	X						
QA-1-W-181016	—	—	—		2	X						
OS-2-W-181016	10/16/18	1446	X		3	X						

SCR #: ____

- ☐ Results in Dry Weight
- ☐ J value reporting needed
- ☐ Must meet lowest detection limits possible for 8260 compounds
- ☐ 8021 MTBE Confirmation
- ☐ Confirm MTBE + Naphthalene
- ☐ Confirm highest hit by 8260
- ☐ Confirm all hits by 8260
- ☐ Run ____ oxy's on highest hit
- ☐ Run ____ oxy's on all hits

6 Remarks

EMAIL RESULTS TO:
SIOBHAN.PRITCHARD@GHD.com

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

8 Data Package (circle if required)

Type I - Full | Alaska/Type III | Type VI (Raw Data)

EDD (circle if required)

CVX-RTBU-FI_05 (default) | Other: ____

Relinquished by	Date	Time	Received by	Date	Time
[signature]	10/17/18	7:08			

9

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by Commerical Carrier: UPS ____ FedEx ✓ Other ____			Received by [signature]	10-19-18	1000

Temperature Upon Receipt ____ °C

Custody Seals Intact? Yes No

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Sample Administration Receipt Documentation Log

Doc Log ID: 230600

Group Number(s): 2000596

Client: GHD

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	10/19/2018 10:20
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	AK		

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:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCl
Samples Intact:	No	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Melvin Sanchez (8 943) at 15:16 on 10/19/2018

Samples Chilled Details

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

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT131	0.3	DT	Wet	Y	Bagged	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
OS-3-W-181016	40 ml amber vial - HCl	1	N	

2425 New Holland Pike
Lancaster, PA 17605-2425
T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

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.

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.

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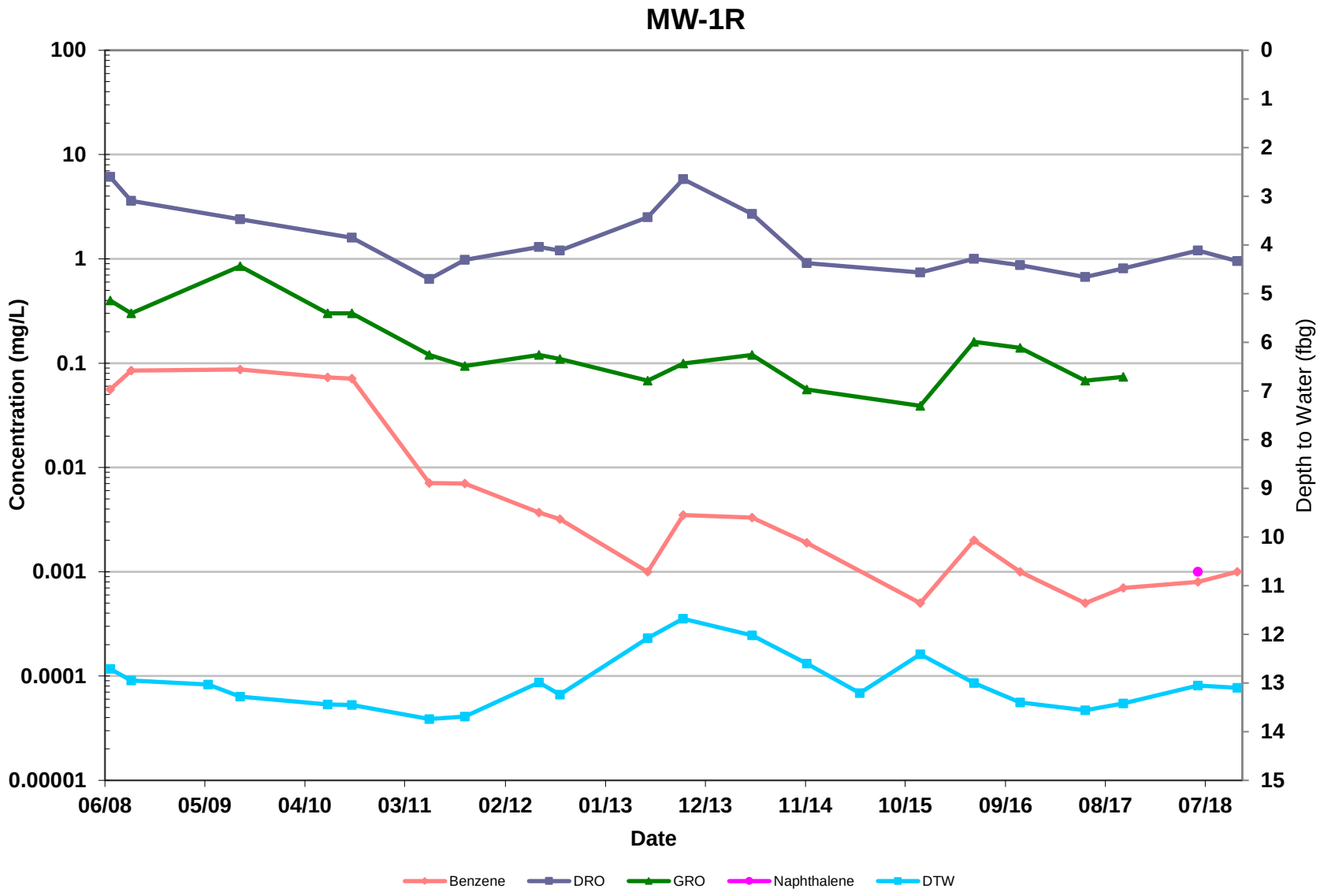
Data Qualifiers

