Transmittal

Date: March 9, 2018 Reference No.: 062329 / Chevron 99014

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

Subject: ADEC File ID 2100.26.057

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1	Subsurface Petroleum Hydrocarbon Evaluation	Report 6	

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

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Subsurface Petroleum Hydrocarbon Evaluation

Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska
ADEC File ID: 2100.26.057
Hazard ID: 23570

GHD | 645 G Street, Suite 401, Anchorage, Alaska 99501 | USA

062329 | 2017 | Report No 6 | March 9, 2018

Subsurface Petroleum Hydrocarbon Evaluation

Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska
ADEC File ID: 2100.26.057
Hazard ID: 23570

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List of Acronyms

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
amsl	above mean sea level
AS	air sparge
BTEX	benzene, toluene, ethylbenzene and total xylenes
COPC	constituents of potential concern
CSM	conceptual site model
DRO	diesel range organics
fbg	feet below grade
ft boc	feet below top of casing
GRO	gasoline range organics
LNAPL	light non-aqueous phase liquids
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
No	number
PG	professional geologist
SVE	soil vapor extraction
UST	underground storage tank
VOC	volatile organic compounds

1. Introduction

GHD is submitting this *Subsurface Petroleum Hydrocarbon Evaluation* to the Alaska Department of Environmental Conservation (ADEC) on behalf of Chevron Environmental Management Company (Chevron) for Chevron-branded service station 99014 (site), located at 3608 Minnesota Drive in Anchorage, Alaska. GHD proposes that petroleum hydrocarbons in the subsurface on the adjacent Thrifty property are due to a comingled plume resulting from activities on both the Chevron site and Thrifty property. This evaluation was prepared in accordance with the ADEC's March 7, 2017 *Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites.*

2. Site Characterization

2.1 Site Description

The site is a Chevron-branded service station located on a 0.58-acre parcel of land in the western portion of Anchorage, Alaska (Figure 1). A single-story 3,032 square foot station building occupies the western portion of the site. Four fuel dispenser islands are located immediately east of the building in the center of the site. Three 15,000-gallon double-wall fiberglass underground storage tanks (USTs) are located in the northeast corner of the site. The tanks contain regular, plus, and supreme gasoline. A site map is provided as Figure 2. An air sparge/soil vapor extraction (AS/SVE) system was installed onsite in May 1996. The system was shut down and decommissioned in 2011. Approximately 946 gallons of light non-aqueous phase liquids (LNAPL) were removed from wells MW-11 and T-2 in 1999 and well MW-9 in 2000 and 2001. No LNAPL has been measured in any site well since 2000. Site photographs are included in Appendix A.

The site is located in a commercial and residential area in western midtown Anchorage, Alaska. The site latitude and longitude are approximately 61.187031° north and 149.913721° west. Based on the USGS 7.5-Minute Anchorage, Alaska Topographic Map, the site elevation is 93 feet above mean sea level (amsl). General topographic gradient at the site and surrounding area is to the southwest. Adjacent properties are:

- South – Holiday Station Store #630/Williams Express Store #5030 (ADEC File ID: 2100.26.031)
- West – Thrifty Car Rental (ADEC File IDs: 2100.26.589; 2100.26.219; 2100.26.275)

2.2 Site Operational History

The site has operated as a gasoline/service station since at least 1958, according to available historical data. Chevron owned the site until 1995, when it was sold to E.L. Brodie. The site is currently operated by Cook Inlet Marketing Group. Chevron is the responsible party for remediation of activities prior to 1995.

2.3 Site Environmental History

Petroleum hydrocarbons were identified in the subsurface during a 1992 environmental site assessment. Subsequent investigations and remediation have been ongoing at the site and downgradient offsite properties since 1992. A detailed site environmental history is presented as Appendix B.

- Three gasoline USTs, one heating oil UST and one used oil UST were removed during station upgrades in 1995. Approximately 854 tons of soil were excavated and treated.
- An air sparge (AS)/soil vapor extraction (SVE) system was installed and began operation in 1996. The system operated until 2005, although intermittent operation continued until 2007. In 2008 the AS/SVE system was upgraded and operation continued until 2011.
- In 1999 a groundwater treatment and extraction system removed and treated approximately 946 gallons of water with dissolved-phase petroleum hydrocarbons.
- A skimmer was used to recover LNAPL from MW-9 from 2000 to 2001.

2.4 Regional Geology and Hydrogeology

Soils underlying the site consist primarily of sand and gravelly sand to approximately 15 to 26 feet below grade (fbg), and silt to sandy silt to the total explored depth of 27 fbg. Soil boring logs are presented in Appendix C.

No surface water bodies are located onsite. The nearest surface water body to the site is Fish Creek (0.25 miles south), which carries water from Big Lake (approximately 40 miles north of Anchorage) to the Knick Arm of Cook Inlet.

Shallow groundwater at the Chevron site and in the surrounding area flows to the south/southwest, based on approximately twenty years of monitoring data. Historical static groundwater depths ranged from 9.57 to 16.89 feet below top of casing (ft boc).

2.5 Constituents of Potential Concern – Cleanup Levels

Constituents of potential concern (COPCs) at the site include:

Table 2.1 Constituents of Potential Concern

COPCs	ADEC Cleanup Levels	
	Groundwater (mg/L)	Soil (mg/kg)
diesel range organics (DRO)	1.5	250
gasoline range organics (GRO)	2.2	300
benzene	0.0046	0.022

mg/L milligrams per liter
mg/kg milligrams per kilogram

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.

2.6 Conceptual Site Model

A conceptual site model (CSM) has not been developed for this site. ADEC Conceptual Site Model Human Health Graphics and Scoping Forms are included in Appendix D.

3. Subsurface Petroleum Hydrocarbon Evaluation

3.1 Potential Sources

Three generations of UST systems have operated at the site since 1958. A release was documented September 7, 1992. No information about the volume or precise location of the historical release was available for review. Therefore, the release mechanism to the environment at the site is unknown. Based on available historical reports, petroleum hydrocarbons at the site are presumed to be caused by a direct release to subsurface soil from historical USTs or UST system components.

Subsurface soil is the impacted media at the site. Transportation mechanisms include: leaching, migration to groundwater, and volatilization. Exposure media at the site include subsurface soil, groundwater, and potentially air.

Offsite impacts may be attributed to additional sources aside from former Chevron operations. Previous investigations have documented the presence of petroleum hydrocarbons in subsurface soil and/or groundwater on adjoining properties and beneath surrounding roads (Figure 2). The property west of the Chevron site is an active Thrifty Rental Car Agency. Four USTs have been closed on the Thrifty property and one was noted to have leaked.

3.2 Soil Quality

Petroleum hydrocarbons in subsurface soils onsite have been identified near the station building, former USTs and pump islands. The downgradient extent of petroleum hydrocarbons has not been delineated; however, the downgradient extent of impacts may be due to an offsite source.

During a 2004 site assessment no petroleum hydrocarbons were detected above cleanup levels in the samples collected from near the former USTs. Benzene was detected at 0.17 milligrams per kilogram (mg/kg) in BA-3-5 near the former dispenser islands.

Petroleum hydrocarbons in offsite soil are located along the southern and eastern property boundaries of the Thrifty property. Sample MW-27, collected along the southwest property boundary of the Thrifty property, contained 4.7 mg/kg benzene and 9,200 mg/kg GRO. No petroleum hydrocarbons were detected above cleanup levels in samples B3MW and MW-17, which delineate the south and southwest extent of impacts on the Holiday property.

In 2014, Thrifty closed two USTs in place near the south property boundary. Historical aerial photographs indicate a former service station operated on the property until the early 1970s. During UST closure, a fuel release was documented near the northeast corner of UST 3. It was further noted that excavation of the release was impractical due to its location adjacent to the building's foundation. Sample no. 03 was collected in the area of the release. DRO (450 milligrams per kilogram (mg/kg)), GRO (530 mg/kg) and benzene (0.0826 mg/kg) were detected above ADEC cleanup levels in sample 03 indicating petroleum hydrocarbons in soil due to the Thrifty release. Samples were collected in 2015 upgradient (Boring No. 1) and cross-gradient (Boring No. 2) of the release, however, without downgradient samples, these results are inconclusive to determining the extent of the release. Residual petroleum hydrocarbons on the Thrifty property are likely due in part to the release from the Thrifty USTs resulting in a comingled plume.

3.3 Groundwater Quality

At least fifty temporary and permanent groundwater monitoring wells have been installed at the site and on surrounding properties and roadways during previous environmental investigations dating back to 1989.

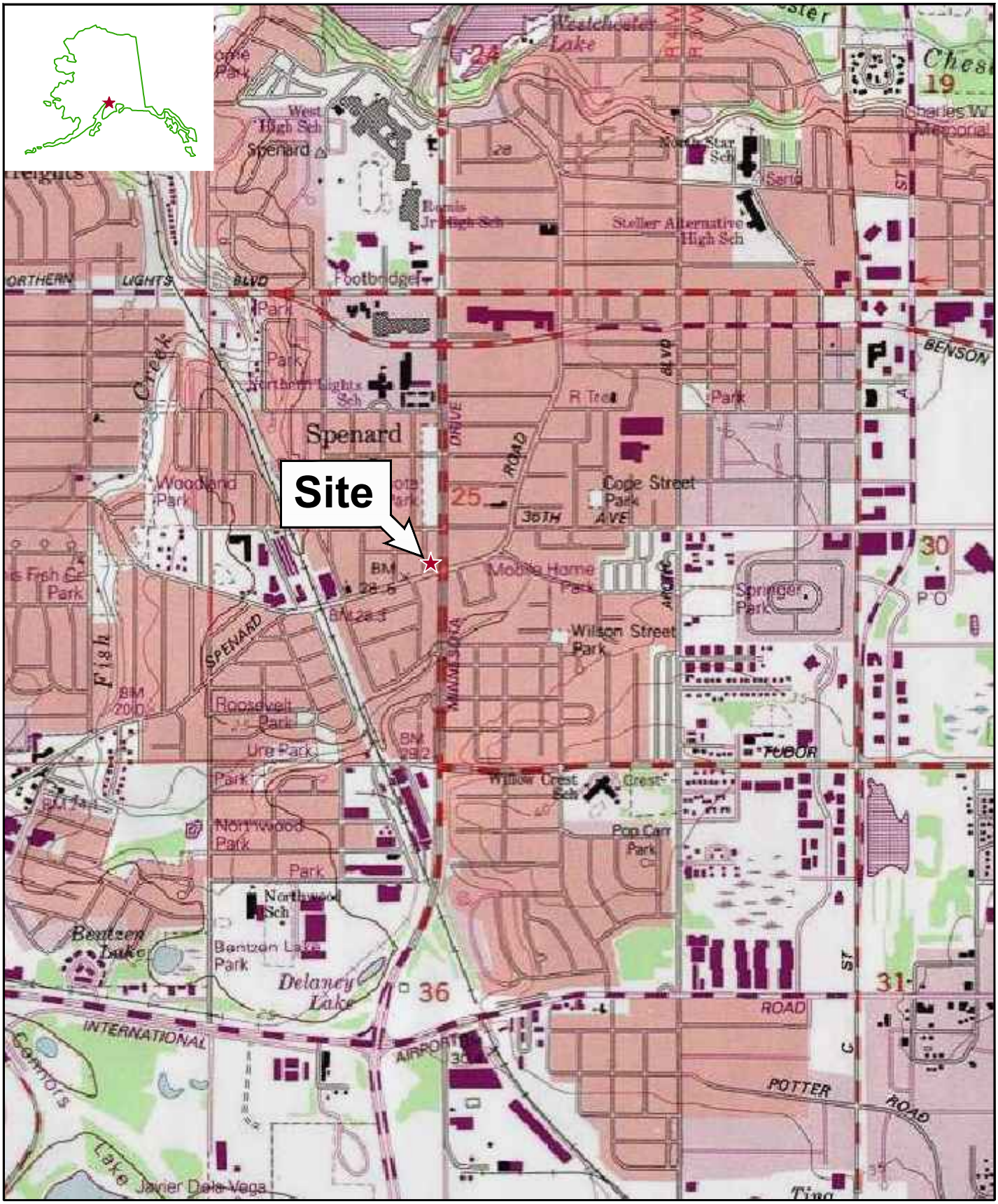
No petroleum hydrocarbons were detected in onsite wells above cleanup levels during the September 2016 sampling event, with the exception of benzene in MW-5B (0.008 milligrams per liter (mg/L)). The downgradient extent to the southwest of GRO and benzene is delineated with wells MW-16 and MW-17. The highest concentrations of GRO (750 mg/L in MW-21) and benzene (0.52 mg/L in MW-22) are on the adjacent Thrifty property near the UST closed in place in 2014. According to the Quality Environmental Sampling August 22, 2014 *Report of Regulated UST Closures and Site Assessment/Release Investigation* petroleum hydrocarbon concentrations detected in groundwater downgradient of the Thrifty USTs may have originated from the Thrifty release. Based on hydrographs provided as Appendix E, the petroleum hydrocarbons appear to be in a relatively steady state. Concentrations in groundwater are presented on Figure 2.

4. Conclusions and Recommendations

Based on evidence of historical releases on the Chevron and Thrifty propterties it is evident that there has been a comingling of plumes. Based on results from the UST closure on the Thrifty property it is apparent that subsurface petroleum hydrocarbons on the Thrifty property are the result of a comingled plume from releases on both the Chevron and Thrifty property.

GHD recommends no further action be taken at the Chevron site until an agreement can be reached between Chevron and Thrifty to address the comingled plume downgradient of the Chevron property.

Figures



0 500 1500ft

CHEVRON BRANDED SERVICE STATION 99014
3608 MINNESOTA DRIVE
ANCHORAGE, ALASKA

062329-2016

Apr 6, 2017

VICINITY MAP

FIGURE 1

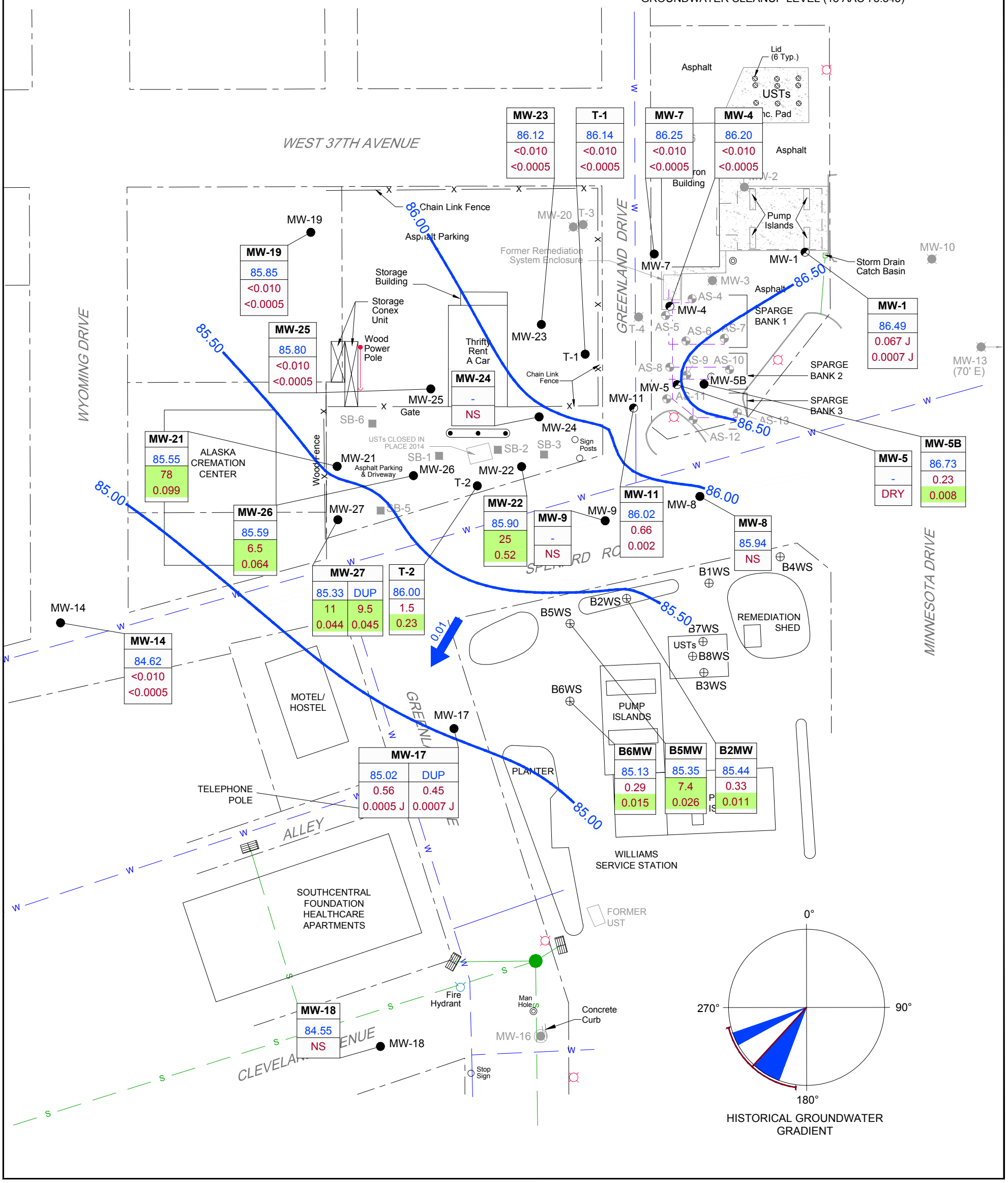
CAD File: I:\drawings\62000's\062329\062329-REPORTS\062329-2016(006)\062329-2016(006)GN\062329-2016(006)GN-DE001.dwg

LEGEND

- MONITORING WELL
- MONITORING / VAPOR EXTRACTION WELL
- AIR SPARGE WELL
- WILLIAMS MONITORING WELL
- ABANDONED / DESTROYED WELL
- UNABLE TO LOCATE
- SOIL BORING
- LIGHT POLE
- MAN HOLE
- APPROXIMATE PROPERTY BOUNDARY
- WATER MAIN
- REMEDIATION SYSTEM TRENCH LOCATION (2007 INSTALL)
- 86.00 GROUNDWATER ELEVATION CONTOUR, IN FEET ABOVE MEAN SEA LEVEL (FT MSL)
- 0.01 GROUNDWATER FLOW DIRECTION AND GRADIENT