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 >= 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



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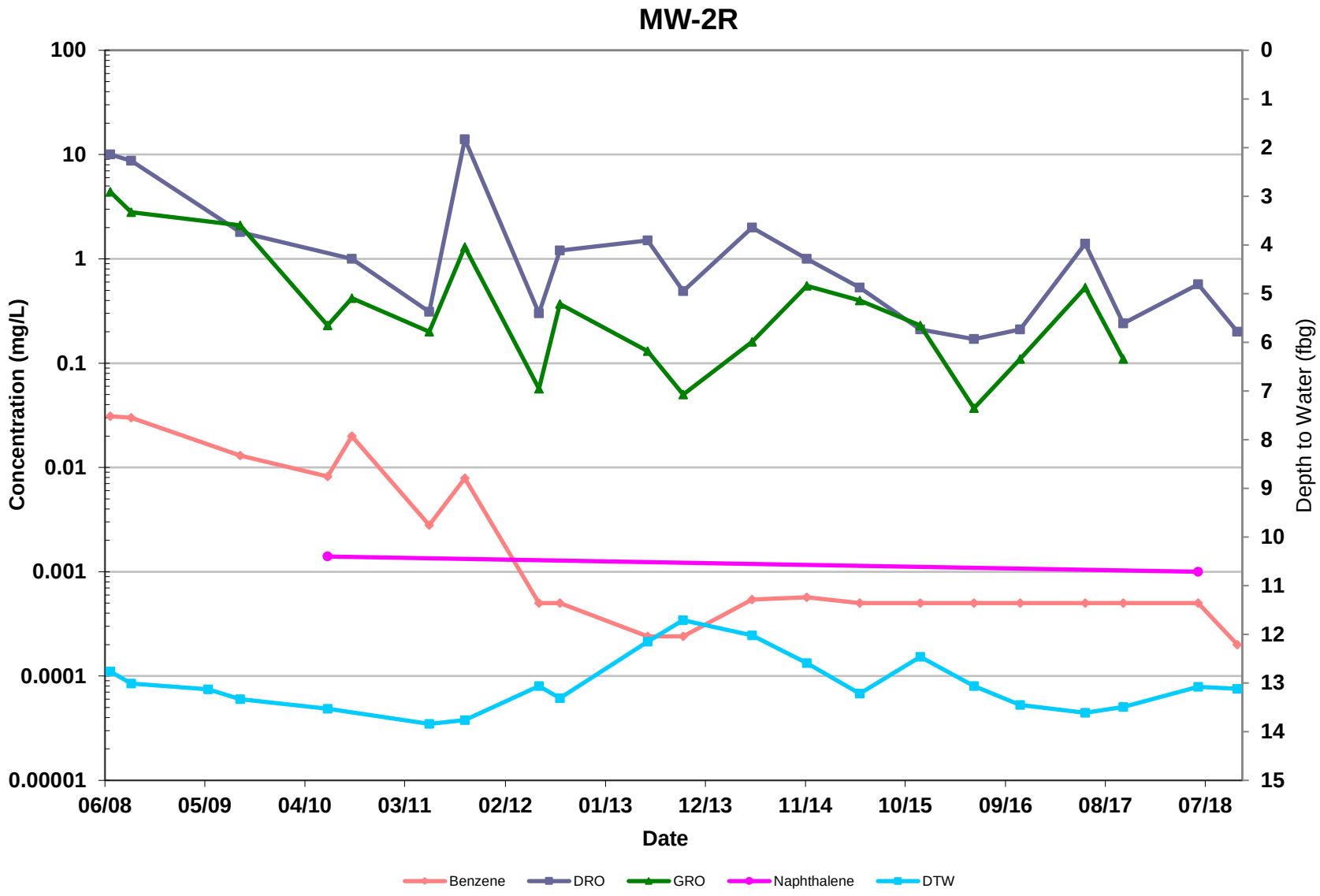
Anchorage, Alaska



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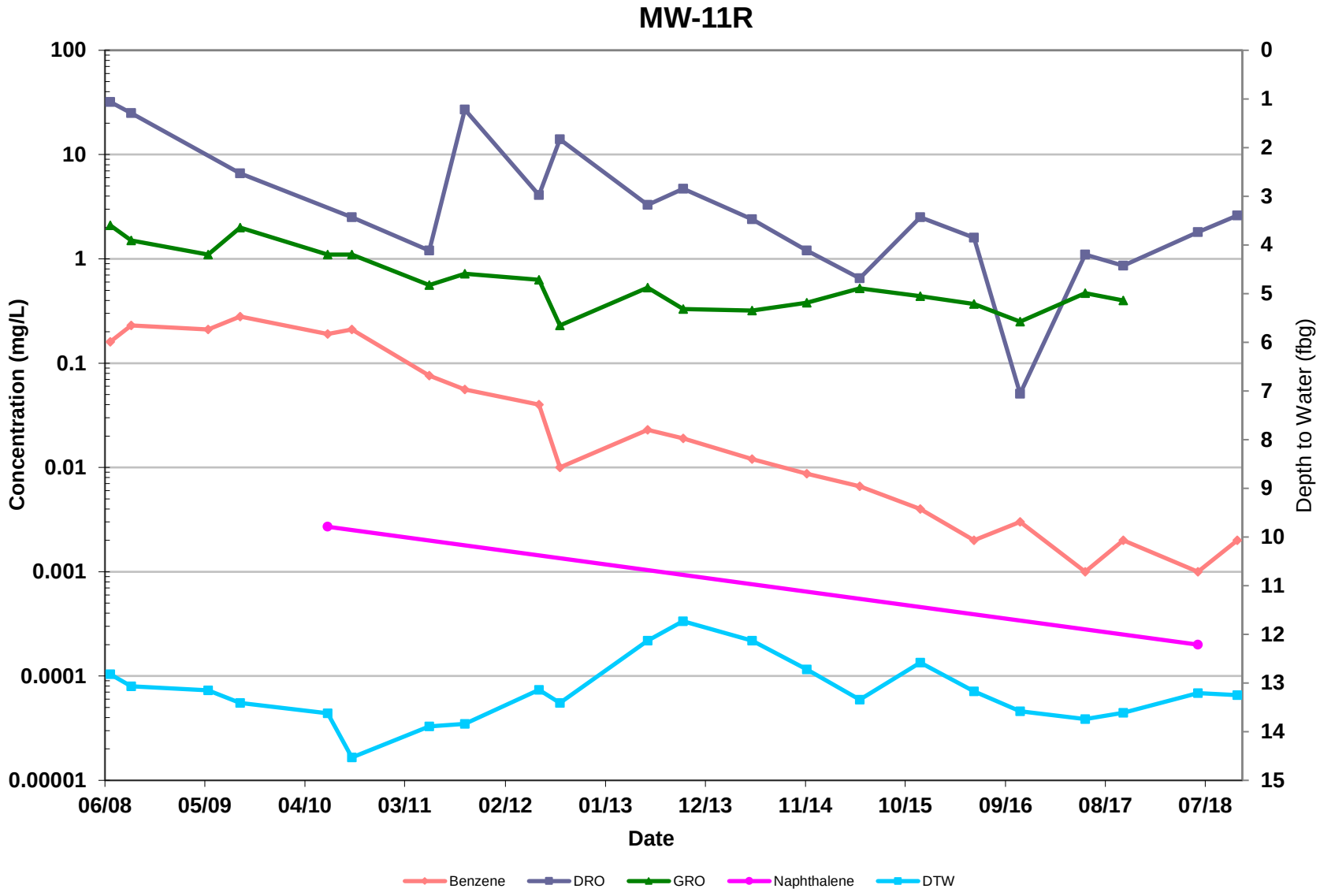
Anchorage, Alaska