MW-23	WELL DESIGNATION
86.12	GROUNDWATER ELEVATION (FT MSL)
<0.010	GRO CONCENTRATION IN mg/L
<0.0005	BENZENE CONCENTRATION IN mg/L
-	NOT MEASURED OR NOT SURVEYED
J	ESTIMATED VALUE BETWEEN METHOD DETECTION LIMIT AND LABORATORY REPORTING LIMIT
mg/L	MILLIGRAMS PER LITER
NS	NOT SAMPLED
DUP	DUPLICATE SAMPLE

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



0 30 60ft

CHEVRON-BRANDED SERVICE STATION 99014
3608 MINNESOTA DRIVE
ANCHORAGE, ALASKA

GROUNDWATER ELEVATION CONTOUR AND HYDROCARBON CONCENTRATION MAP - SEPTEMBER 13-14, 2016

62329-95
Nov 22, 2016

FIGURE 2

CAD File: P:\drawings\62000s\62329\62329-REPORTS\62329-95(005)\62329-95(005)GN\62329-95(005)GN-WA002.DWG

Table

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
B2MW	09/10/2003	--	13.28	--	--	--	--	--	--	--
B2MW	03/20/2004	--	12.63	--	--	--	--	--	--	--
B2MW	06/03/2004	--	11.31	--	--	--	--	--	--	--
B2MW	09/17/2004	--	12.28	--	--	--	--	--	--	--
B2MW	04/05/2005	--	13.51	--	--	--	--	--	--	--
B2MW	10/03/2005	--	13.67	--	--	--	--	--	--	--
B2MW	04/18/2006	--	14.45	--	--	--	--	--	--	--
B2MW	09/12/2006	--	13.93	--	--	--	--	--	--	--
B2MW	03/25/2007	--	14.40	--	--	--	--	--	--	--
B2MW	09/03/2009	--	14.60	--	0.20	**0.033**	<0.00050	<0.00050	<0.0015	<0.0025
B2MW	05/13/2010	--	13.82	--	0.12	**0.020**	<0.00050	0.0010	<0.0015	<0.0025
B2MW	09/09/2010	--	13.55	--	0.21	**0.046**	<0.00050	<0.00050	<0.0015	<0.0025
B2MW	06/21/2011	--	13.47	--	0.21	**0.0050**	<0.00050	<0.00050	<0.0015	--
B2MW	09/29/2011	--	13.45	--	0.14	0.0023	<0.00050	<0.00050	<0.0015	--
B2MW	05/22/2012	--	--	--	--	--	--	--	--	--
B2MW	09/20/2012	--	12.73	--	0.16	0.0030	<0.00050	<0.00050	<0.0015	--
B2MW	05/15/2013	98.62	13.09	85.53	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
B2MW	05/15/2013	98.62	--	--	0.136	<0.0010	<0.0010	<0.0010	<0.0030	--
B2MW	09/24/2013	98.62	12.31	86.31	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
B2MW	05/15/2014	98.62	12.74	85.88	--	<0.0010	<0.0010	<0.0010	<0.0030	--
B2MW	10/16/2014	98.62	12.55	86.07	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
B2MW	04/20/2015	98.62	13.71	84.91	0.18	<0.00050	<0.00050	<0.00050	<0.00050	--
B2MW	11/24/2015[1]	98.62	--	--	--	--	--	--	--	--
B2MW	06/28/2016	98.62	13.50	85.12	0.11	<0.0005	<0.0005	<0.0005	<0.0005	--
B2MW	09/13/2016	98.62	13.18	85.44	0.33	**0.011**	<0.003	0.003 J	0.016	--
B5MW	09/10/2003	--	13.41	--	--	--	--	--	--	--
B5MW	03/20/2004	--	12.89	--	--	--	--	--	--	--
B5MW	06/03/2004	--	11.40	--	--	--	--	--	--	--
B5MW	09/17/2004	--	12.40	--	--	--	--	--	--	--
B5MW	04/05/2005	--	13.35	--	--	--	--	--	--	--
B5MW	10/03/2005	--	13.52	--	--	--	--	--	--	--
B5MW	04/18/2006	--	14.31	--	--	--	--	--	--	--
B5MW	09/12/2006	--	13.80	--	--	--	--	--	--	--
B5MW	03/25/2007	--	13.28	--	--	--	--	--	--	--
B5MW	09/03/2009	--	13.49	--	**27**	**0.092**	0.0063	**1.3**	**7.9**	<0.020
B5MW	05/13/2010	--	13.69	--	**18**	**0.070**	<0.0025	**0.70**	**4.0**	<0.013
B5MW	09/09/2010	--	13.39	--	**22**	**0.080**	<0.0050	**0.90**	**5.7**	<0.025
B5MW	06/21/2011	--	13.33	--	**8.3**	**0.053**	<0.010	**0.33**	**2.3**	--

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
B5MW	09/29/2011	--	13.30	--	**8.6**	**0.048**	0.0039	**0.37**	**2.5**	--
B5MW	05/22/2012	--	12.92	--	0.23	<0.0040	0.00070	<0.00050	<0.0015	--
B5MW	09/20/2012	--	12.58	--	**13**	**0.060**	0.0034J	**0.35**	**2.3**	--
B5MW	05/14/2013				--	--	--	--	--	--
B5MW	05/15/2013	98.33	12.93	85.40	**9.15**	**0.0417**	<0.00100	**0.259**	**1.99**	--
B5MW	05/15/2013	98.33	--	--	**8.67**	**0.0439**	<0.0100	**0.248**	**1.96**	--
B5MW	09/24/2013	98.33	12.12	86.21	**7.21**	**0.0402**	<0.0100	**0.156**	**1.47**	--
B5MW	05/15/2014	98.33	12.59	85.74	**7.99**	**0.0330**	<0.0100	**0.175**	**1.54**	--
B5MW	10/16/2014	98.33	12.37	85.96	**7.40**	**0.0501**	<0.0100	**0.153**	**1.82**	--
B5MW	04/20/2015	98.33	13.51	84.82	**9.1**	**0.033**	<0.0030	**0.11**	**1.2**	--
B5MW	11/24/2015	98.33	12.72	85.61	**7.8 / 8.3**	**0.044 / 0.035**	0.00060J / <0.0030	**0.10 / 0.085**	**0.83 / 0.92**	--
B5MW	06/28/2016	98.33	13.31	85.02	**6.1 / 6.2**	**0.023 / 0.022**	<0.003 / <0.003	**0.066 / 0.060**	**0.62 / 0.57**	--
B5MW	09/13/2016	98.33	12.98	85.35	**7.4**	**0.026**	<0.003	**0.064**	**0.57**	--
B6MW	02/13/1996	--	--	--	--	--	--	--	--	--
B6MW	05/30/1996	--	--	--	--	--	--	--	--	--
B6MW	08/20/1996	--	--	--	--	--	--	--	--	--
B6MW	10/22/1996	--	--	--	--	--	--	--	--	--
B6MW	04/22/1997	--	--	--	--	--	--	--	--	--
B6MW	04/21/1998	--	--	--	--	--	--	--	--	--
B6MW	09/23/1998	--	--	--	--	--	--	--	--	--
B6MW	04/27/1999	--	--	--	--	--	--	--	--	--
B6MW	10/18/1999	--	--	--	--	--	--	--	--	--
B6MW	05/22/2000	--	--	--	--	--	--	--	--	--
B6MW	09/27/2000	--	--	--	--	--	--	--	--	--
B6MW	05/15/2001	--	--	--	--	--	--	--	--	--
B6MW	09/28/2001	--	--	--	--	--	--	--	--	--
B6MW	05/04/2002	--	--	--	--	--	--	--	--	--
B6MW	09/25/2002	--	--	--	--	--	--	--	--	--
B6MW	06/11/2003	--	--	--	--	--	--	--	--	--
B6MW	09/10/2003	--	13.33	--	--	--	--	--	--	--
B6MW	10/07/2003	--	--	--	--	--	--	--	--	--
B6MW	03/20/2004	--	12.87	--	--	--	--	--	--	--
B6MW	06/03/2004	--	11.59	--	--	--	--	--	--	--
B6MW	09/17/2004	--	12.36	--	--	--	--	--	--	--
B6MW	09/24/2004	--	--	--	--	--	--	--	--	--
B6MW	04/05/2005	--	13.29	--	--	--	--	--	--	--
B6MW	05/13/2005	--	--	--	--	--	--	--	--	--
B6MW	09/22/2005	--	--	--	--	--	--	--	--	--
B6MW	10/03/2005	--	13.47	--	--	--	--	--	--	--

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Anchorage, Alaska

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	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
B6MW	04/18/2006	--	14.28	--	--	--	--	--	--	--
B6MW	05/11/2006	--	--	--	--	--	--	--	--	--
B6MW	09/12/2006	--	13.77	--	--	--	--	--	--	--
B6MW	09/26/2006	--	--	--	--	--	--	--	--	--
B6MW	03/25/2007	--	14.30	--	--	--	--	--	--	--
B6MW	05/22/2007	--	--	--	--	--	--	--	--	--
B6MW	09/19/2007	--	--	--	--	--	--	--	--	--
B6MW	05/13/2008	--	--	--	--	--	--	--	--	--
B6MW	09/17/2008	--	--	--	--	--	--	--	--	--
B6MW	05/19/2009	--	--	--	--	--	--	--	--	--
B6MW	09/03/2009	--	13.50	--	**6.8**	**0.28**	<0.0025	**0.077**	**2.2**	<0.013
B6MW	05/13/2010	--	13.61	--	**3.0**	**0.18**	<0.00050	**0.037**	**0.75**	<0.0025
B6MW	09/08/2010	--	--	--	--	--	--	--	--	--
B6MW	09/09/2010	--	13.43	--	1.6	**0.14**	<0.00050	**0.018**	**0.43**	<0.0025
B6MW	06/13/2011	--	13.44	--	--	--	--	--	--	--
B6MW	06/21/2011	--	--	--	**2.4**	**0.15**	<0.00050	**0.021**	**0.61**	--
B6MW	09/29/2011	--	13.32	--	0.64	**0.086**	<0.00050	0.012	**0.14**	--
B6MW	05/22/2012	--	12.77	--	**3.3**	**0.14**	<0.00050	**0.022**	**0.63**	--
B6MW	09/20/2012	--	12.60	--	**5.3**	**0.21**	0.00060J	**0.035**	**1.1**	--
B6MW	05/15/2013	98.12	12.95	85.17	1.17	**0.130**	<0.00100	0.00790	**0.337**	--
B6MW	05/15/2013	98.12	--	--	0.994	**0.0861**	<0.00100	0.00850	**0.294**	--
B6MW	09/24/2013	98.12	12.13	85.99	**3.62**	**0.154**	<0.00500	**0.0180**	**0.720**	--
B6MW	05/15/2014	98.12	12.55	85.57	1.46	**0.150**	<0.00100	0.0113	**0.513**	--
B6MW	10/16/2014	98.12	12.36	85.76	1.92	**0.131**	<0.00200	0.0104	**0.494**	--
B6MW	04/20/2015	98.12	13.32	84.80	0.57	**0.073**	<0.00050	0.0040	0.071	--
B6MW	11/24/2015	98.12	12.72	85.40	0.92	**0.060**	<0.00050	0.0030	**0.21**	--
B6MW	06/28/2016	98.12	13.32	84.80	0.25	**0.010**	<0.0005	0.0006 J	0.033	--
B6MW	09/13/2016	98.12	12.99	85.13	0.29	**0.015**	<0.0005	0.0006 J	0.035	--
MW-1	07/01/1992	98.61	13.21	85.4	--	--	--	--	--	--
MW-1	11/01/1992	98.61	13.20	85.41	--	--	--	--	--	--
MW-1	05/01/1993	98.61	13.04	85.57	--	--	--	--	--	--
MW-1	08/01/1993	98.61	13.07	85.54	--	--	--	--	--	--
MW-1	11/01/1993	98.61	13.26	85.35	--	--	--	--	--	--
MW-1	03/01/1994	98.61	14.09	84.52	--	--	--	--	--	--
MW-1	06/01/1994	98.61	13.61	85.0	--	--	--	--	--	--
MW-1	09/01/1994	98.61	13.85	84.76	--	--	--	--	--	--
MW-1	12/20/1994	98.61	14.25	84.36	--	--	--	--	--	--
MW-1	03/22/1995	98.61	14.52	84.09	--	--	--	--	--	--
MW-1	06/15/1995	98.61	13.30	85.31	--	--	--	--	--	--

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-1	10/24/1995	98.47	13.05	85.42	--	--	--	--	--	--
MW-1	02/16/1996	98.47	13.93	84.54	--	--	--	--	--	--
MW-1	05/30/1996	98.47	14.00	84.47	--	--	--	--	--	--
MW-1	08/20/1996	98.47	13.8	84.67	--	--	--	--	--	--
MW-1	10/22/1996	98.47	13.92	84.55	--	--	--	--	--	--
MW-1	04/22/1997	98.47	14.31	84.16	--	--	--	--	--	--
MW-1	04/21/1998	98.47	14.00	84.47	--	--	--	--	--	--
MW-1	09/23/1998	98.47	15.16	83.31	--	--	--	--	--	--
MW-1	04/27/1999	98.47	13.63	84.84	--	--	--	--	--	--
MW-1	10/18/1999	98.47	12.76	85.71	--	--	--	--	--	--
MW-1	05/22/2000	98.47	11.58	86.89	--	--	--	--	--	--
MW-1	09/27/2000	98.47	12.49	85.98	--	--	--	--	--	--
MW-1	05/15/2001	98.47	12.79	85.68	--	--	--	--	--	--
MW-1	09/28/2001	98.47	12.95	85.52	--	--	--	--	--	--
MW-1	05/04/2002	92.68	--	--	--	--	--	--	--	--
MW-1	09/25/2002	92.68	12.49	80.19	--	--	--	--	--	--
MW-1	06/11/2003	92.68	12.69	79.99	--	--	--	--	--	--
MW-1	10/07/2003	92.68	12.66	80.02	--	--	--	--	--	--
MW-1	06/03/2004	92.68	11.10	81.58	**5.1**	**0.16**	0.19	**0.19**	**0.52**	<0.0020
MW-1	09/24/2004	92.68	12.17	80.51	**3.1**	**0.069**	0.11	**0.12**	**0.30**	<0.0020
MW-1	05/14/2005	92.68	12.85	79.83	**3.9**	**0.072**	0.079	**0.099**	**0.32**	<0.0020
MW-1	09/22/2005	92.68	13.31	79.37	0.17	0.0040	0.0040	0.0060	0.010	<0.0020
MW-1	05/11/2006	92.68	--	--	--	--	--	--	--	--
MW-1	09/26/2006	92.68	13.37	79.31	--	--	--	--	--	--
MW-1	05/22/2007	92.68	--	--	--	--	--	--	--	--
MW-1	09/19/2007	92.60	--	--	--	--	--	--	--	--
MW-1	05/13/2008	92.60	--	--	--	--	--	--	--	--
MW-1	09/17/2008	92.60	--	--	--	--	--	--	--	--
MW-1	05/19/2009	92.60	13.00	79.60	1.6	**0.029**	0.054	**0.056**	**0.20**	0.017
MW-1	09/23/2009	92.60	12.99	79.61	0.56	**0.011**	0.015	**0.020**	0.055	--
MW-1	05/12/2010	92.60	13.11	79.49	0.97	**0.019**	0.030	**0.033**	0.10	<0.010
MW-1	09/09/2010	92.60	12.83	79.77	0.067	0.0021	0.0019	0.0030	0.0060	<0.0025
MW-1	06/21/2011	92.60	12.23	80.37	1.4	**0.013**	0.019	**0.054**	0.13	--
MW-1	09/29/2011	92.60	12.76	79.84	0.11	0.0024	0.0017	0.0039	0.0085	--
MW-1	05/22/2012	92.60	12.27	80.33	0.20	0.0036	0.0043	0.0074	0.014	--
MW-1	09/20/2012	92.60	12.03	80.57	0.12	0.0024	0.00090J	0.0048	0.0050	--
MW-1	05/15/2013	98.94	12.42	86.52	<0.10	<0.0010	<0.0010	0.0011	<0.00300	--
MW-1	05/15/2013	98.94	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.00300	--
MW-1	09/24/2013	98.94	11.65	87.29	0.420	**0.00620**	0.00860	**0.0250**	0.0389	--
MW-1	05/15/2014	98.94	12.22	86.72	<0.100	0.00100	0.00690	0.00130	0.0139	--

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Chevron-Branded Service Station 99014
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					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-1	10/16/2014	98.94	12.00	86.94	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-1	04/21/2015	98.94	13.05	85.89	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	--
MW-1	11/24/2015	98.94	12.29	86.65	0.026J	<0.00050	<0.00050	<0.00050	<0.00050	--
MW-1	06/28/2016	98.94	12.88	86.06	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-1	09/13/2016	98.94	12.45	86.49	0.067 J	0.0007 J	<0.0005	0.0008 J	0.001	--
MW-2	07/01/1992	98.73	13.33	85.40	--	--	--	--	--	--
MW-2	11/01/1992	98.73	13.27	85.46	--	--	--	--	--	--
MW-2	05/01/1993	98.73	13.48	85.25	--	--	--	--	--	--
MW-2	08/01/1993	98.73	13.54	85.19	--	--	--	--	--	--
MW-2	11/01/1993	98.73	13.40	85.33	--	--	--	--	--	--
MW-2	03/01/1994	98.73	14.27	84.46	--	--	--	--	--	--
MW-2	06/01/1994	98.73	13.80	84.93	--	--	--	--	--	--
MW-2	09/01/1994	98.73	14.03	84.70	--	--	--	--	--	--
MW-2	12/20/1994	98.73	14.45	84.28	--	--	--	--	--	--
MW-2	03/22/1995	98.73	14.68	84.05	--	--	--	--	--	--
MW-2	06/15/1995	98.73	13.45	85.28	--	--	--	--	--	--
MW-3	07/01/1992	99.15	13.85	85.30	--	--	--	--	--	--
MW-3	11/01/1992	99.15	13.70	85.45	--	--	--	--	--	--
MW-3	05/01/1993	99.15	14.00	85.15	--	--	--	--	--	--
MW-3	08/01/1993	99.15	14.01	85.14	--	--	--	--	--	--
MW-3	11/01/1993	99.15	13.90	85.25	--	--	--	--	--	--
MW-3	03/01/1994	99.15	14.75	84.40	--	--	--	--	--	--
MW-3	06/01/1994	99.15	14.24	84.91	--	--	--	--	--	--
MW-3	09/01/1994	99.15	14.53	84.62	--	--	--	--	--	--
MW-3	12/20/1994	99.15	14.98	84.17	--	--	--	--	--	--
MW-3	03/22/1995	99.15	15.22	83.93	--	--	--	--	--	--
MW-3	06/15/1995	99.15	13.99	85.16	--	--	--	--	--	--
MW-4	07/01/1992	97.31	12.07	85.24	--	--	--	--	--	--
MW-4	11/01/1992	97.31	11.86	85.45	--	--	--	--	--	--
MW-4	05/01/1993	97.31	12.22	85.09	--	--	--	--	--	--
MW-4	08/01/1993	97.31	12.23	85.08	--	--	--	--	--	--
MW-4	11/01/1993	97.31	12.06	85.25	--	--	--	--	--	--
MW-4	03/01/1994	97.31	12.96	84.35	--	--	--	--	--	--
MW-4	06/01/1994	97.31	12.52	84.79	--	--	--	--	--	--
MW-4	09/01/1994	97.31	12.75	84.56	--	--	--	--	--	--
MW-4	12/20/1994	97.31	13.23	84.08	--	--	--	--	--	--
MW-4	03/22/1995	97.05	13.42	83.63	--	--	--	--	--	--