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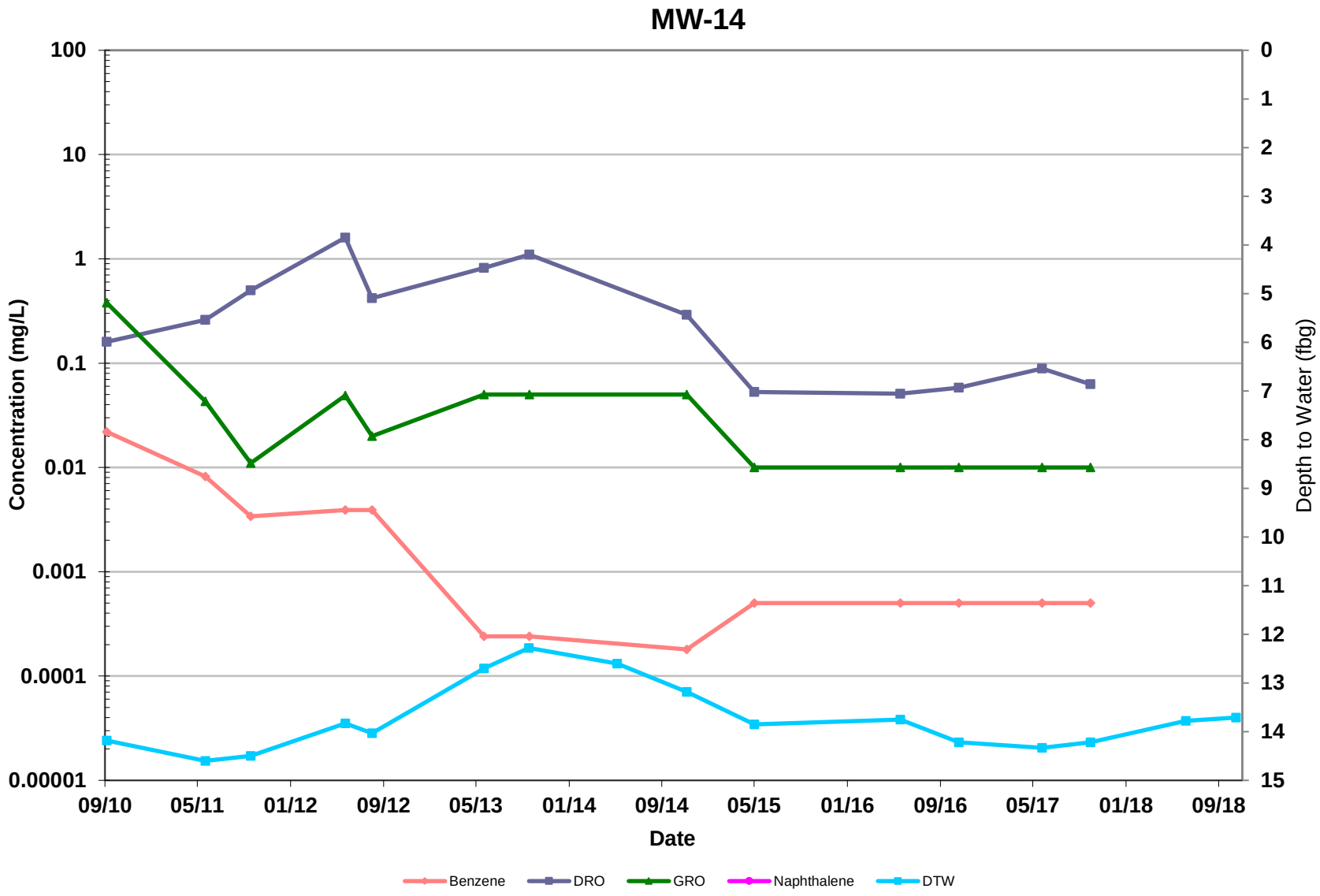
Anchorage, Alaska



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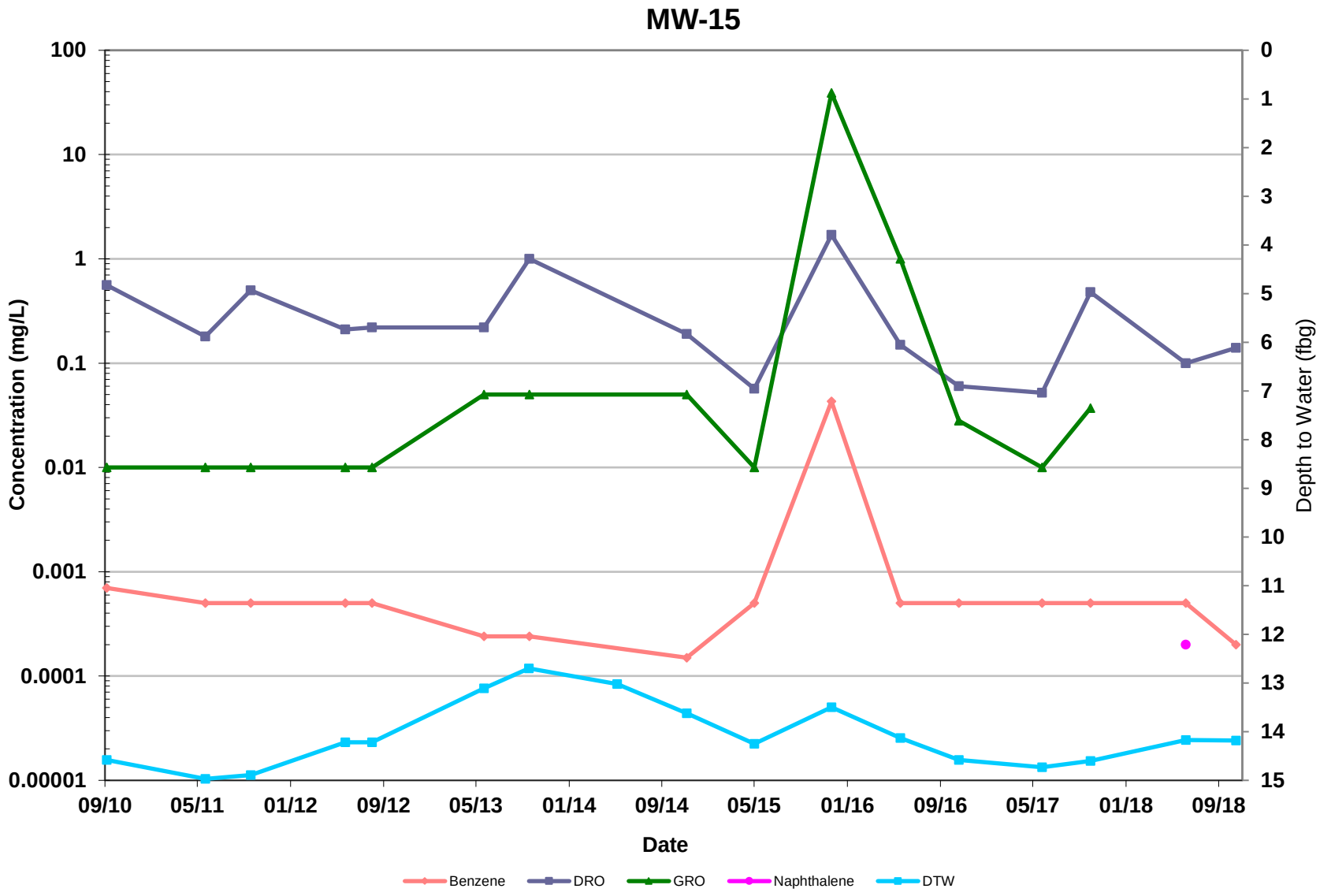