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Chevron-Branded Service Station 99014
3608 Minnesota Drive
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					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-4	06/15/1995	97.05	12.20	84.85	--	--	--	--	--	--
MW-4	10/24/1995	97.05	11.69	85.36	--	--	--	--	--	--
MW-4	02/13/1996	97.05	12.75	84.30	--	--	--	--	--	--
MW-4	05/30/1996	97.05	12.82	84.23	--	--	--	--	--	--
MW-4	08/20/1996	97.05	12.57	84.48	--	--	--	--	--	--
MW-4	10/22/1996	97.05	12.84	84.21	--	--	--	--	--	--
MW-4	04/22/1997	97.05	13.21	83.84	--	--	--	--	--	--
MW-4	04/21/1998	97.05	12.70	84.35	--	--	--	--	--	--
MW-4	09/23/1998	97.05	13.91	83.14	--	--	--	--	--	--
MW-4	04/27/1999	97.05	12.41	84.64	--	--	--	--	--	--
MW-4	10/18/1999	97.05	11.51	85.54	--	--	--	--	--	--
MW-4	05/22/2000	97.05	10.49	86.56	--	--	--	--	--	--
MW-4	09/27/2000	97.05	11.35	85.70	--	--	--	--	--	--
MW-4	05/15/2001	97.05	11.72	85.33	--	--	--	--	--	--
MW-4	09/28/2001	97.05	11.88	85.17	--	--	--	--	--	--
MW-4	05/04/2002	90.93	11.98	78.95	--	--	--	--	--	--
MW-4	09/25/2002	90.93	--	--	--	--	--	--	--	--
MW-4	06/11/2003	90.93	11.61	79.32	--	--	--	--	--	--
MW-4	10/07/2003	90.93	11.68	79.25	--	--	--	--	--	--
MW-4	06/03/2004	90.93	10.26	80.67	**50**	**1.6**	**10**	**0.89**	**5.6**	0.011
MW-4	09/24/2004	90.93	11.12	79.81	**100**	**1.7**	**21**	**1.6**	**9.2**	0.012
MW-4	05/14/2005	90.93	11.85	79.08	**250**	**4.0**	**47**	**4.3**	**26**	<0.050
MW-4	09/22/2005	90.93	12.42	78.51	**120 / 120**	**2.1 / 2.2**	**28 / 25**	**2.5 / 2.3**	**13 / 13**	0.014 / 0.017
MW-4	05/11/2006	90.93	--	--	--	--	--	--	--	
MW-4	09/26/2006	90.93	12.46	78.47	**79**	**1.3**	**19**	**2.0**	**13**	<0.010
MW-4	05/22/2007	90.93	12.54	78.39	**72 / 80**	**0.86 / 0.98**	**13 / 16**	**1.5 / 1.7**	**8.0 / 9.2**	<0.0100 / <0.0100
MW-4	09/19/2007	90.93	12.54	78.39	**28 / 18**	**0.60 / 0.40**	**6.5 / 3.5**	**0.80 / 0.50**	**4.1 / 2.4**	<0.200 / <0.0300
MW-4	05/13/2008	90.93	12.15	78.78	**76**	**1.1**	**16**	**1.5**	**8.8**	<0.0600
MW-4	09/17/2008	90.93	12.00	78.93	0.080 / 0.10	<0.0010 / <0.0010	0.0060 / 0.0090	0.0020 / 0.0020	0.020 / 0.030	<0.0030 / <0.0030
MW-4	05/19/2009	90.93	12.06	78.87	0.71	**0.0052**	0.055	**0.019**	**0.21**	<0.0025
MW-4	09/03/2009	90.93	12.07	78.86	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-4	05/12/2010	90.93	12.15	78.78	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-4	09/09/2010	90.93	12.03	78.90	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-4	06/21/2011	90.93	11.26	79.67	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-4	09/29/2011	90.93	11.88	79.05	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-4	05/22/2012	90.93	11.22	79.71	<0.010	0.00060	<0.00050	<0.00050	<0.0015	--
MW-4	09/20/2012	90.93	11.00	79.93	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-4	05/14/2013	97.71	11.42	86.29	<0.100	0.00100	0.00140	0.00240	0.0232	--
MW-4	05/14/2013	97.71	--	--	0.129	0.00130	0.00160	0.00310	0.0297	--
MW-4	09/24/2013	97.71	10.60	87.11	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--

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					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-4	05/15/2014	97.71	11.20	86.51	<0.10	0.0011	<0.0010	0.0015	0.0049	--
MW-4	10/16/2014	97.71	11.00	86.71	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-4	04/20/2015	97.71	12.11	85.60	--	--	--	--	--	--
MW-4	11/24/2015	97.71	11.31	86.40	0.12 / 0.14	0.0010 / 0.0020	<0.00050 / <0.00050	0.0040 / 0.0050	0.0050 / 0.0060	--
MW-4	6/28/2016	97.71	11.90	85.81	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-4	09/13/2016	97.71	11.51	86.20	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-5	07/01/1992	98.02	12.87	85.15	--	--	--	--	--	--
MW-5	11/01/1992	98.02	12.80	85.22	--	--	--	--	--	--
MW-5	05/01/1993	98.02	13.05	84.97	--	--	--	--	--	--
MW-5	08/01/1993	98.02	13.06	84.96	--	--	--	--	--	--
MW-5	11/01/1993	98.02	12.89	85.13	--	--	--	--	--	--
MW-5	03/01/1994	98.02	13.73	84.29	--	--	--	--	--	--
MW-5	06/01/1994	98.02	13.29	84.73	--	--	--	--	--	--
MW-5	09/01/1994	98.02	13.54	84.48	--	--	--	--	--	--
MW-5	12/20/1994	98.02	13.99	84.03	--	--	--	--	--	--
MW-5	03/22/1995	98.02	14.22	83.8	--	--	--	--	--	--
MW-5	06/15/1995	98.02	12.99	85.03	--	--	--	--	--	--
MW-5	10/24/1995	98.08	--	--	--	--	--	--	--	--
MW-5	02/13/1996	98.08	13.99	84.09	--	--	--	--	--	--
MW-5	05/30/1996	98.08	14.94	83.14	--	--	--	--	--	--
MW-5	08/20/1996	98.08	13.68	84.40	--	--	--	--	--	--
MW-5	10/22/1996	98.08	14.04	84.04	--	--	--	--	--	--
MW-5	04/22/1997	98.08	14.35	83.73	--	--	--	--	--	--
MW-5	04/21/1998	98.08	13.97	84.11	--	--	--	--	--	--
MW-5	09/23/1998	98.08	15.02	83.06	--	--	--	--	--	--
MW-5	04/27/1999	98.08	13.73	84.35	--	--	--	--	--	--
MW-5	10/18/1999	98.08	12.63	85.45	--	--	--	--	--	--
MW-5	05/22/2000	98.08	11.80	86.28	--	--	--	--	--	--
MW-5	09/27/2000	98.08	12.50	85.58	--	--	--	--	--	--
MW-5	05/15/2001	98.08	12.89	85.19	--	--	--	--	--	--
MW-5	09/28/2001	98.08	13.05	85.03	--	--	--	--	--	--
MW-5	05/04/2002	98.10	13.13	84.97	--	--	--	--	--	--
MW-5	09/25/2002	98.10	12.50	85.60	--	--	--	--	--	--
MW-5	06/11/2003	98.10	12.74	85.36	--	--	--	--	--	--
MW-5	10/07/2003	98.10	12.81	85.29	--	--	--	--	--	--
MW-5	06/03/2004	98.10	11.21	86.89	0.28	**0.032**	<0.00050	0.012	0.028	<0.0020
MW-5	09/24/2004	98.10	12.18	85.92	0.72	**0.13**	0.0010	**0.018**	0.027	<0.0020
MW-5	05/13/2005	98.10	12.91	85.19	--	--	--	--	--	--
MW-5	05/14/2005	98.10	--	--	0.68	**0.13**	0.0020	**0.020**	0.040	<0.0020
MW-5	09/22/2005	98.10	13.42	84.68	0.095	**0.018**	<0.00050	0.0020	0.0050	<0.0020

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Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS	PRIMARY VOCS				
	Units	ft msl	ft btoc	ft msl	GRO mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylene (total) mg/L	MTBE mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-5	05/11/2006	98.10	13.98	84.12	0.90	**0.074**	0.0060	**0.015**	0.11	<0.0020
MW-5	09/26/2006	98.10	13.47	84.63	1.3	**0.072**	0.031	**0.017**	0.16	<0.0020
MW-5	05/22/2007	98.10	13.61	84.49	1.8	**0.12**	0.015	0.050	**0.40**	<0.00050
MW-5	09/19/2007	98.10	13.56	84.54	0.090	**0.0050**	<0.0010	0.0010	0.020	<0.0030
MW-5	05/13/2008	98.10	--	--	--	--	--	--	--	--
MW-5	09/17/2008	98.10	--	--	--	--	--	--	--	--
MW-5	05/19/2009	98.10	--	--	--	--	--	--	--	--
MW-5	09/03/2009	98.10	--	--	--	--	--	--	--	--
MW-5	05/12/2010	98.10	--	--	--	--	--	--	--	--
MW-5	09/08/2010	98.10	--	--	--	--	--	--	--	--
MW-5	06/21/2011	98.10	--	--	--	--	--	--	--	--
MW-5	09/29/2011	98.10	--	--	--	--	--	--	--	--
MW-5	05/22/2012	98.10	--	--	--	--	--	--	--	--
MW-5	09/20/2012	98.10	--	--	--	--	--	--	--	--
MW-5	05/14/2013	98.21	--	--	--	--	--	--	--	--
MW-5	09/23/2013	98.21	--	--	--	--	--	--	--	--
MW-5	05/14/2014	98.21	--	--	--	--	--	--	--	--
MW-5	10/15/2014	98.21	--	--	--	--	--	--	--	--
MW-5	04/20/2015	98.21	--	--	--	--	--	--	--	--
MW-5	11/24/2015[1]	98.21	--	--	--	--	--	--	--	--
MW-5	06/28/2016[4]	98.21	--	--	--	--	--	--	--	--
MW-5	09/13/2016[4]	98.21	--	--	--	--	--	--	--	--
MW-5B	05/12/2010	98.10	13.25	84.86	<0.010	<0.00050	<0.00050	<0.00050	<0.00150	<0.0025
MW-5B	09/09/2010	98.10	13.36	84.75	<0.010	<0.00050	<0.00050	<0.00050	<0.00150	<0.0025
MW-5B	05/14/2013	98.73	12.51	86.22	--	--	--	--	--	--
MW-5B	05/15/2013	98.73	--	--	<0.10	0.0011	<0.0010	<0.0010	<0.0030	--
MW-5B	05/15/2013	98.73	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-5B	09/23/2013	98.73	11.73	87.00	--	--	--	--	--	--
MW-5B	05/14/2014	98.73	12.31	86.42	--	--	--	--	--	--
MW-5B	05/15/2014	98.73	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-5B	10/15/2014	98.73	12.07	86.66	<0.10	0.0032	<0.0010	<0.0010	<0.0030	--
MW-5B	04/20/2015	98.73	13.18	85.55	--	--	--	--	--	--
MW-5B	04/21/2015	98.73	--	--	0.14	**0.0050**	<0.00050	<0.00050	<0.00050	--
MW-5B	11/24/2015	98.73	12.39	86.34	0.18	**0.010**	0.0010	0.011	0.0080	--
MW-5B	06/28/2016	98.73	12.96	85.77	1.2	**0.027**	0.002	0.014	0.035	--
MW-5B	09/13/2016	98.73	12.00	86.73	0.23	**0.008**	0.001	0.014	0.021	--
MW-6	07/01/1992	97.40	12.03	85.37	--	--	--	--	--	--
MW-6	11/01/1992	97.40	11.93	85.47	--	--	--	--	--	--

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-6	05/01/1993	97.40	12.22	85.18	--	--	--	--	--	--
MW-6	08/01/1993	97.40	12.26	85.14	--	--	--	--	--	--
MW-6	11/01/1993	97.40	12.10	85.30	--	--	--	--	--	--
MW-6	03/01/1994	97.40	13.04	84.36	--	--	--	--	--	--
MW-6	06/01/1994	97.40	12.57	84.83	--	--	--	--	--	--
MW-6	09/01/1994	97.40	12.82	84.58	--	--	--	--	--	--
MW-7	07/01/1992	97.01	11.64	85.37	--	--	--	--	--	--
MW-7	11/01/1992	97.01	11.52	85.49	--	--	--	--	--	--
MW-7	05/01/1993	97.01	11.91	85.10	--	--	--	--	--	--
MW-7	08/01/1993	97.01	11.90	85.11	--	--	--	--	--	--
MW-7	11/01/1993	97.01	11.75	85.26	--	--	--	--	--	--
MW-7	03/01/1994	97.01	12.62	84.39	--	--	--	--	--	--
MW-7	06/01/1994	97.01	12.18	84.83	--	--	--	--	--	--
MW-7	09/01/1994	97.01	12.44	84.57	--	--	--	--	--	--
MW-7	12/20/1994	97.01	12.88	84.13	--	--	--	--	--	--
MW-7	03/22/1995	97.01	13.06	83.95	--	--	--	--	--	--
MW-7	06/15/1995	97.01	11.83	85.18	--	--	--	--	--	--
MW-7	10/24/1995	97.18	11.81	85.37	--	--	--	--	--	--
MW-7	02/13/1996	97.18	12.81	84.37	--	--	--	--	--	--
MW-7	05/30/1996	97.18	12.92	84.26	--	--	--	--	--	--
MW-7	08/20/1996	97.18	12.81	84.37	--	--	--	--	--	--
MW-7	10/22/1996	97.18	13.14	84.04	--	--	--	--	--	--
MW-7	04/22/1997	97.18	13.35	83.83	--	--	--	--	--	--
MW-7	04/21/1998	97.18	12.86	84.32	--	--	--	--	--	--
MW-7	09/23/1998	97.18	14.18	83.00	--	--	--	--	--	--
MW-7	04/27/1999	97.18	12.68	84.50	--	--	--	--	--	--
MW-7	10/18/1999	97.18	11.70	85.48	--	--	--	--	--	--
MW-7	05/22/2000	97.18	10.56	86.62	--	--	--	--	--	--
MW-7	09/27/2000	97.18	11.46	85.72	--	--	--	--	--	--
MW-7	05/15/2001	97.18	11.81	85.37	--	--	--	--	--	--
MW-7	09/28/2001	97.18	12.00	85.18	--	--	--	--	--	--
MW-7	05/04/2002	91.05	--	--	--	--	--	--	--	--
MW-7	09/25/2002	91.05	--	--	--	--	--	--	--	--
MW-7	06/11/2003	91.05	11.72	79.33	--	--	--	--	--	--
MW-7	10/07/2003	91.05	11.81	79.24	--	--	--	--	--	--
MW-7	06/03/2004	91.05	10.39	80.66	--	--	--	--	--	--
MW-7	09/24/2004	91.05	11.22	79.83	--	--	--	--	--	--
MW-7	05/13/2005	91.05	11.95	79.10	--	--	--	--	--	--
MW-7	09/22/2005	91.05	12.52	78.53	--	--	--	--	--	--

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-7	05/11/2006	91.05	13.04	78.01	--	--	--	--	--	--
MW-7	09/26/2006	91.05	12.55	78.50	--	--	--	--	--	--
MW-7	05/22/2007	91.05	12.65	78.40	0.080	**0.010**	<0.00050	0.0030	0.0050	<0.00050
MW-7	09/19/2007	91.05	12.61	78.44	0.050 / 0.060	**0.0070 / 0.0090**	<0.0010 / <0.0010	0.0020 / 0.0030	0.0030 / 0.0050	<0.0030 / <0.0030
MW-7	05/13/2008	91.05	12.21	78.84	0.10	**0.0060**	<0.0010	0.0040	0.0090	<0.0030
MW-7	09/17/2008	91.05	12.08	78.97	--	--	--	--	--	--
MW-7	05/20/2009	91.05	12.11	78.94	0.014	<0.00050	<0.00050	0.00060	<0.0015	<0.0025
MW-7	09/23/2009	91.05	12.12	78.93	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-7	05/12/2010	91.05	12.23	78.82	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-7	09/09/2010	91.05	12.00	79.05	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-7	06/21/2011	91.05	11.29	79.76	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-7	09/29/2011	91.05	11.92	79.13	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-7	05/20/2012	91.05	11.05	80.00	--	--	--	--	--	--
MW-7	05/22/2012	91.05	11.30	79.75	<0.010	<0.00050	<0.00050	<0.00050	<0.00150	--
MW-7	09/20/2012	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00150	--
MW-7	05/14/2013	97.84	11.49	86.35	<0.10	<0.0010	<0.0010	<0.0010	<0.00300	--
MW-7	05/14/2013	97.84	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.00300	--
MW-7	09/24/2013	97.84	10.70	87.14	<0.10	<0.0010	<0.0010	<0.0010	<0.00300	--
MW-7	05/15/2014	97.84	11.30	86.54	<0.10	<0.0010	<0.0010	<0.0010	<0.00300	--
MW-7	10/16/2014	97.84	11.07	86.77	<0.10	<0.0010	<0.0010	<0.0010	<0.00300	--
MW-7	04/21/2015	97.84	12.17	85.67	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	--
MW-7	11/24/2015	97.84	11.42	86.42	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	--
MW-7	06/28/2016	97.84	11.97	85.87	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-7	09/13/2016	97.84	11.59	86.25	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-8	11/01/1992	97.95	12.95	85.00	--	--	--	--	--	--
MW-8	05/01/1993	97.95	13.15	84.80	--	--	--	--	--	--
MW-8	08/01/1993	97.95	13.18	84.77	--	--	--	--	--	--
MW-8	11/01/1993	97.95	13.01	84.94	--	--	--	--	--	--
MW-8	03/01/1994	97.95	13.75	84.20	--	--	--	--	--	--
MW-8	06/01/1994	97.95	13.34	84.61	--	--	--	--	--	--
MW-8	09/01/1994	97.95	13.57	84.38	--	--	--	--	--	--
MW-8	12/20/1994	97.95	14.02	83.93	--	--	--	--	--	--
MW-8	03/22/1995	97.95	14.31	83.64	--	--	--	--	--	--
MW-8	06/15/1995	97.95	13.06	84.89	--	--	--	--	--	--
MW-8	10/24/1995	97.85	12.73	85.12	--	--	--	--	--	--
MW-8	02/13/1996	97.85	13.71	84.14	--	--	--	--	--	--
MW-8	05/30/1996	97.85	13.74	84.11	--	--	--	--	--	--
MW-8	08/20/1996	97.85	13.70	84.15	--	--	--	--	--	--
MW-8	10/22/1996	97.85	13.98	83.87	--	--	--	--	--	--

Table 1

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Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-8	04/22/1997	97.85	14.33	83.52	--	--	--	--	--	--
MW-8	04/21/1998	97.85	14.00	83.85	--	--	--	--	--	--
MW-8	09/23/1998	97.85	15.28	82.57	--	--	--	--	--	--
MW-8	04/27/1999	97.85	13.71	84.14	--	--	--	--	--	--
MW-8	10/18/1999	97.85	12.55	85.30	--	--	--	--	--	--
MW-8	05/22/2000	97.85	11.89	85.96	--	--	--	--	--	--
MW-8	09/27/2000	97.85	12.45	85.40	--	--	--	--	--	--
MW-8	05/15/2001	97.85	12.84	85.01	--	--	--	--	--	--
MW-8	09/28/2001	97.85	--	--	--	--	--	--	--	--
MW-8	05/04/2002	91.70	--	--	--	--	--	--	--	--
MW-8	09/25/2002	91.70	--	--	--	--	--	--	--	--
MW-8	06/11/2003	91.70	--	--	--	--	--	--	--	--
MW-8	10/07/2003	91.70	13.14	78.56	--	--	--	--	--	--
MW-8	06/03/2004	91.70	11.37	80.33	**7.0 / 6.6**	**0.12 / 0.11**	0.068 / 0.065	**0.26 / 0.25**	**2.0 / 1.9**	<0.0020 / <0.0020
MW-8	09/24/2004	91.70	12.48	79.22	**13 / 18**	**0.11 / 0.13**	0.062 / 0.077	**0.45 / 0.52**	**4.3 / 4.8**	<0.0020 / <0.0020
MW-8	05/14/2005	91.70	13.24	78.46	**14**	**0.073**	<0.0030	**0.48**	**4.1**	<0.0030
MW-8	09/22/2005	91.70	13.68	78.02	**11**	**0.12**	0.0030	**0.23**	**3.7**	<0.0020
MW-8	05/11/2006	91.70	14.28	77.42	**3.7**	**0.053**	0.0020	**0.048**	**0.76**	<0.0020
MW-8	09/26/2006	91.70	13.79	77.91	--	--	--	--	--	--
MW-8	05/22/2007	91.70	13.92	77.78	2.2 / 2.1	**0.052 / 0.049**	0.00090 / 0.00080	**0.039 / 0.038**	**0.58 / 0.72**	0.00080 / 0.00080
MW-8	09/19/2007	92.16	13.89	78.27	--	--	--	--	--	--
MW-8	05/13/2008	92.16	13.45	78.71	0.040	0.0020	<0.0010	<0.0010	0.0050	<0.0030
MW-8	09/17/2008	92.16	13.43	78.73	--	--	--	--	--	--
MW-8	05/19/2009	92.16	13.50	78.66	2.1	**0.044**	<0.00050	**0.12**	**0.60**	<0.0025
MW-8	09/03/2009	92.16	13.50	78.66	0.12	**0.012**	<0.00050	0.012	0.0080	--
MW-8	05/12/2010	92.16	13.66	78.5	0.018	0.00080	<0.00050	<0.00050	<0.0015	<0.0025
MW-8	09/09/2010	92.16	--	--	--	--	--	--	--	--
MW-8	06/21/2011	92.16	13.41	78.75	0.080	0.0019	<0.00050	0.0023	0.014	--
MW-8	09/29/2011	92.16	--	--	--	--	--	--	--	--
MW-8	05/20/2012	92.16	12.59	79.57	--	--	--	--	--	--
MW-8	05/22/2012	92.16	12.78	79.38	0.052	0.00080	<0.00050	0.0014	0.016	--
MW-8	05/13/2013	98.94	12.98	85.96	0.400	**0.00680**	<0.00100	**0.0240**	**0.202**	--
MW-8	05/13/2013	98.94	--	--	0.101	0.00170	<0.00100	0.00970	0.0408	--
MW-8	09/23/2013	98.94	12.16	86.78	--	--	--	--	--	--
MW-8	05/14/2014	98.94	12.70	86.24	0.484	**0.00460**	<0.00100	0.00580	0.134	--
MW-8	10/15/2014	98.94	--	--	--	--	--	--	--	--
MW-8	04/20/2015	98.94	13.57	85.37	1.7	**0.015**	<0.00050	**0.018**	**0.47**	--
MW-8	11/17/2015	98.94	12.78	86.16	1.4	**0.012**	<0.00050	**0.018**	**0.44**	--
MW-8	06/28/2016	98.94	13.50	85.44	0.089 J	0.001	<0.0005	0.0005 J	0.014	--
MW-8	09/13/2016[5]	98.94	13.00	85.94	--	--	--	--	--	--

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-9	09/01/1994	98.28	14.89	83.39	--	--	--	--	--	--
MW-9	03/22/1995	97.95	15.34	82.61	--	--	--	--	--	--
MW-9	06/15/1995	97.95	13.58	84.82	--	--	--	--	--	--
MW-9	10/24/1995	98.20	13.33	84.90	--	--	--	--	--	--
MW-9	02/13/1996	98.20	14.53	83.67	--	--	--	--	--	--
MW-9	05/30/1996	98.20	14.63	83.61	--	--	--	--	--	--
MW-9	08/20/1996	98.20	14.63	83.58	--	--	--	--	--	--
MW-9	10/22/1996	98.20	14.56	83.64	--	--	--	--	--	--
MW-9	04/22/1997	98.20	14.99	83.22	--	--	--	--	--	--
MW-9	04/21/1998	98.20	14.50	83.70	--	--	--	--	--	--
MW-9	09/23/1998	98.20	15.96	82.24	--	--	--	--	--	--
MW-9	04/27/1999	98.20	14.35	83.85	--	--	--	--	--	--
MW-9	10/18/1999	98.20	13.14	85.06	--	--	--	--	--	--
MW-9	05/22/2000	98.20	12.52	85.68	--	--	--	--	--	--
MW-9	09/27/2000	98.20	13.02	85.18	--	--	--	--	--	--
MW-9	05/15/2001	98.20	13.44	84.76	--	--	--	--	--	--
MW-9	09/28/2001	98.20	--	--	--	--	--	--	--	--
MW-9	05/04/2002	92.09	--	--	--	--	--	--	--	--
MW-9	09/25/2002	92.09	--	--	--	--	--	--	--	--
MW-9	06/11/2003	92.09	--	--	--	--	--	--	--	--
MW-9	10/07/2003	92.09	--	--	--	--	--	--	--	--
MW-9	06/03/2004	92.09	--	--	--	--	--	--	--	--
MW-9	09/24/2004	92.09	--	--	--	--	--	--	--	--
MW-9	05/13/2005	92.09	--	--	--	--	--	--	--	--
MW-9	09/19/2007	92.02	--	--	--	--	--	--	--	--
MW-9	05/13/2008	92.02	--	--	--	--	--	--	--	--
MW-9	09/17/2008	92.02	--	--	--	--	--	--	--	--
MW-9	05/19/2009	92.02	--	--	--	--	--	--	--	--
MW-9	05/12/2010	92.02	--	--	--	--	--	--	--	--
MW-9	09/09/2010	92.02	--	--	--	--	--	--	--	--
MW-9	06/28/2016[3]	92.02	--	--	--	--	--	--	--	--
MW-9	09/13/2016[3]	92.02	--	--	--	--	--	--	--	--
MW-10	11/01/1992	97.60	13.19	84.41	--	--	--	--	--	--
MW-10	05/01/1993	97.60	14.11	83.49	--	--	--	--	--	--
MW-10	08/01/1993	97.60	13.37	84.23	--	--	--	--	--	--
MW-10	11/01/1993	97.60	13.24	84.36	--	--	--	--	--	--
MW-10	06/01/1994	97.60	13.61	83.99	--	--	--	--	--	--
MW-10	09/01/1994	97.60	13.78	83.82	--	--	--	--	--	--

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-10	05/15/2001	97.60	12.95	84.65	--	--	--	--	--	--
MW-10	10/07/2001	92.38	--	--	--	--	--	--	--	--
MW-11	06/01/1994	97.41	12.72	84.69	--	--	--	--	--	--
MW-11	09/01/1994	97.41	12.97	84.44	--	--	--	--	--	--
MW-11	12/20/1994	97.41	14.07	84.00	--	--	--	--	--	--
MW-11	03/22/1995	97.41	14.6	83.73	--	--	--	--	--	--
MW-11	06/15/1995	97.41	12.42	84.99	--	--	--	--	--	--
MW-11	10/24/1995	97.33	12.13	85.20	--	--	--	--	--	--
MW-11	02/13/1996	97.33	13.13	84.20	--	--	--	--	--	--
MW-11	05/30/1996	97.33	13.28	84.07	--	--	--	--	--	--
MW-11	08/20/1996	97.33	12.93	84.40	--	--	--	--	--	--
MW-11	10/22/1996	97.33	13.29	84.04	--	--	--	--	--	--
MW-11	04/22/1997	97.33	13.82	83.61	--	--	--	--	--	--
MW-11	04/21/1998	97.33	12.90	84.43	--	--	--	--	--	--
MW-11	09/23/1998	97.33	14.27	83.06	--	--	--	--	--	--
MW-11	04/27/1999	97.33	13.11	84.22	--	--	--	--	--	--
MW-11	10/18/1999	97.33	11.90	85.43	--	--	--	--	--	--
MW-11	05/22/2000	97.33	11.10	86.23	--	--	--	--	--	--
MW-11	09/27/2000	97.33	11.80	85.53	--	--	--	--	--	--
MW-11	05/15/2001	97.33	12.20	85.13	--	--	--	--	--	--
MW-11	09/28/2001	97.33	12.28	85.05	--	--	--	--	--	--
MW-11	05/04/2002	91.25	12.45	78.80	--	--	--	--	--	--
MW-11	09/25/2002	91.25	--	--	--	--	--	--	--	--
MW-11	06/11/2003	91.25	12.04	79.21	--	--	--	--	--	--
MW-11	10/07/2003	91.25	12.12	79.13	--	--	--	--	--	--
MW-11	06/03/2004	--	10.36	--	**17**	**0.018**	0.38	**0.44**	**4.6**	0.0020
MW-11	09/24/2004	--	11.26	--	**18**	**0.040**	0.28	**0.45**	**4.7**	<0.0020
MW-11	05/13/2005	--	12.02	--	--	--	--	--	--	--
MW-11	05/14/2005	--	--	--	**5.1**	**0.028**	0.042	**0.15**	**1.4**	<0.0020
MW-11	09/22/2005	--	12.53	--	**19**	**0.021**	0.048	**0.62**	**6.5**	0.0030
MW-11	05/11/2006	--	13.11	--	**23 / 21**	**0.048 / 0.045**	0.024 / 0.036	**0.64 / 0.78**	**7.1 / 7.9**	0.021 / 0.019
MW-11	09/26/2006	--	12.61	--	**15 / 17**	**0.063 / 0.070**	0.013 / 0.019	**0.35 / 0.42**	**3.6 / 4.4**	0.019 / 0.017
MW-11	05/22/2007	--	12.74	--	**16**	**0.018**	0.0080	**0.27**	**3.9**	<0.0020
MW-11	09/19/2007	91.02	12.70	78.32	**8.9**	**0.010**	0.0080	**0.30**	**2.7**	<0.020
MW-11	05/13/2008	91.02	12.33	78.69	--	--	--	--	--	--
MW-11	05/14/2008	91.02	--	--	**28**	**0.10**	0.040	**0.70**	**7.5**	0.040
MW-11	09/18/2008	91.02	12.24	78.78	**20**	**0.010**	0.030	**0.20**	**6.6**	<0.020
MW-11	05/20/2009	91.02	12.28	78.74	**34**	**0.043**	0.098	**0.90**	**13**	<0.063
MW-11	09/03/2009	91.02	12.29	78.73	0.39	<0.00050	<0.00050	0.00080	**0.15**	<0.0025

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Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-11	05/12/2010	91.02	12.45	78.57	**14**	<0.020	0.0026	**0.20**	**4.8**	<0.013
MW-11	09/09/2010	91.02	12.21	78.81	**3.9**	<0.010	0.0012	**0.015**	**1.1**	<0.010
MW-11	06/21/2011	91.02	11.89	79.13	0.93	0.0015	<0.00050	0.013	**0.31**	--
MW-11	09/29/2011	91.02	12.24	78.78	1.6	0.0026	0.00070	0.011	**0.59**	--
MW-11	05/22/2012	91.02	11.54	79.48	**4.3**	**0.011**	0.0012	0.0083	**0.85**	--
MW-11	09/20/2012	91.02	11.33	79.69	**3.1**	**0.020**	0.0020J	**0.030**	**0.61**	--
MW-11	05/13/2013	97.87	11.70	86.17	**6.19**	**0.0194**	0.00460	**0.127**	**1.55**	--
MW-11	05/13/2013	97.87	--	--	<0.100	<0.00100	<0.00100	<0.00100	0.0221	--
MW-11	09/23/2013	97.87	10.92	86.95	0.822	**0.0255**	0.00140	0.0117	**0.248**	--
MW-11	05/14/2014	97.87	11.52	86.35	**3.32**	**0.0224**	0.00680	**0.0657**	**0.916**	--
MW-11	10/15/2014	97.87	11.30	86.57	1.01	0.00240	<0.00200	0.0105	**0.235**	--
MW-11	04/20/2015	97.87	12.38	85.49	1.9	0.0040	0.00060J	**0.035**	**0.36**	--
MW-11	11/18/2015	97.87	11.67	86.20	0.49	**0.0050**	<0.00050	0.0040	0.045	--
MW-11	06/29/2016	97.87	12.22	85.65	0.79	0.003	<0.0005	0.003	0.060	--
MW-11	09/13/2016	97.87	11.85	86.02	0.66	0.002	0.0006 J	0.004	0.046	--
MW-12	05/15/2001	--	11.93	--	--	--	--	--	--	--
MW-12	10/07/2001	91.58	--	--	--	--	--	--	--	--
MW-13	09/28/2001	--	12.11	--	--	--	--	--	--	--
MW-13	05/04/2002	91.56	12.29	79.27	--	--	--	--	--	--
MW-13	09/25/2002	91.56	11.64	79.92	--	--	--	--	--	--
MW-13	06/11/2003	91.56	11.90	79.66	--	--	--	--	--	--
MW-13	10/07/2003	91.56	11.63	79.93	--	--	--	--	--	--
MW-13	06/03/2004	91.56	9.57	81.99	--	--	--	--	--	--
MW-13	09/24/2004	91.56	11.23	80.33	--	--	--	--	--	--
MW-13	05/13/2005	91.56	11.97	79.59	--	--	--	--	--	--
MW-13	09/22/2005	91.56	11.49	80.07	--	--	--	--	--	--
MW-13	05/11/2006	91.56	12.93	78.63	--	--	--	--	--	--
MW-13	09/26/2006	91.56	12.35	79.21	--	--	--	--	--	--
MW-13	05/22/2007	91.56	12.58	78.98	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	0.0010
MW-13	09/19/2007	91.58	12.46	79.12	<0.010	<0.010	<0.010	<0.010	<0.0020	<0.0030
MW-13	05/14/2008	91.58	12.12	79.46	<0.010	<0.010	<0.010	<0.010	<0.0020	<0.0030
MW-13	09/17/2008	91.58	12.01	79.57	--	--	--	--	--	--
MW-13	05/19/2009	91.58	12.10	79.48	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-13	09/03/2009	91.58	12.06	79.52	--	--	--	--	--	--
MW-13	05/12/2010	91.58	12.20	79.38	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-13	09/08/2010	91.58	11.88	79.70	--	--	--	--	--	--
MW-13	09/29/2011	--	--	--	--	--	--	--	--	--