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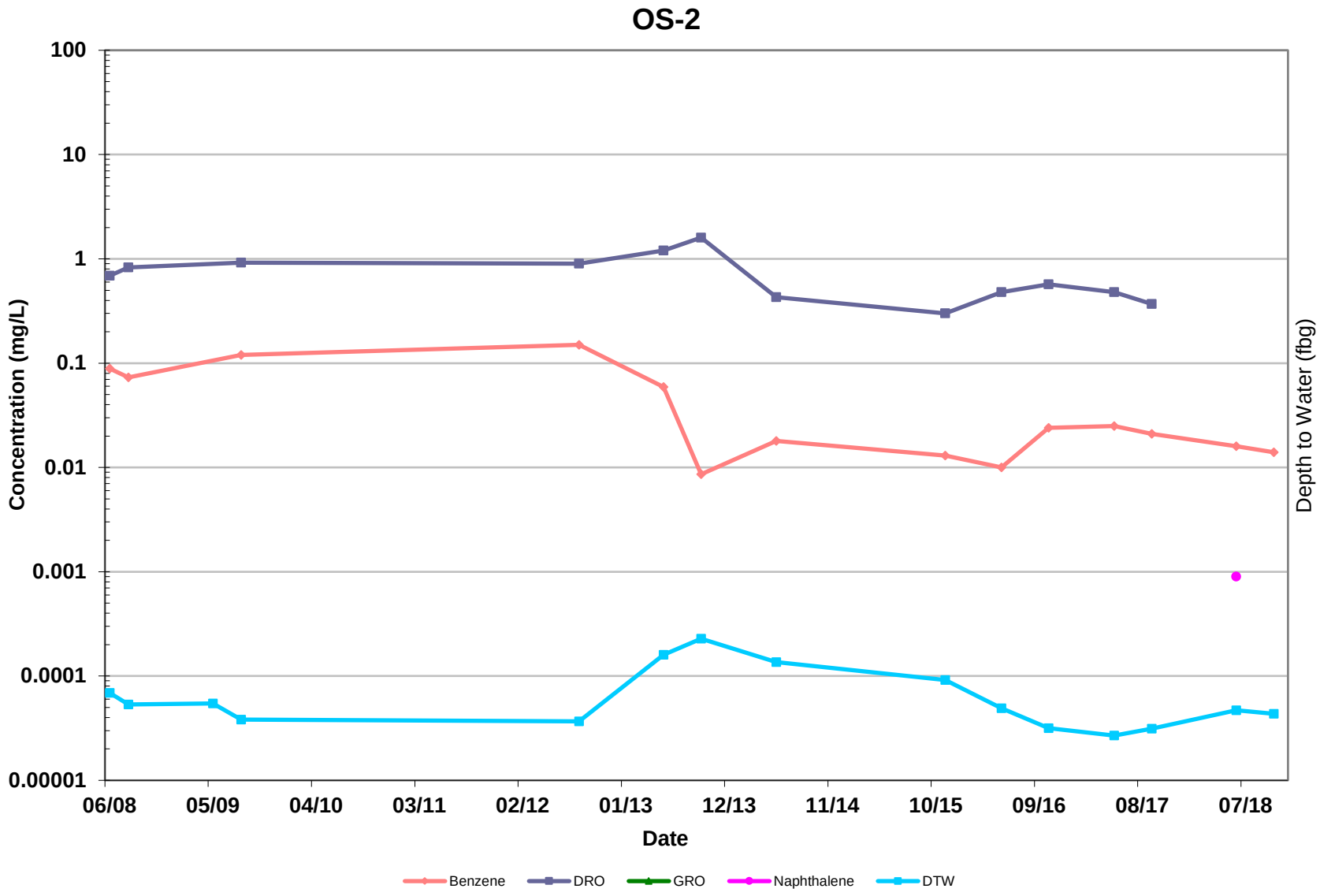