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Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-14	09/28/2001	--	12.05	--	--	--	--	--	--	--
MW-14	05/04/2002	89.51	12.17	77.34	--	--	--	--	--	--
MW-14	09/25/2002	89.51	11.55	77.96	--	--	--	--	--	--
MW-14	06/11/2003	89.51	11.83	77.68	--	--	--	--	--	--
MW-14	10/07/2003	89.51	11.93	77.58	--	--	--	--	--	--
MW-14	06/03/2004	89.51	10.71	78.80	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	0.031
MW-14	09/24/2004	89.51	11.21	78.30	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	0.010
MW-14	05/13/2005	89.51	11.71	77.80	<0.010 / <0.010	<0.00050 / <0.00050	<0.00050 / <0.00050	<0.00050 / <0.00050	<0.00050 / <0.00050	0.0080 / 0.0080
MW-14	09/22/2005	89.51	12.11	77.40	--	--	--	--	--	--
MW-14	09/23/2005	89.51	--	--	0.013	<0.00050	<0.00050	<0.00050	<0.00050	0.020
MW-14	05/11/2006	89.51	12.75	76.76	0.011	<0.00050	<0.00050	<0.00050	<0.00050	0.033
MW-14	09/26/2006	89.51	--	--	--	--	--	--	--	--
MW-14	05/22/2007	89.51	12.49	77.02	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	0.0040
MW-14	09/19/2007	89.47	12.57	76.90	--	--	--	--	--	--
MW-14	05/13/2008	89.47	12.10	77.37	--	--	--	--	--	--
MW-14	05/14/2008	89.47	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	0.0040
MW-14	09/17/2008	89.47	12.05	77.42	--	--	--	--	--	--
MW-14	05/20/2009	89.47	12.08	77.39	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	0.0040
MW-14	09/03/2009	89.47	12.10	77.37	--	--	--	--	--	--
MW-14	05/12/2010	89.47	12.20	77.27	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-14	09/09/2010	89.47	12.07	77.40	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-14	06/21/2011	89.47	12.17	77.30	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-14	09/29/2011	89.47	11.98	77.49	--	--	--	--	--	--
MW-14	10/04/2011	89.47	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-14	05/22/2012	89.47	11.15	78.32	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-14	09/20/2012	89.47	11.20	78.27	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-14	05/13/2013	96.28	11.46	84.82	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-14	05/13/2013	96.28	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-14	09/24/2013	96.28	10.65	85.63	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-14	05/14/2014	96.28	11.19	85.09	<0.10	<0.00100	<0.00100	0.00120	0.0126	--
MW-14	10/15/2014	96.28	11.00	85.28	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-14	04/20/2015	96.28	12.15	84.13	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	--
MW-14	11/17/2015	96.28	11.32	84.96	0.015J / <0.010	<0.00050 / <0.00050	<0.00050 / <0.00050	<0.00050 / <0.00050	<0.00050 / <0.00050	--
MW-14	06/29/2016	96.28	12.01	84.27	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-14	09/13/2016	96.28	11.66	84.62	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-15	09/28/2001	--	12.29	--	--	--	--	--	--	--
MW-15	05/04/2002	89.84	12.44	77.4	--	--	--	--	--	--
MW-15	09/25/2002	89.84	--	--	--	--	--	--	--	--
MW-15	06/11/2003	89.84	--	--	--	--	--	--	--	--

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Chevron-Branded Service Station 99014
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					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-15	10/07/2003	89.84	--	--	--	--	--	--	--	--
MW-15	06/03/2004	89.84	--	--	--	--	--	--	--	--
MW-15	09/24/2004	89.84	--	--	--	--	--	--	--	--
MW-15	05/13/2005	89.84	--	--	--	--	--	--	--	--
MW-15	05/22/2007	89.84	--	--	--	--	--	--	--	--
MW-15	09/19/2007	89.84	--	--	--	--	--	--	--	--
MW-15	05/13/2008	89.84	--	--	--	--	--	--	--	--
MW-15	09/17/2008	89.84	--	--	--	--	--	--	--	--
MW-16	09/28/2001	--	15.22	--	--	--	--	--	--	--
MW-16	05/04/2002	89.51	15.34	74.17	--	--	--	--	--	--
MW-16	09/25/2002	89.51	--	--	--	--	--	--	--	--
MW-16	06/11/2003	89.51	14.77	74.74	--	--	--	--	--	--
MW-16	10/07/2003	89.51	14.80	74.71	--	--	--	--	--	--
MW-16	06/03/2004	89.51	12.69	76.82	0.031	<0.00050	<0.00050	<0.00050	<0.00050	0.015
MW-16	09/24/2004	89.51	13.51	76.00	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	0.014
MW-16	05/13/2005	89.51	13.82	75.69	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	0.047
MW-16	09/23/2005	89.51	12.55	76.96	0.024	<0.00050	<0.00050	<0.00050	<0.00050	0.027
MW-16	05/11/2006	89.51	15.28	74.23	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	0.097
MW-16	09/26/2006	89.51	--	--	--	--	--	--	--	--
MW-16	05/22/2007	89.51	15.07	74.44	<0.010	<0.00050	<0.00050	<0.00050	0.00090	0.084
MW-16	09/19/2007	89.51	15.37	74.14	--	--	--	--	--	--
MW-16	05/13/2008	89.51	--	--	--	--	--	--	--	--
MW-16	09/17/2008	89.51	--	--	--	--	--	--	--	--
MW-16	05/19/2009	89.51	--	--	--	--	--	--	--	--
MW-16	09/09/2010	89.51	--	--	--	--	--	--	--	--
MW-16	05/22/2012	89.51	--	--	--	--	--	--	--	--
MW-17	06/03/2004	--	10.64	--	**2.7**	**0.98**	0.053	**0.041**	**0.48**	<0.0020
MW-17	09/24/2004	--	11.28	--	1.9	**0.69**	0.017	**0.071**	**0.29**	<0.0020
MW-17	05/13/2005	--	12.04	--	**4.1**	**0.72**	<0.0010	**0.067**	**1.2**	<0.0020
MW-17	09/22/2005	--	12.41	--	--	--	--	--	--	--
MW-17	09/23/2005	--	--	--	**5.3**	**0.38**	0.012	**0.12**	**2.4**	<0.0020
MW-17	05/11/2006	--	13.11	--	**13**	**0.93**	0.0010	**0.12**	**4.0**	<0.0020
MW-17	09/26/2006	--	12.64	--	**9.5**	**0.73**	<0.0010	**0.058**	**2.3**	<0.0020
MW-17	05/22/2007	--	12.92	--	**12**	**0.72**	<0.0020	**0.044**	**2.8**	<0.0020
MW-17	09/19/2007	90.23	12.89	77.34	**13**	**0.80**	<0.0050	**0.060**	**4.1**	<0.020
MW-17	05/13/2008	90.23	12.53	77.70	--	--	--	--	--	--
MW-17	05/14/2008	90.23	--	--	**16**	**0.80**	<0.010	**0.10**	**4.4**	<0.10
MW-17	09/18/2008	90.23	12.36	77.87	**6.7**	**0.30**	<0.0050	**0.020**	**1.7**	<0.020

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					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-17	05/19/2009	90.23	12.46	77.77	**7.8**	**0.39**	<0.0025	**0.032**	**2.5**	<0.013
MW-17	09/03/2009	90.23	12.48	77.75	**6.4**	**0.33**	<0.0025	**0.027**	**2.1**	<0.013
MW-17	05/12/2010	90.23	12.68	77.55	1.7	**0.13**	<0.00050	0.0070	**0.49**	<0.0025
MW-17	09/09/2010	90.23	12.43	77.80	1.7	**0.19**	<0.00050	0.0095	**0.40**	<0.0025
MW-17	06/13/2011	90.23	12.43	77.80	--	--	--	--	--	--
MW-17	06/21/2011	90.23	--	--	1.2	**0.14**	<0.00050	0.0039	**0.34**	--
MW-17	09/29/2011	90.23	12.31	77.92	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-17	05/22/2012	90.23	11.85	78.38	0.067	**0.0080**	<0.00050	<0.00050	0.0065	--
MW-17	09/20/2012	90.23	11.61	78.62	0.16	**0.019**	<0.00050	<0.00050	0.040	--
MW-17	05/16/2013	97.05	11.91	85.14	0.317	**0.0152**	<0.00100	0.00110	0.100	--
MW-17	05/16/2013	97.05	--	--	0.322	**0.0189**	<0.00100	0.00120	0.111	--
MW-17	09/23/2013	97.05	11.12	85.93	1.65	**0.0894**	<0.00100	0.0121	**0.397**	--
MW-17	05/14/2014	97.05	11.63	85.42	**2.31**	**0.0673**	<0.00200	0.0137	**0.812**	--
MW-17	10/15/2014	97.05	11.37	85.68	**5.28**	**0.0790**	<0.00200	**0.0218**	**1.69**	--
MW-17	04/20/2015	97.05	12.51	84.54	--	--	--	--	--	--
MW-17	11/17/2015[2]	97.05	--	--	--	--	--	--	--	--
MW-17	06/29/2016	97.05	12.39	84.66	**4.0 / 4.2**	**0.028 / 0.037**	<0.003 / <0.0005	**0.017 / 0.025**	**0.95 / 0.89**	--
MW-17	09/13/2016	97.05	12.03	85.02	0.56 / 0.45	0.0005 J / 0.0007 J	<0.0005 / <0.0005	<0.0005 / <0.0005	0.064 / 0.097	--
MW-18	06/03/2004	--	10.69	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	0.0020
MW-18	09/24/2004	--	11.21	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020
MW-18	05/13/2005	--	11.75	--	0.020	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020
MW-18	09/22/2005	--	12.01	--	--	--	--	--	--	--
MW-18	09/23/2005	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020
MW-18	05/11/2006	--	13.11	--	<0.010	<0.00050	<0.00050	<0.00050	0.00060	0.0030
MW-18	09/26/2006	--	12.41	--	--	--	--	--	--	--
MW-18	05/22/2007	--	12.95	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	0.0040
MW-18	09/19/2007	89.38	12.90	76.48	--	--	--	--	--	--
MW-18	05/13/2008	89.38	12.34	77.04	--	--	--	--	--	--
MW-18	05/14/2008	89.38	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
MW-18	09/17/2008	89.38	12.21	77.17	--	--	--	--	--	--
MW-18	05/19/2009	89.38	12.40	76.98	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-18	09/03/2009	89.38	12.47	76.91	--	--	--	--	--	--
MW-18	05/12/2010	89.38	13.41	75.97	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-18	09/08/2010	89.38	12.43	76.95	--	--	--	--	--	--
MW-18	06/21/2011	89.38	12.27	77.11	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-18	09/29/2011	89.38	--	--	--	--	--	--	--	--
MW-18	05/22/2012	89.38	11.67	77.71	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-18	09/20/2012	89.38	11.55	77.83	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-18	05/14/2013	96.14	11.75	84.39	--	--	--	--	--	--

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-18	05/16/2013	96.14	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-18	05/16/2013	96.14	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-18	09/23/2013	96.14	10.95	85.19	--	--	--	--	--	--
MW-18	05/15/2014	96.14	11.55	84.59	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-18	10/15/2014	96.14	11.29	84.85	--	--	--	--	--	--
MW-18	04/20/2015	96.14	12.18	83.96	--	--	--	--	--	--
MW-18	11/17/2015[2]	96.14	--	--	--	--	--	--	--	--
MW-18	06/29/2016	96.14	12.36	83.78	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-18	09/13/2016[5]	96.14	11.59	84.55	--	--	--	--	--	--
MW-19	09/10/2007	--	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
MW-19	09/19/2007	91.22	13.25	77.97	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
MW-19	05/13/2008	91.22	12.76	78.46	--	--	--	--	--	--
MW-19	05/14/2008	91.22	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
MW-19	09/18/2008	91.22	12.71	78.51	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
MW-19	05/20/2009	91.22	12.69	78.53	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-19	09/03/2009	91.22	12.76	78.46	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-19	05/12/2010	91.22	12.83	78.39	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-19	09/08/2010	91.22	12.70	78.52	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-19	06/21/2011	91.22	12.41	78.81	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-19	09/29/2011	91.22	12.55	78.67	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-19	05/22/2012	91.22	11.73	79.49	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-19	09/20/2012	91.22	11.59	79.63	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-19	05/14/2013	98.04	--	--	--	--	--	--	--	--
MW-19	09/24/2013	98.04	11.16	86.88	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-19	05/16/2014	98.04	11.81	86.23	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-19	10/16/2014	98.04	11.63	86.41	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-19	04/21/2015	98.04	12.78	85.26	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	--
MW-19	11/24/2015	98.04	12.00	86.04	<0.010	<0.00050	<0.00050	<0.00050	0.00070J	--
MW-19	06/29/2016	98.04	12.54	85.50	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-19	09/14/2016	98.04	12.19	85.85	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-20	09/10/2007	--	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
MW-20	09/19/2007	91.17	12.78	78.39	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
MW-20	05/13/2008	91.17	--	--	--	--	--	--	--	--
MW-20	09/17/2008	91.17	12.25	78.92	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
MW-20	05/19/2009	91.17	12.24	78.93	--	--	--	--	--	--
MW-20	09/03/2009	91.17	12.28	78.89	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-20	05/12/2010	91.17	12.42	78.75	--	--	--	--	--	--
MW-20	05/13/2010	91.17	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025

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Chevron-Branded Service Station 99014
3608 Minnesota Drive
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					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-20	09/08/2010	91.17	12.02	79.15	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-21	09/10/2007	--	--	--	**55**	**1.6**	**8.7**	**1.8**	**9.6**	<0.30
MW-21	09/19/2007	91.23	13.51	77.72	**13**	**0.40**	**2.0**	**0.40**	**2.1**	<0.020
MW-21	05/13/2008	91.23	13.05	78.18	--	--	--	--	--	--
MW-21	05/14/2008	91.23	--	--	**44**	**1.1**	**5.2**	**1.3**	**7.2**	<0.20
MW-21	09/17/2008	91.23	12.97	78.26	**110**	**1.8**	**17**	**3.5**	**18**	<0.20
MW-21	05/20/2009	91.23	12.99	78.24	**46**	**0.84**	**7.0**	**1.6**	**8.9**	<0.063
MW-21	09/03/2009	91.23	13.00	78.23	**100**	**1.7**	**19**	**3.7**	**20**	<0.25
MW-21	05/13/2010	91.23	13.2	78.03	**97**	**1.4**	**18**	**3.2**	**20**	<0.13
MW-21	09/08/2010	91.23	12.97	78.26	**120**	**1.2**	**28**	**3.9**	**25**	<0.13
MW-21	06/21/2011	91.23	12.78	78.45	**73**	**0.74**	**17**	**2.1**	**13**	--
MW-21	09/29/2011	91.23	12.00	79.23	**59**	**0.33**	**14**	**2.1**	**11**	--
MW-21	05/22/2012	91.23	11.95	79.28	**25**	**0.14**	**4.5**	**0.082**	**5.1**	--
MW-21	09/20/2012	91.23	12.00	79.23	**130**	**0.32**	**26**	**4.9**	**24**	--
MW-21	05/14/2013	98.03	12.69	85.34	--	--	--	--	--	--
MW-21	05/16/2013	98.03	--	--	**45.7**	**0.141**	**7.22**	**1.62**	**8.86**	--
MW-21	05/16/2013	98.03	--	--	**79.7**	**0.118**	**9.57**	**2.08**	**11.6**	--
MW-21	09/23/2013	98.03	11.56	86.47	--	--	--	--	--	--
MW-21	09/24/2013	98.03	--	--	**218**	**0.594**	**24.0**	**9.39**	**54.4**	--
MW-21	05/14/2014	98.03	12.08	85.95	--	--	--	--	--	--
MW-21	05/16/2014	98.03	--	--	--	**0.137**	**7.43**	**1.96**	**10.1**	--
MW-21	10/15/2014	98.03	11.93	86.10	--	--	--	--	--	--
MW-21	10/16/2014	98.03	--	--	**52.3**	**0.131**	**10.6**	**3.23**	**17.2**	--
MW-21	04/20/2015	98.03	13.06	84.97	--	--	--	--	--	--
MW-21	11/24/2015	98.03	12.28	85.75	**57**	**0.078**	**7.4**	**2.4**	**12**	--
MW-21	06/29/2016	98.03	12.83	85.20	1.5 / 1.3	0.003 / <0.005	0.024 / 0.017	**0.066 J / 0.045 J**	**0.43 / 0.30**	--
MW-21	09/14/2016	98.03	12.48	85.55	**78**	**0.099**	**6.0**	**3.2**	**14**	--
MW-22	09/10/2007	--	--	--	**180**	**9.3**	**41**	**3.8**	**22**	<0.50
MW-22	09/19/2007	91.45	13.39	78.06	**180**	**11**	**37**	**3.3**	**22**	<0.30
MW-22	05/13/2008	91.45	12.96	78.49	--	--	--	--	--	--
MW-22	05/14/2008	--	--	--	**39**	**2.4**	**5.0**	**0.50**	**4.0**	<0.020
MW-22	09/17/2008	91.45	12.85	78.6	**74 / 73**	**4.7 / 5.6**	**12 / 14**	**1.0 / 1.2**	**7.9 / 9.2**	<0.20 / <0.20
MW-22	05/20/2009	91.45	12.90	78.55	**22**	**1.7**	**2.7**	**0.47**	**4.1**	<0.025
MW-22	09/03/2009	91.45	12.90	78.55	**35**	**3.5**	**6.1**	**0.65**	**6.2**	<0.050
MW-22	05/13/2010	91.45	13.04	78.41	**6.8**	**0.61**	**1.0**	**0.11**	**1.2**	<0.013
MW-22	09/08/2010	91.45	12.83	78.62	**29**	**2.5**	**6.5**	**0.59**	**4.8**	<0.025
MW-22	06/21/2011	91.45	11.59	79.86	**100**	**4.7**	**25**	**1.8**	**17**	--
MW-22	09/29/2011	91.45	12.72	78.73	**64**	**2.4**	**14**	**1.7**	**14**	--

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS	PRIMARY VOCS				
	Units	ft msl	ft btoc	ft msl	GRO mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylene (total) mg/L	MTBE mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-22	05/22/2012	91.45	12.07	79.38	1.5	**0.048**	0.096	**0.057**	**0.43**	--
MW-22	09/20/2012	91.45	11.90	79.55	**16**	**0.60**	**1.3**	**0.57**	**4.0**	--
MW-22	05/17/2013	98.26	12.30	85.96	**15.1**	**0.227**	0.886	**0.577**	**5.02**	--
MW-22	05/17/2013	98.26	--	--	**11.2**	**0.163**	0.631	**0.393**	**3.34**	--
MW-22	09/24/2013	98.26	11.50	86.76	1.43	**0.0371**	0.0886	**0.0349**	**0.269**	--
MW-22	05/14/2014	98.26	12.00	86.26	--	--	--	--	--	--
MW-22	10/16/2014	98.26	11.85	86.41	**22.4**	**0.349**	**3.75**	**0.266**	**2.28**	--
MW-22	04/21/2015	98.26	12.97	85.29	**56**	**1.9**	**8.1**	**1.3**	**10**	--
MW-22	11/24/2015	98.26	12.17	86.09	**26**	**0.29**	**4.7**	**0.46**	**3.9**	--
MW-22	06/29/2016	98.26	12.73	85.53	**56**	**0.28**	**6.5**	**0.68**	**7.8**	--
MW-22	09/14/2016	98.26	12.36	85.90	**25**	**0.52**	1.1	**0.72**	**6.5**	--
MW-23	09/17/2008	97.00	11.47	85.53	0.010	0.0030	<0.0010	<0.0010	<0.0020	<0.0030
MW-23	05/20/2009	97.00	11.49	85.51	0.018	0.0037	<0.00050	<0.00050	<0.0015	<0.0025
MW-23	09/03/2009	97.00	11.51	85.49	<0.010	0.0011	<0.00050	<0.00050	<0.0015	<0.0025
MW-23	05/12/2010	97.00	12.65	84.35	--	--	--	--	--	--
MW-23	05/13/2010	97.00	--	--	<0.010	0.00080	<0.00050	<0.00050	<0.0015	<0.0025
MW-23	09/08/2010	97.00	11.46	85.54	<0.010	0.00080	<0.00050	<0.00050	<0.0015	<0.0025
MW-23	06/21/2011	97.00	10.87	86.13	<0.010	0.00060	<0.00050	<0.00050	<0.0015	--
MW-23	09/29/2011	97.00	11.32	85.68	<0.010	0.00060	<0.00050	<0.00050	<0.0015	--
MW-23	05/22/2012	97.00	10.67	86.33	<0.010	0.00060	<0.00050	<0.00050	<0.0015	--
MW-23	09/20/2012	97.00	10.43	86.57	<0.010	0.00070J	<0.00050	<0.00050	<0.0015	--
MW-23	05/14/2013	97.10	--	--	--	--	--	--	--	--
MW-23	09/24/2013	97.10	10.06	87.04	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-23	05/14/2014	97.10	10.64	86.46	--	--	--	--	--	--
MW-23	10/16/2014	97.10	10.44	86.66	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-23	04/20/2015	97.10	--	--	--	--	--	--	--	--
MW-23	11/24/2015	97.10	10.82	86.28	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	--
MW-23	06/29/2016	97.10	11.36	85.74	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-23	09/14/2016	97.10	10.98	86.12	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-24	09/17/2008	97.55	12.16	85.39	**2.6**	**0.050**	0.40	**0.060**	**0.40**	<0.0030
MW-24	05/20/2009	97.55	12.18	85.37	**12**	**0.24**	**1.3**	**0.26**	**2.9**	<0.013
MW-24	09/03/2009	97.55	12.20	85.35	**2.3**	**0.048**	0.41	**0.10**	**0.69**	<0.0025
MW-24	05/13/2010	97.55	12.34	85.21	2.0	**0.072**	0.20	**0.064**	**0.45**	0.0034
MW-24	09/08/2010	97.55	12.13	85.42	**12**	**0.25**	0.83	**0.34**	**2.9**	<0.050
MW-24	06/21/2011	97.55	11.67	85.88	0.14	0.0045	0.018	0.0064	0.040	--
MW-24	09/29/2011	97.55	12.01	85.54	**5.2**	**0.13**	0.59	**0.23**	**1.7**	--
MW-24	05/22/2012	97.55	11.36	86.19	0.67	**0.026**	0.069	**0.025**	0.17	--
MW-24	09/20/2012	97.55	11.26	86.29	1.1	**0.068**	0.13	**0.035**	**0.23**	--

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					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-24	05/14/2013	97.67	--	--	--	--	--	--	--	--
MW-24	09/24/2013	97.67	10.70	86.97	0.330	**0.0442**	0.0861	**0.0182**	0.153	--
MW-24	05/14/2014	97.67	11.33	86.34	--	--	--	--	--	--
MW-24	10/16/2014	97.67	11.13	86.54	1.96	**0.0928**	0.177	**0.0368**	**0.316**	--
MW-24	04/20/2015	97.67	--	--	--	--	--	--	--	--
MW-24	11/24/2015[3]	97.67	--	--	--	--	--	--	--	--
MW-24	06/29/2016[3]	97.67	--	--	--	--	--	--	--	--
MW-24	09/14/2016[3]	97.67	--	--	--	--	--	--	--	--
MW-25	09/17/2008	97.99	12.71	85.28	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
MW-25	05/20/2009	97.99	12.72	85.27	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-25	09/03/2009	97.99	12.75	85.24	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-25	05/12/2010	97.99	12.88	85.11	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-25	09/08/2010	97.99	12.68	85.31	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
MW-25	06/21/2011	97.99	12.30	85.69	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-25	09/29/2011	97.99	12.55	85.44	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-25	05/22/2012	97.99	11.86	86.13	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-25	09/20/2012	97.99	12.11	85.88	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
MW-25	05/14/2013	98.12	--	--	--	--	--	--	--	--
MW-25	09/24/2013	98.12	11.30	86.82	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-25	05/16/2014	98.12	11.90	86.22	<0.10	<0.0010	0.0017	<0.0010	0.0068	--
MW-25	10/16/2014	98.12	11.72	86.40	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
MW-25	04/21/2015	98.12	11.72	86.40	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	--
MW-25	11/24/2015	98.12	12.11	86.01	0.20	<0.00050	<0.00050	<0.00050	0.00050J	--
MW-25	06/29/2016	98.12	12.69	85.43	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-25	09/14/2016	98.12	12.32	85.80	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
MW-26	09/17/2008	97.74	12.55	85.19	**14**	**0.20**	**1.2**	**0.30**	**1.7**	<0.020
MW-26	05/20/2009	97.74	12.61	85.13	**41**	**1.7**	**8.2**	**1.2**	**6.6**	<0.063
MW-26	09/03/2009	97.74	12.65	85.09	**50**	**2.3**	**12**	**1.4**	**7.4**	<0.13
MW-26	05/13/2010	97.74	12.68	85.06	**14**	**0.37**	**1.5**	**0.50**	**2.9**	0.022
MW-26	09/08/2010	97.74	12.57	85.17	**46**	**1.6**	**11**	**1.2**	**6.8**	<0.050
MW-26	06/21/2011	97.74	12.46	85.28	**4.8**	**0.098**	0.26	**0.23**	**1.6**	--
MW-26	09/29/2011	97.74	12.47	85.27	**49**	**1.3**	**13**	**1.5**	**8.2**	--
MW-26	05/22/2012	97.74	11.78	85.96	**6.3**	**0.045**	0.087	**0.079**	**2.1**	--
MW-26	09/20/2012	97.74	11.65	86.09	**17**	**0.095**	0.093	**0.31**	**5.1**	--
MW-26	05/14/2013	97.91	12.05	85.86	--	--	--	--	--	--
MW-26	09/24/2013	97.91	11.26	86.65	**10.2**	**0.0909**	0.0402	**0.101**	**4.19**	--
MW-26	05/16/2014	97.91	11.80	86.11	--	**0.160**	**2.60**	**0.310**	**3.24**	--
MW-26	10/16/2014	97.91	11.68	86.23	**15.8**	**0.132**	**1.33**	**0.189**	**3.35**	--
MW-26	04/21/2015	97.91	12.82	85.09	**28**	**0.53**	**10**	**0.85**	**4.2**	--

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
MW-26	11/24/2015	97.91	12.15	85.76	**6.6**	**0.039**	0.018	**0.099**	**1.8**	--
MW-26	06/29/2016	97.91	12.69	85.22	**8.5**	**0.16**	**1.6**	**0.25**	**1.0**	--
MW-26	09/14/2016	97.91	12.32	85.59	**6.5**	**0.064**	0.51	**0.18**	**1.3**	--
MW-27	09/17/2008	98.07	13.28	84.79	**45**	**1.3**	**5.4**	**0.90**	**7.0**	<0.080
MW-27	05/20/2009	98.07	13.34	84.73	**62**	**1.9**	**7.0**	**1.9**	**14**	<0.063
MW-27	09/03/2009	98.07	13.58	84.49	**32**	**0.93**	**4.9**	**0.95**	**7.4**	<0.050
MW-27	05/13/2010	98.07	13.51	84.56	**12**	**0.11**	**1.3**	**0.24**	**3.1**	<0.013
MW-27	09/08/2010	98.07	--	--	--	--	--	--	--	--
MW-27	06/21/2011	98.07	11.51	86.56	**7.5**	**0.095**	0.64	**0.22**	**2.2**	--
MW-27	09/29/2011	98.07	13.19	84.88	**76**	**0.26**	**5.3**	**1.7**	**30**	--
MW-27	05/22/2012	98.07	12.35	85.72	**13**	**0.0073**	0.11	**0.029**	**4.5**	--
MW-27	09/20/2012	98.07	12.37	85.70	**21**	**0.036**	0.25	**0.26**	**7.3**	--
MW-27	05/16/2013	98.18	12.67	85.51	**51.4**	**0.597**	**7.18**	**1.06**	**9.59**	--
MW-27	05/16/2013	98.18	--	--	**5.62**	**0.120**	0.756	**0.179**	**0.830**	--
MW-27	09/24/2013	98.18	11.89	86.29	**4.19**	<0.00500	0.0238	0.00920	**1.31**	--
MW-27	05/14/2014	98.18	12.41	85.77	--	--	--	--	--	--
MW-27	10/16/2014	98.18	12.23	85.95	**21.0**	**0.0847**	**2.09**	**0.273**	**3.88**	--
MW-27	04/20/2015	98.18	13.40	84.78	--	--	--	--	--	--
MW-27	11/24/2015	98.18	12.59	85.59	**1.4**	0.0010	0.019	0.0070	**0.12**	--
MW-27	06/29/2016	98.18	13.15	85.03	**6.0**	**0.022**	0.061	**0.17**	**1.6**	--
MW-27	09/14/2016	98.18	12.85	85.33	**11 / 9.5**	**0.044 / 0.045**	0.26 / 0.27	**0.26 / 0.26**	**2.7 / 2.8**	--
T-1	09/01/1994	--	12.97	--	--	--	--	--	--	--
T-1	08/20/1996	--	12.24	--	--	--	--	--	--	--
T-1	10/22/1996	--	12.65	--	--	--	--	--	--	--
T-1	04/22/1997	--	12.87	--	--	--	--	--	--	--
T-1	04/21/1998	--	12.51	--	--	--	--	--	--	--
T-1	09/23/1998	--	14.00	--	--	--	--	--	--	--
T-1	04/27/1999	--	12.13	--	--	--	--	--	--	--
T-1	10/18/1999	--	11.06	--	--	--	--	--	--	--
T-1	05/22/2000	--	10.10	--	--	--	--	--	--	--
T-1	09/27/2000	--	10.90	--	--	--	--	--	--	--
T-1	05/15/2001	--	11.30	--	--	--	--	--	--	--
T-1	09/28/2001	--	11.47	--	--	--	--	--	--	--
T-1	05/04/2002	90.44	11.55	78.89	--	--	--	--	--	--
T-1	09/25/2002	90.44	--	--	--	--	--	--	--	--
T-1	06/11/2003	90.44	11.15	79.29	--	--	--	--	--	--
T-1	10/07/2003	90.44	11.25	79.19	--	--	--	--	--	--
T-1	06/03/2004	90.44	9.84	80.60	**45**	**0.26**	**10**	**1.3**	**7.0**	0.0080

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
T-1	09/24/2004	90.44	10.69	79.75	**65**	**0.084**	**7.9**	**0.99**	**5.7**	<0.010
T-1	05/13/2005	90.44	11.42	79.02	--	--	--	--	--	--
T-1	05/14/2005	90.44	--	--	0.032	0.0020	<0.00050	<0.00050	<0.00050	<0.0020
T-1	09/22/2005	90.44	11.96	78.48	--	--	--	--	--	--
T-1	09/23/2005	90.44	--	--	0.21	**0.025**	<0.00050	<0.00050	0.0010	<0.0020
T-1	05/11/2006	90.44	12.51	77.93	**5.2**	**0.073**	0.63	**0.15**	**0.94**	<0.0020
T-1	09/26/2006	90.44	12.02	78.42	**4.1**	**0.033**	0.51	**0.18**	**0.76**	<0.0020
T-1	05/22/2007	90.44	12.13	78.31	0.10	**0.018**	0.0020	0.0010	0.0060	<0.00050
T-1	09/19/2007	90.40	12.08	78.32	0.20	**0.020**	0.0060	0.0030	0.010	<0.0030
T-1	05/13/2008	90.40	11.70	78.70	0.020	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
T-1	09/17/2008	90.40	11.60	78.80	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
T-1	05/20/2009	90.40	11.58	78.82	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
T-1	09/03/2009	90.40	11.60	78.80	<0.010	<0.00050	<0.00050	0.00060	<0.0015	<0.0025
T-1	05/13/2010	90.40	11.75	78.65	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
T-1	09/08/2010	90.40	11.62	78.78	<0.010	<0.00050	<0.00050	0.00050	<0.0015	<0.0025
T-1	06/21/2011	90.40	11.00	79.40	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
T-1	09/29/2011	90.40	11.46	78.94	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
T-1	05/22/2012	90.40	10.82	79.58	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
T-1	09/20/2012	90.40	10.62	79.78	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
T-1	05/16/2013	97.28	11.05	86.23	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
T-1	05/16/2013	97.28	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
T-1	09/24/2013	97.28	10.21	87.07	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
T-1	05/15/2014	97.28	10.78	86.50	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
T-1	10/16/2014	97.28	10.61	86.67	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
T-1	04/20/2015	97.28	11.74	85.54	--	--	--	--	--	--
T-1	11/24/2015	97.28	11.02	86.26	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	--
T-1	06/29/2016	97.28	11.59	85.69	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
T-1	09/14/2016	97.28	11.14	86.14	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
T-2	09/01/1994	--	13.64	--	--	--	--	--	--	--
T-2	08/20/1996	--	13.94	--	--	--	--	--	--	--
T-2	10/22/1996	--	14.23	--	--	--	--	--	--	--
T-2	04/22/1997	--	14.94	--	--	--	--	--	--	--
T-2	04/21/1998	--	14.00	--	--	--	--	--	--	--
T-2	04/27/1998	--	13.07	--	--	--	--	--	--	--
T-2	09/23/1998	--	16.89	--	--	--	--	--	--	--
T-2	10/18/1999	--	--	--	--	--	--	--	--	--
T-2	05/22/2000	--	--	--	--	--	--	--	--	--
T-2	09/27/2000	--	--	--	--	--	--	--	--	--
T-2	05/15/2001	--	12.22	--	--	--	--	--	--	--

Table 1

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					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
T-2	09/28/2001	--	12.37	--	--	--	--	--	--	--
T-2	05/04/2002	--	--	--	--	--	--	--	--	--
T-2	09/25/2002	--	--	--	--	--	--	--	--	--
T-2	06/11/2003	--	12.11	--	--	--	--	--	--	--
T-2	10/07/2003	--	12.22	--	--	--	--	--	--	--
T-2	06/03/2004	--	10.83	--	**19**	**2.4**	**3.1**	**0.30**	**1.6**	0.0060
T-2	09/24/2004	--	11.51	--	**46**	**6.7**	**8.7**	**0.60**	**3.2**	<0.0050
T-2	05/13/2005	--	12.25	--	--	--	--	--	--	--
T-2	05/14/2005	--	--	--	**4.8**	**0.87**	0.16	**0.11**	0.18	<0.0020
T-2	09/22/2005	--	12.75	--	--	--	--	--	--	--
T-2	09/23/2005	--	--	--	**10**	**2.6**	0.49	**0.13**	**0.34**	0.0030
T-2	05/11/2006	--	13.32	--	**11**	**1.1**	0.43	**0.25**	**2.3**	0.0050
T-2	09/26/2006	--	12.83	--	**15**	**1.2**	**1.6**	**0.22**	**2.3**	0.0020
T-2	05/22/2007	--	13.02	--	**4.3**	**0.35**	0.23	**0.082**	**1.2**	0.0010
T-2	09/19/2007	--	12.95	--	2.0	**0.20**	0.090	**0.040**	**0.40**	<0.0030
T-2	05/13/2008	--	12.53	--	**8.1**	**0.50**	0.60	**0.20**	**1.6**	<0.020
T-2	09/17/2008	--	12.45	--	**2.1**	**0.20**	0.30	**0.040**	**0.20**	<0.0030
T-2	05/19/2009	--	--	--	--	--	--	--	--	--
T-2	09/03/2009	--	12.50	--	**5.5**	**0.63**	**1.4**	**0.14**	**0.51**	<0.0025
T-2	05/13/2010	--	12.64	--	0.15	**0.036**	0.0097	0.0046	0.013	<0.0025
T-2	09/08/2010	--	--	--	--	--	--	--	--	--
T-2	06/21/2011	--	--	--	--	--	--	--	--	--
T-2	09/29/2011	--	--	--	--	--	--	--	--	--
T-2	05/22/2012	--	11.62	--	0.42	**0.052**	0.011	0.013	0.094	--
T-2	09/20/2012	--	11.47	--	1.3	**0.33**	0.12	**0.026**	0.042	--
T-2	05/17/2013	97.73	11.86	85.87	**7.63**	**0.824**	**1.33**	**0.100**	**0.669**	--
T-2	05/17/2013	97.73	--	--	**18.3**	**1.61**	**2.48**	**0.190**	**1.27**	--
T-2	09/24/2013	97.73	11.06	86.67	0.452	**0.0877**	0.00500	0.0109	0.0333	--
T-2	05/14/2014	97.97	--	--	--	--	--	--	--	--
T-2	10/16/2014	97.97	11.41	86.56	1.86	**0.436**	0.0360	**0.0184**	0.0209	--
T-2	04/20/2015	97.97	12.55	85.42	--	--	--	--	--	--
T-2	11/24/2015[3]	97.97	--	--	--	--	--	--	--	--
T-2	06/29/2016	97.97	12.32	85.65	**2.9**	**0.62**	0.10	**0.16**	0.16	--
T-2	09/14/2016	97.97	11.97	86.00	1.5	**0.23**	0.11	**0.029**	0.050	--
T-3	09/01/1994	--	12.21	--	--	--	--	--	--	--
T-4	09/01/1994	--	--	--	--	--	--	--	--	--
T-4	08/20/1996	--	12.32	--	--	--	--	--	--	--
T-4	10/22/1996	--	12.70	--	--	--	--	--	--	--