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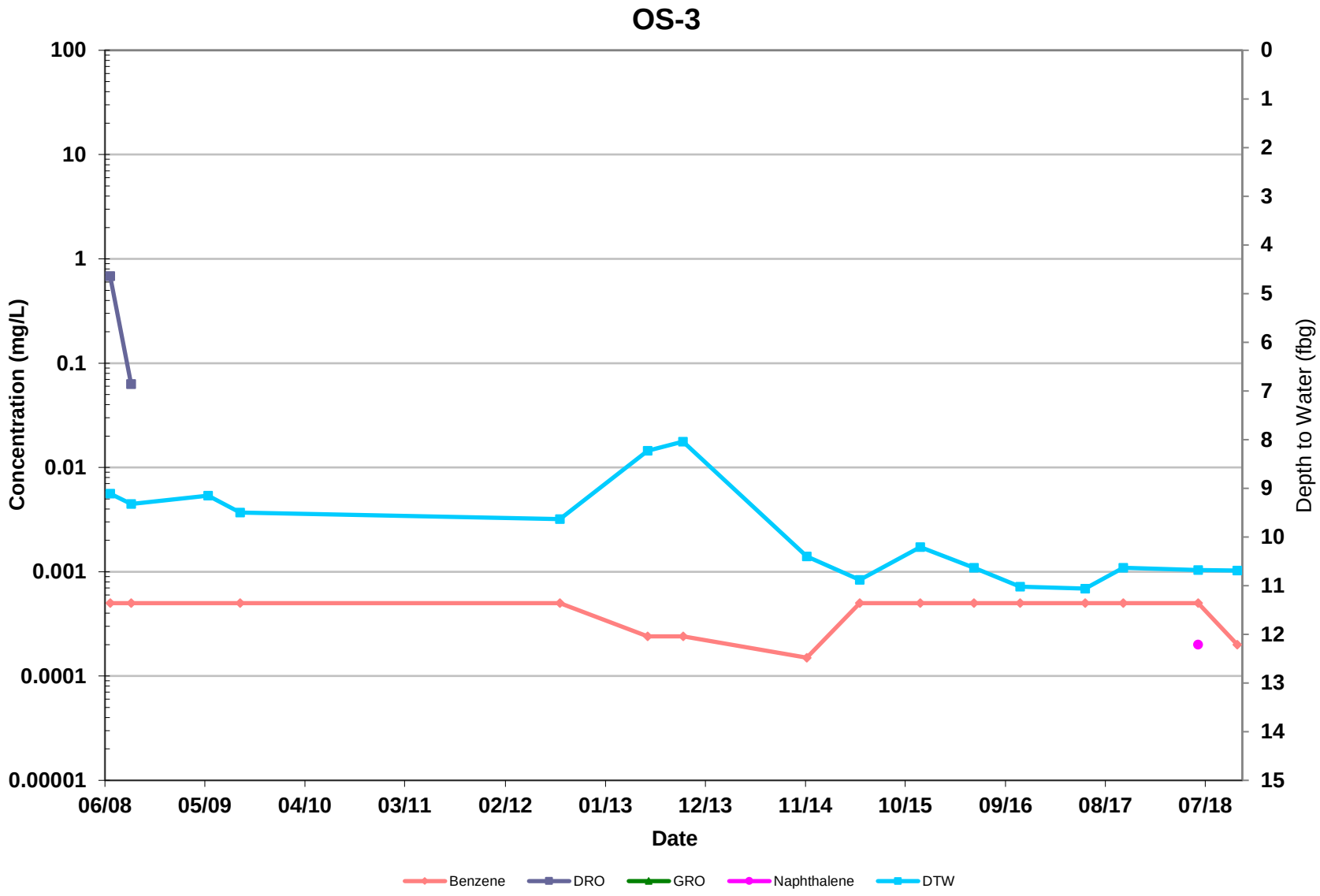

Chevron-Branded Service Station 95799
2500 Seward Highway
Anchorage, Alaska

Appendix F
ADEC Laboratory Data Review Checklist and Memorandum

Laboratory Data Review Checklist

Completed by:

Jeffrey Cloud

Title:

Project Chemist

Date:

November 08, 2018

CS Report Name:

Second Semiannual Groundwater Monitoring Report

Report Date:

October 29, 2018

Consultant Firm:

GHD Services Inc.

Laboratory Name:

Eurofins Lancaster Laboratories Environmental

Laboratory Report Number:

2000596

ADEC File Number:

2100.26.003

Hazard Identification Number:

23820

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:

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:

No discrepancies

c. Were all corrective actions documented?

( ) Yes (•) No Comments:

No corrective actions

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:

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

( ) Yes (•) No Comments:

No failed surrogates

iv. Data quality or usability affected?

Comments:

None

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

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

(•) Yes ( ) No Comments:

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

( ) Yes ( ) No Comments:

iii. All results less than LOQ?

(•) Yes ( ) No Comments:

iv. If above LOQ, what samples are affected?

Comments:

No affected samples

v. Data quality or usability affected?

Comments:

None

e. Field Duplicate

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

(•) Yes ( ) No Comments:

ii. Submitted blind to lab?

(•) Yes ( ) No Comments:

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

RPD (%) = 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:

None

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:

Not collected

ii. If above LOQ, what samples are affected?

Comments:

Not collected

iii. Data quality or usability affected?

Comments:

Not collected

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

a. Defined and appropriate?

(•) Yes ( ) No Comments:

Memorandum

November 15, 2018

To:	ADEC	Ref. No.:	620914
From:	Jeffrey Cloud	Tel:	206-914-3141
cc:	Siobhan Pritchard		

Subject: **QA/QC Review**
ChevronTexaco Site 95799
Job # 2000596
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) and diesel range organics (DRO) analysis were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

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

5. Laboratory Control Sample Analyses

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

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

The LCS/LCSD contained all analytes of interest. All LCS/LCSD recoveries and RPDs were within associated control limits, demonstrating acceptable analytical accuracy and precision.

6. Field QA/QC Samples

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

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, two field duplicate samples were collected and submitted "blind" to the laboratory. The RPDs associated with these duplicate samples 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 detections 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 without qualification.