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					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
T-4	04/22/1997	--	12.93	--	--	--	--	--	--	--
T-4	04/21/1998	--	12.43	--	--	--	--	--	--	--
T-4	09/23/1998	--	13.29	--	--	--	--	--	--	--
T-4	04/27/1999	--	12.21	--	--	--	--	--	--	--
T-4	10/18/1999	--	11.24	--	--	--	--	--	--	--
T-4	05/22/2000	--	10.25	--	--	--	--	--	--	--
T-4	09/27/2000	--	11.08	--	--	--	--	--	--	--
T-4	05/15/2001	--	11.25	--	--	--	--	--	--	--
T-4	09/28/2001	--	11.43	--	--	--	--	--	--	--
T-4	05/04/2002	90.44	11.55	78.89	--	--	--	--	--	--
T-4	09/25/2002	90.44	--	--	--	--	--	--	--	--
T-4	06/11/2003	90.44	11.18	79.26	--	--	--	--	--	--
T-4	10/07/2003	90.44	11.27	79.17	--	--	--	--	--	--
T-4	06/03/2004	90.44	9.87	80.57	0.83	**0.051**	0.068	**0.026**	0.16	0.0030
T-4	09/24/2004	90.44	10.72	79.72	0.22	**0.015**	0.030	0.0050	0.025	<0.0020
T-4	05/14/2005	90.44	11.51	78.93	**17**	**0.43**	**1.8**	**0.50**	**2.9**	0.0070
T-4	09/23/2005	90.44	12.02	78.42	0.58	**0.040**	0.15	**0.015**	0.064	<0.0020
T-4	05/11/2006	90.44	12.57	77.87	**23**	**0.77**	**2.7**	**0.86**	**4.1**	0.0060
T-4	09/26/2006	--	11.94	--	**29**	**0.71**	**3.6**	**1.4**	**7.7**	0.010
T-4	05/22/2007	--	12.07	--	**31**	**0.70**	**2.8**	**1.3**	**7.0**	0.007
T-4	09/19/2007	90.45	12.06	78.39	**10**	**0.40**	0.40	**0.60**	**2.2**	<0.020
T-4	05/13/2008	90.45	11.68	78.77	**11**	**0.30**	0.50	**0.50**	**2.2**	<0.020
T-4	09/18/2008	90.45	11.59	78.86	0.10	0.0020	<0.0010	0.0050	0.010	<0.0030
T-4	05/19/2009	90.45	--	--	--	--	--	--	--	--
T-4	09/03/2009	90.45	--	--	--	--	--	--	--	--
T-4	05/12/2010	90.45	--	--	--	--	--	--	--	--
T-4	09/08/2010	90.45	--	--	--	--	--	--	--	--
Trip Blank	06/03/2004	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020
Trip Blank	09/24/2004	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020
Trip Blank	05/13/2005	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020
Trip Blank	09/22/2005	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020
Trip Blank	05/11/2006	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020
Trip Blank	07/24/2006	--	--	--	--	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Trip Blank	09/26/2006	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020
Trip Blank	05/22/2007	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Trip Blank	09/19/2007	--	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
Trip Blank	10/31/2007	--	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
Trip Blank	05/13/2008	--	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
Trip Blank	05/14/2008	--	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

Location	Date	TOC	DTW	GWE	HYDROCARBONS	PRIMARY VOCS				
	Units	ft msl	ft btoc	ft msl	GRO mg/L	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Xylene (total) mg/L	MTBE mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**
Trip Blank	06/10/2008	--	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	--
Trip Blank	06/14/2008	--	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	--
Trip Blank	09/17/2008	--	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
Trip Blank	09/17/2008	--	--	--	<0.010	<0.0010	<0.0010	<0.0010	<0.0020	<0.0030
Trip Blank	05/19/2009	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
Trip Blank	09/03/2009	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
Trip Blank	09/23/2009	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
Trip Blank	05/12/2010	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
Trip Blank	05/13/2010	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
Trip Blank	05/13/2010	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
Trip Blank	06/19/2010	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
Trip Blank	07/08/2010	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
Trip Blank	09/08/2010	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	<0.0025
Trip Blank	06/21/2011	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
Trip Blank	09/29/2011	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
Trip Blank	10/04/2011	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
Trip Blank	05/22/2012	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
Trip Blank	09/20/2012	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.0015	--
Trip Blank	05/13/2013	--	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
Trip Blank	05/17/2013	--	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
Trip Blank	09/23/2013	--	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
Trip Blank	05/14/2014	--	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
Trip Blank	10/15/2014	--	--	--	<0.10	<0.0010	<0.0010	<0.0010	<0.0030	--
Trip Blank	04/21/2015	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	--
Trip Blank	11/24/2015	--	--	--	<0.010	<0.00050	<0.00050	<0.00050	<0.00050	--
Trip Blank	06/29/2016	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--
Trip Blank	09/14/2016	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<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 SW-846 8021B or 8260B
Total Xylenes = Sum of m-, o-, and p-xylenes
MTBE = Methyl Tertiary-Butyl Ether
ADEC = Alaska Department of Environmental Conservation
[a] = Levels established in ADEC Table C Groundwater Cleanup Levels (18 AAC 75.345)
BOLD = Indicates concentration above the ADEC Table C Groundwater Cleanup Level

Table 1

Historical Groundwater Analytical Results
Chevron-Branded Service Station 99014
3608 Minnesota Drive
Anchorage, Alaska

					HYDROCARBONS	PRIMARY VOCS				
Location	Date	TOC	DTW	GWE	GRO	Benzene	Toluene	Ethylbenzene	Xylene (total)	MTBE
	Units	ft msl	ft btoc	ft msl	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
ADEC Groundwater Cleanup Levels 2015[a]					**2.2**	**0.00454**	**1.1**	**0.0149**	**0.193**	**0.143**

NA = Not Applicable
ft msl = feet above mean sea level
ft btoc = Feet Below Top of Casing
mg/L = Milligrams per Liter
ND = Not detected above laboratory method detection limits
U = Non-detect
J = Estimated value
- = Not Measured/Not Analyzed
<x = Constituent not detected above x milligrams per liter
x / y = Sample Results / Blind Duplicate Results
[1] - Unable to locate
[2] - Unable to access - frozen
[3] - Unable to access - paved over
[4] - Unable to access - dry
[5] - Gauge only

Appendix A
ADEC Human Health Graphic and Scoping Forms

Photo 1 – Chevron 99014 (site) – southern portion of the site and station building: facing northeast

Photo 2 – Western adjoining property – Thrifty Car Rental: facing west

Site Photographs

Photo 3 – MW-14, in the Wyoming Drive-Spenard Road intersection: facing southeast

Photo 4 – MW-17, in Greenland Drive: facing north toward Thrifty Rent-A-Car

Site Photographs

Appendix B
Site Photographs

Appendix B Site Environmental History

1992 Level II Environmental Assessments

America North/EMCON, Inc. (EMCON) advanced seven soil borings and installed monitoring wells MW-1 through MW-7 in June and July of 1992. Benzene-impacted soil was detected in four locations: soil from the MW-1 boring contained 0.18 mg/kg benzene at 10 fbg and 0.05 mg/kg benzene at 12.5 fbg; soil from the MW-4 boring contained 0.06 mg/kg benzene at 10 fbg and 2.28 mg/kg at 12 fbg; soil from the MW-5 boring contained 0.07 mg/kg benzene at 10 fbg; soil from MW-7 contained 0.17 mg/kg benzene at 10 fbg and 0.04 mg/kg benzene at 12.5 fbg. Benzene impacts were found in groundwater samples collected from all wells with the exception of MW-6. The highest benzene concentrations (10.9 mg/l) were detected in a sample collected from monitoring well MW-4.

EMCON advanced three soil borings to approximately 20.5 feet below grade for the installation of offsite monitoring wells MW-8 through MW-10 between November 5 and 9th, 1992. Soil collected from MW-8 contained benzene at 1.2 mg/kg.

February 1994 Offsite Well Installation

RZA AGRA Alaska, Inc. (RZA AGRA) advanced two soil borings and constructed wells MW-11 and MW-12 between February 16 and 28, 1994. No constituents were detected above cleanup levels in MW-12. Soil samples collected from MW-11 contained DRO at 29 mg/kg, GRO at 5,400 ppm, benzene at 41 ppm and BTEX at 1,621 ppm. A groundwater sample from monitoring well MW-11 contained 270mg/l GRO, 31 mg/l benzene, 51 mg/l toluene, 57 mg/l ethylbenzene, 29mg/l xylenes, and 167 mg/l total BTEX.

1995 Air Sparge Well Installation

AGRA Earth and Environmental (AGRA) installed four air sparge wells on the Thrifty property in June 1995 and three air sparge wells at the site in September 1995. T-3 was destroyed soon after installation.

August 1995 UST Removal/Station Renovation

AGRA supervised a UST system upgrade at the site in 1995. Two 10,000 gallon unleaded gasoline USTs, one 5,000-gallon unleaded gasoline UST, one 1,000-gallon used oil UST and one unregulated 500-gallon heating oil UST were excavated and removed from the site, along with three IHVLs in the service station maintenance bay. Post-excavation soil samples were collected from each location: residual impacts above cleanup levels were reported in all locations. A soil sample collected 11 fbg beneath the former dispenser islands in the eastern portion of the site contained benzene (6.3 mg/kg), BTEX (554.3 mg/kg) and GRO (4,000 mg/kg) at the highest contaminant levels identified in soil remaining at the site. Soil collected from a depth of 12 feet beneath the former southern dispenser island contained 3mg/kg benzene, 232 mg/kg total BTEX and 2,600 mg/kg GRO.

Approximately 854 tons of petroleum hydrocarbon impacted soil was sent to Alaska Soil Recycling for treatment and disposal. All other soil excavated during the closure activities was used as fill at the site.

1996 System Installation

SECOR International Incorporated (SECOR) supervised the construction and startup of a soil vapor extraction/air sparge remediation system at the site in May 1996. Onsite monitoring wells MW-1, MW-4, MW-5, MW-7 and MW-11 were converted, and two new horizontal wells were installed for use as SVE

wells. Three onsite wells (AS-1 through AS-3) and well T-2 on the Thrifty property were connected to the system as AS wells.

The system operated from May 31, 1996 until 2005, when it was shut down for renovations. The system operated intermittently between 2005 and 2007, and was restarted on June 26, 2008.

According to a report by SECOR, approximately 9,255 pounds of GRO and 687 pounds of benzene were recovered by the system between 1996 and 2004.

2001 Offsite Domestic Well Survey

SECOR performed a survey in 2000 and identified five active domestic water wells in the vicinity of the site. The wells were sampled on January 19 and February 8, 2001. Benzene was detected at 0.000206mg/l in a well located at 3737 McCain, approximately 550 feet southeast of the site. No constituents were detected in any of the other samples collected during the survey. Based on the groundwater flow direction at the site, SECOR concluded that the benzene impacts observed at 3737 McCain were unrelated to contamination at the site.

2001 Offsite Subsurface Investigation

Four groundwater monitoring wells were installed in June 2001 under the direction of SECOR. Ethylbenzene (0.0398 mg/kg) and xylenes (0.165 mg/kg) were detected in a soil sample collected from the bottom of MW-13.

2004 Baseline Site Assessment

SECOR supervised the advancement of five soil borings on the site in areas previously identified as areas of potential environmental concern. The borings were completed as temporary wells and abandoned after collection of a soil and groundwater sample from each location.

Benzene and GRO was detected in soil and groundwater samples collected from borings BA-3, BA-4 and BA-5. No constituents were detected in soil borings BA-1 or BA-2.

May 2005 System Shutdown and Pilot Test

Arcadis shut down the system in 2005 to evaluate alternative remedial strategies. A pilot test performed by Arcadis calculated an ROI of fifty feet for the impacted portions of the site. The system was reactivated in November 2005 after determination that alternative strategies were not feasible.

August 2007 System Expansion and Monitoring Well Installation

Arcadis advanced ten soil borings (AS-4 through AS-13) to a depth of 26 feet, and abandoned the four existing air sparge wells. Four additional groundwater monitoring wells (MW-19 through MW-22) were installed on the western adjoining property (Thrifty) to evaluate offsite impacts. Soil samples collected form 5-10 feet depth at MW-21 contained GRO at 1.5 mg/kg. GRO was detected at 1,600 mg/kg in a soil sample collected from 10-15 feet depth at MW-22. Benzene was detected in seven of the eight soil samples collected from the groundwater monitoring well installations, at concentrations ranging from 0.02 mg/kg (at MW-20, 5-10 and 10-15 fbg) to 7.4 mg/kg (at MW-22, 10-15 fbg).

2008 Remediation System Upgrade

The expanded remediation system was restarted under the supervision of Arcadis in June, 2008. The system operated continuously, with the exception of scheduled shutdowns during sampling events and routine system maintenance activities until 2011.

2009 Installation and Abandonment of Groundwater Monitoring Wells

ADEC requested additional groundwater monitoring wells downgradient of MW-27 and approved

abandonment of MW-5, MW-9, MW-13, MW-15, MW-16 and MW-20, and the transition of wells MW-19 and T-1 to an annual sampling schedule.

2010 System Expansion

ADEC approved a plan in June to expand the system in the downgradient direction on adjoining properties. UST was discovered on the western adjoining property (Thrifty) during preliminary Site work for the expansion, and the system expansion was suspended pending the removal and closure of the UST by the adjoining property owner.

2011 System Shutdown

ADEC approved a plan in September to suspend operation of the SVE/AS system for six months to monitor for rebound in groundwater and soil vapor impacts. The system was never reactivated after shutdown.

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Appendix C
Site Environmental History

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Chevron 99014
ADEC File ID: 2100.26.057

Completed By: Siobhan Pritchard
Date Completed: August 15, 2017

***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.*

Exposure Media	Exposure Pathway/Route	Current & Future Receptors: Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ soil	☑ Incidental Soil Ingestion	F	C/F	C/F	F			
	☐ Dermal Absorption of Contaminants from Soil							
	☐ Inhalation of Fugitive Dust							
☑ groundwater	☑ Ingestion of Groundwater	F	C/F	C/F	F			
	☐ Dermal Absorption of Contaminants in Groundwater							
	☐ Inhalation of Volatile Compounds in Tap Water							
☑ air	☑ Inhalation of Outdoor Air	F	C/F	C/F	F			
	☑ Inhalation of Indoor Air	F	C/F	C/F	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

Print Form

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

Site Name: Chevron 99014

File Number: 2100.26.057

Completed by: Siobhan Pritchard

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.

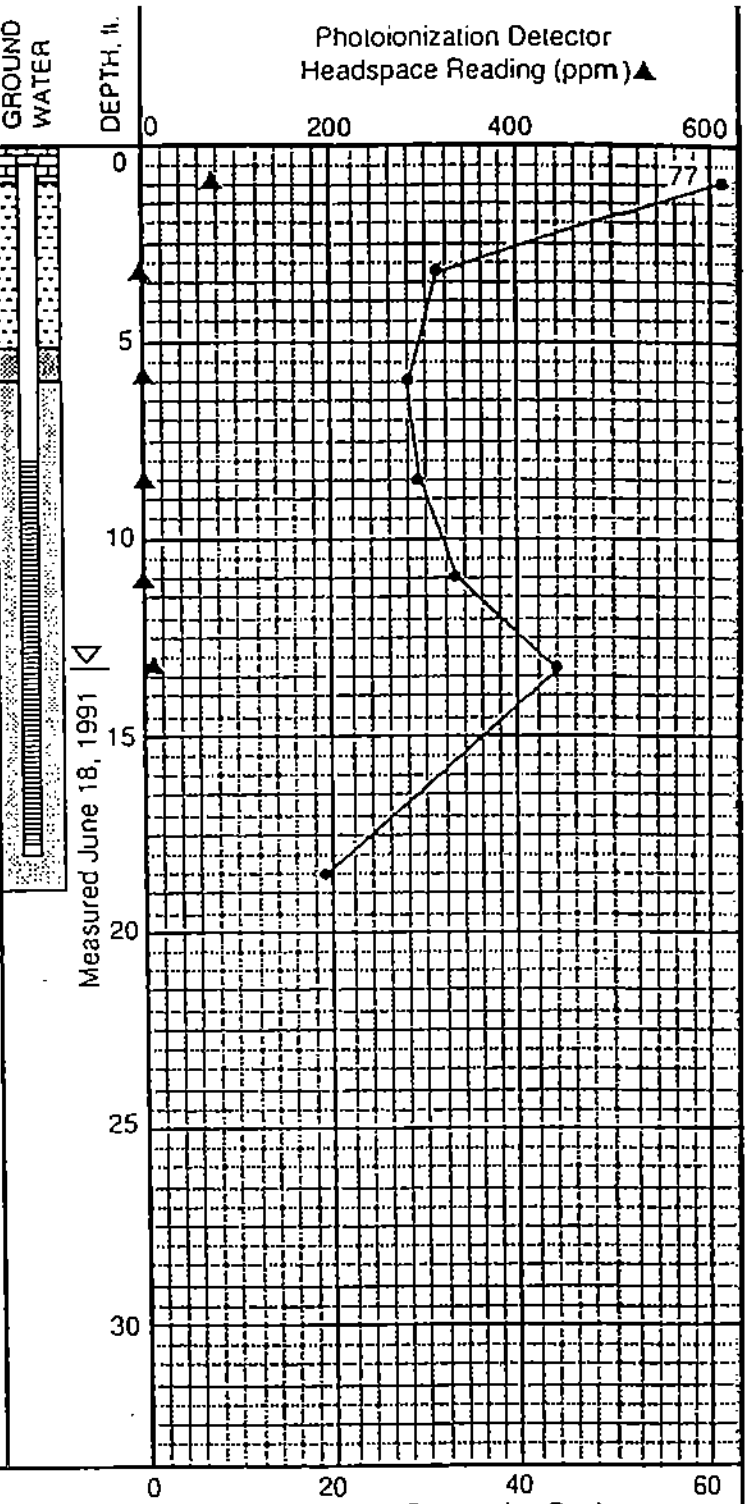
Check the box if further evaluation of this pathway is needed: ☐

Comments:

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

Appendix D
Stratigraphic Logs

SOIL DESCRIPTION Surface Elevation: 99.7 (surveyed)	DEPTH, ft.	SAMPLES
ASPHALT	0.2	
Very dense, brown, silty, sandy GRAVEL; moist		S-1
Dense, brown, silty, sandy GRAVEL; moist	3.5	S-2
Dense, brown, slightly silty SAND; moist		
Medium dense, brown to gray, slightly silty, slightly gravelly SAND; moist		S-3
Medium dense, brown to orange, slightly silty, gravelly SAND; moist		S-4
Dense, brown to gray, slightly silty, coarse SAND; moist		S-5
Dense, brown to gray, slightly silty, coarse SAND; wet		S-6
Medium dense, brown to gray, slightly silty, SAND; wet	18.3	S-7
Very stiff, gray, SILT	19.0	
Bottom of Boring Completed 6/14/91		



LEGEND

- Bulk sample
- 3" O.D. split spoon sample
- 3" O.D. thin-wall sample
- Sample not recovered
- Frozen
- Impervious seal
- Water level
- Slotted pipe

MONITORING WELL DETAILS

2-INCH PVC PIPE WITH ALUMINUM WELL COVER; TOTAL LENGTH: 17.89'; STICKUP: -0.4'; MACHINE CUT, 0.020" SLOTTED PIPE: 18.0' to 8.1'; #8-12 SAND: 19.0' to 6.0'; #20-40 SAND: 6.0' to 5.0'; BENTONITE: 5.0' to 1.0'; CEMENT GROUT: 1.0' to 0.0'; PADLOCK: #2001

NOTE: The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.

Spenard Road and Minnesota Drive
Anchorage, Alaska

LOG OF BORING NO. B1MW

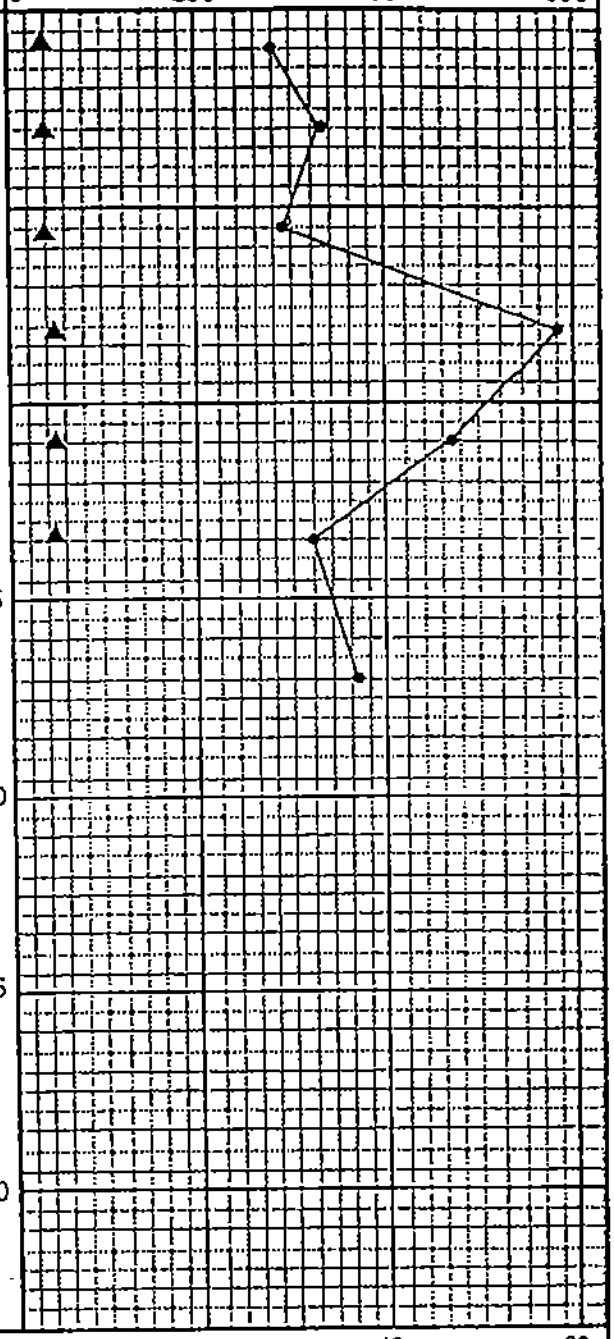
June, 1991 X-5042

SHANNON & WILSON, INC.
Geotechnical Consultants

FIG. 2

SOIL DESCRIPTION Surface Elevation: 99.3 (estimated)	DEPTH, ft.	SAMPLES
ASPHALT	0.2	
Medium dense, brown to gray, silty, sandy GRAVEL; moist		S-1
Dense, brown to gray, silty, sandy GRAVEL, moist		S-2
	4.5	
Medium dense, brown, slightly silty, slightly gravelly, coarse SAND; moist		S-3
Very dense, brown to orange, slightly silty SAND; moist		S-4
Very dense, brown to gray, slightly silty SAND; moist		S-5
Dense, brownish orange, slightly silty, SAND; wet		S-6
	15.0	
Hard, slightly gravelly, sandy SILT; wet		S-7
	18.0	
Bottom of Boring Completed 6/14/91		

GROUND WATER — Measured June 14, 1991



LEGEND

- B — Bulk sample
- 3" O.D. split spoon sample
- 3" O.D. thin-wall sample
- Sample not recovered
- Frozen
- Impervious seal
- Water level
- Slotted pipe

NOTE: The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.

Spenard Road and Minnesota Drive
Anchorage, Alaska

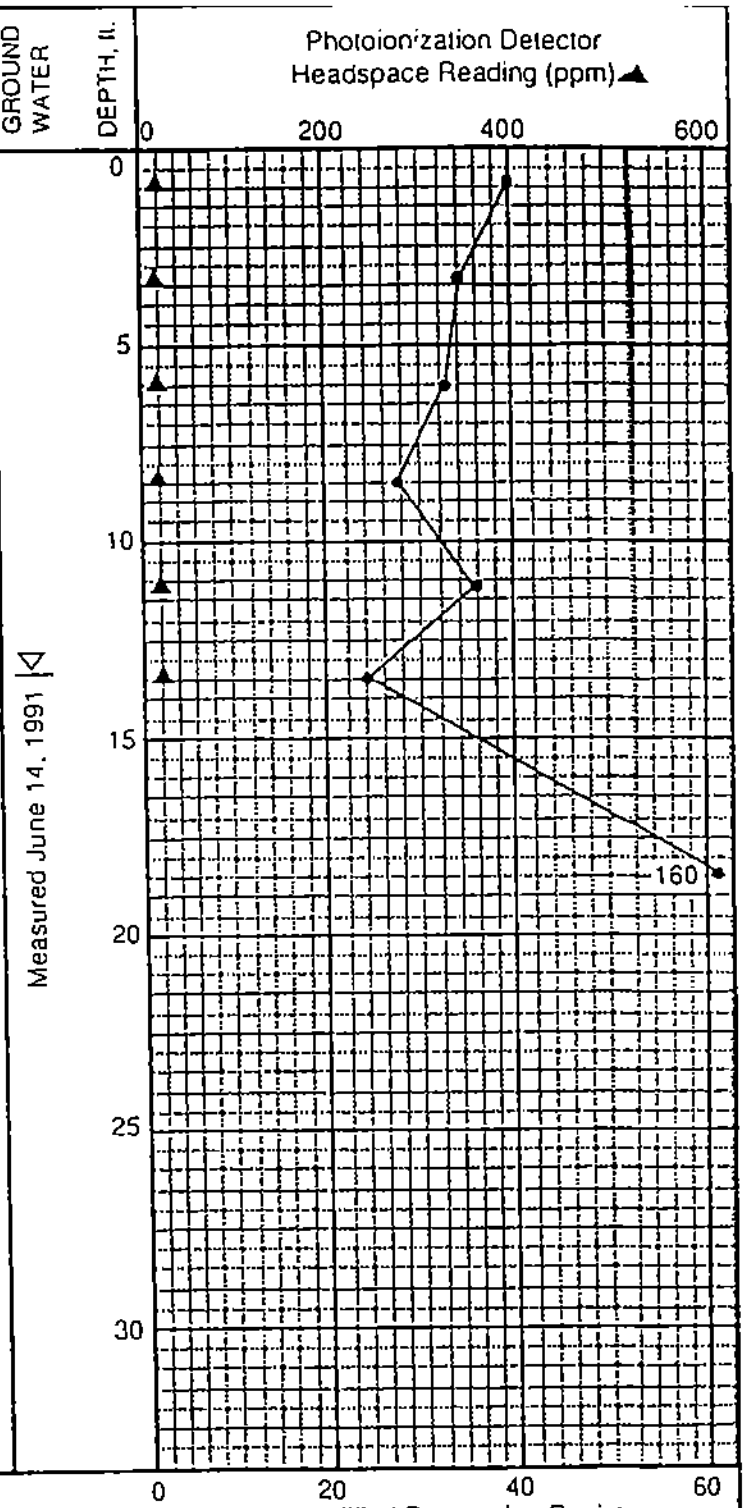
LOG OF BORING NO. B2

June, 1991 X-5042

SHANNON & WILSON, INC.
Geotechnical Consultants

FIG. 3

SOIL DESCRIPTION Surface Elevation: 99.3 (estimated)	DEPTH, ft.	SAMPLES
ASPHALT	0.2	S-1
Dense, brown, silty, sandy GRAVEL; dry to moist	2.0	
Dense, brown, silty, gravelly SAND; moist		S-2
Dense, brownish orange, slightly silty, SAND; moist		S-3
Medium dense, brown, clean SAND; moist		S-4
Dense, brownish orange, clean, coarse SAND; moist		S-5
Medium dense, brown to gray, clean coarse SAND; wet		S-6
	16.0	
Hard, slightly gravelly SILT; wet		S-7
	19.0	
Bottom of Boring Completed 6/14/91		



LEGEND

- B Bulk sample
- 3" O.D. split spoon sample
- 3" O.D. thin-wall sample
- Sample not recovered
- Frozen
- Impervious seal
- Water level
- Slotted pipe

NOTE. The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.

Spenard Road and Minnesota Drive
Anchorage, Alaska

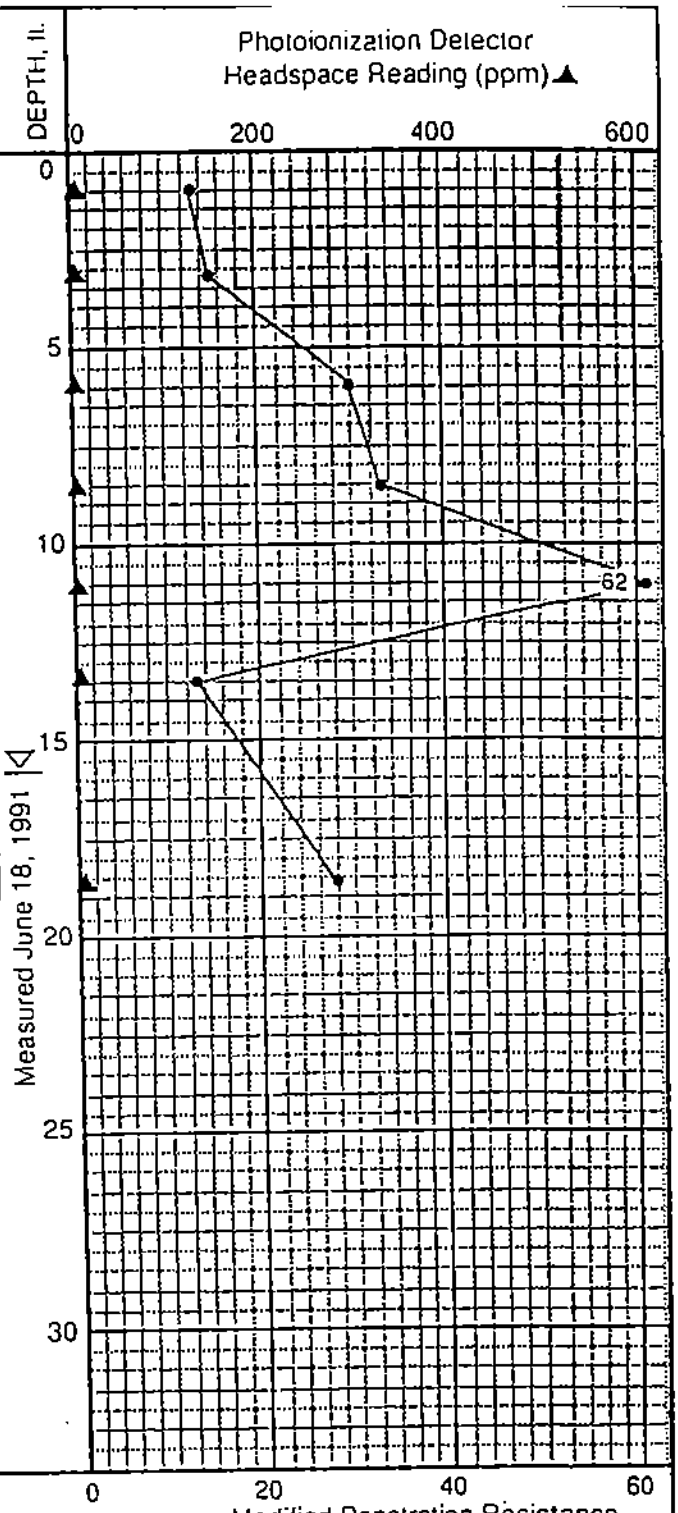
LOG OF BORING NO. B3

June, 1991 X-5042

SHANNON & WILSON, INC.
Geotechnical Consultants

FIG. 4

SOIL DESCRIPTION Surface Elevation: 98.4 (surveyed)	DEPTH, ft	SAMPLES
ASPHALT	0.2	
Medium dense, brown, silty, sandy GRAVEL; moist	2.0	S-1
Medium dense, brown, slightly silty, gravelly SAND; moist		S-2
Dense, brownish orange, slightly silty, gravelly SAND; moist		S-3
Dense, brown to gray, slightly silty SAND; moist		S-4
Very dense, brown to gray, clean SAND; moist		S-5
Medium dense, brown, silty, gravelly SAND; moist	13.0	S-6
Stiff, gray, slightly sandy SILT; moist		
Very stiff, gray, slightly sandy SILT; moist	19.0	S-7
Bottom of Boring Completed 6/15/91		



LEGEND

- B — Bulk sample
- 3" O.D. split spoon sample
- 3" O.D. thin-wall sample
- Sample not recovered
- Frozen
- Impervious seal
- Water level
- Slotted pipe

PIEZOMETER WELL DETAILS

1-INCH PVC PIPE WITH ALUMINUM WELL COVER; TOTAL LENGTH: 18.44'; STICKUP: -0.4'; HAND CUT, 0.020" SLOTTED PIPE: 18.5' to 15.5'; #8-12 SAND: 19.0' to 14.0'; BENTONITE: 14.0' to 0.5'; CEMENT GROUT: 0.5' to 0.0'

NOTE: The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.

Spenard Road and Minnesota Drive
Anchorage, Alaska

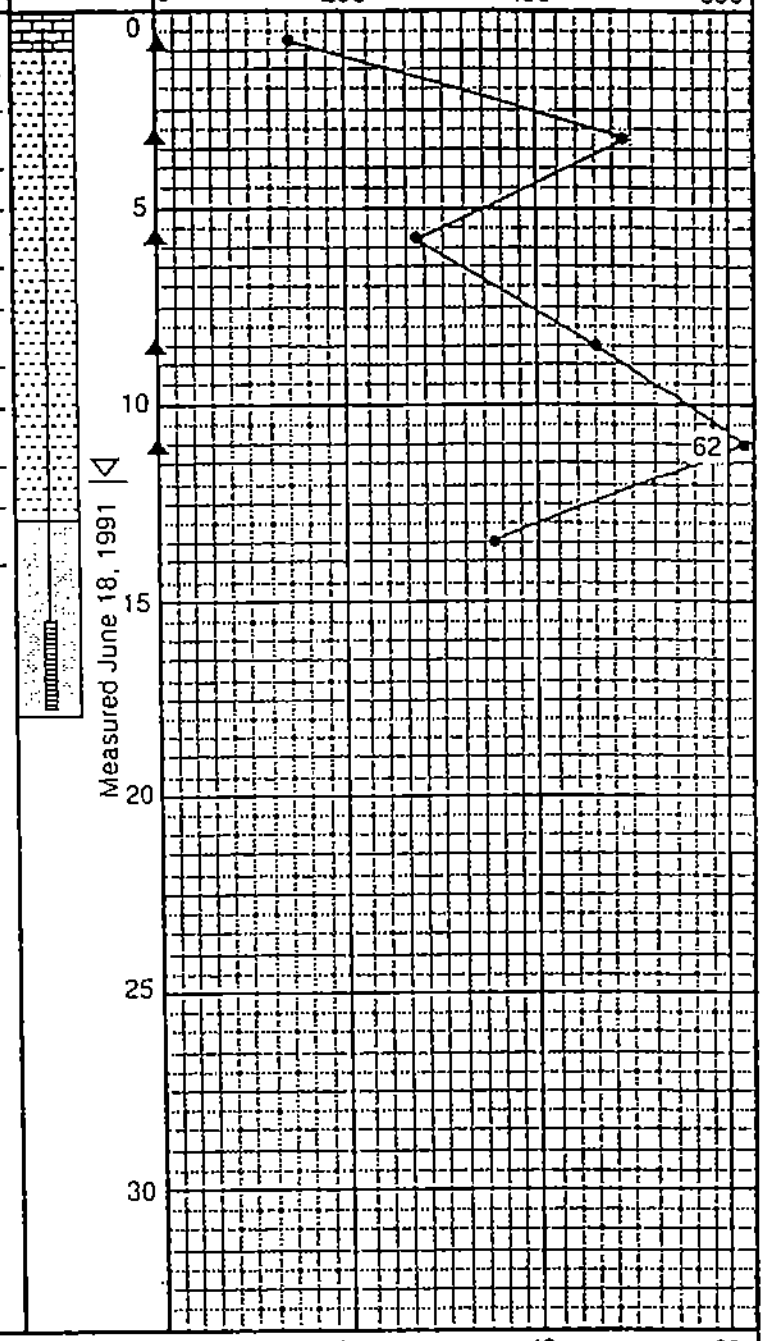
LOG OF BORING NO. B4

June, 1991 X-5042

SHANNON & WILSON, INC.
Geotechnical Consultants

FIG. 5

SOIL DESCRIPTION Surface Elevation: 98.4 (surveyed)	DEPTH, ft.	SAMPLES
ASPHALT	0.2	
Medium dense, brownish orange, slightly silty, gravelly SAND; moist		S-1
Dense, brown, slightly silty, gravelly SAND; moist		S-2
Medium dense, brown slightly silty SAND; moist		S-3
Dense, brown, slightly silty, gravelly SAND; moist		S-4
Very dense, brownish gray, slightly silty, slighly gravelly SAND; moist		S-5
Dense, brown, silty SAND; wet	13.5	S-6
Hard, gray, SILT; moist	18.0	
Bottom of Boring Completed 6/15/91		



LEGEND

- B Bulk sample
- 3" O.D. split spoon sample
- 3" O.D. thin-wall sample
- Sample not recovered
- Frozen
- Impervious seal
- Water level
- Slotted pipe

MONITORING WELL DETAILS

1-INCH PVC PIPE WITH ALUMINUM WELL COVER; TOTAL LENGTH: 17.67'; STICKUP: -0.4'; HAND CUT, 0.020" SLOTTED PIPE, 17.7' to 14.7'; #8-12 SAND: 18.0' to 13.0'; BENTONITE: 13.0' to 0.5'; CEMENT GROUT: 0.5' to 0.0'

NOTE: The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.

Spenard Road and Minnesota Drive
Anchorage, Alaska

LOG OF BORING NO. B5

June, 1991 X-5042

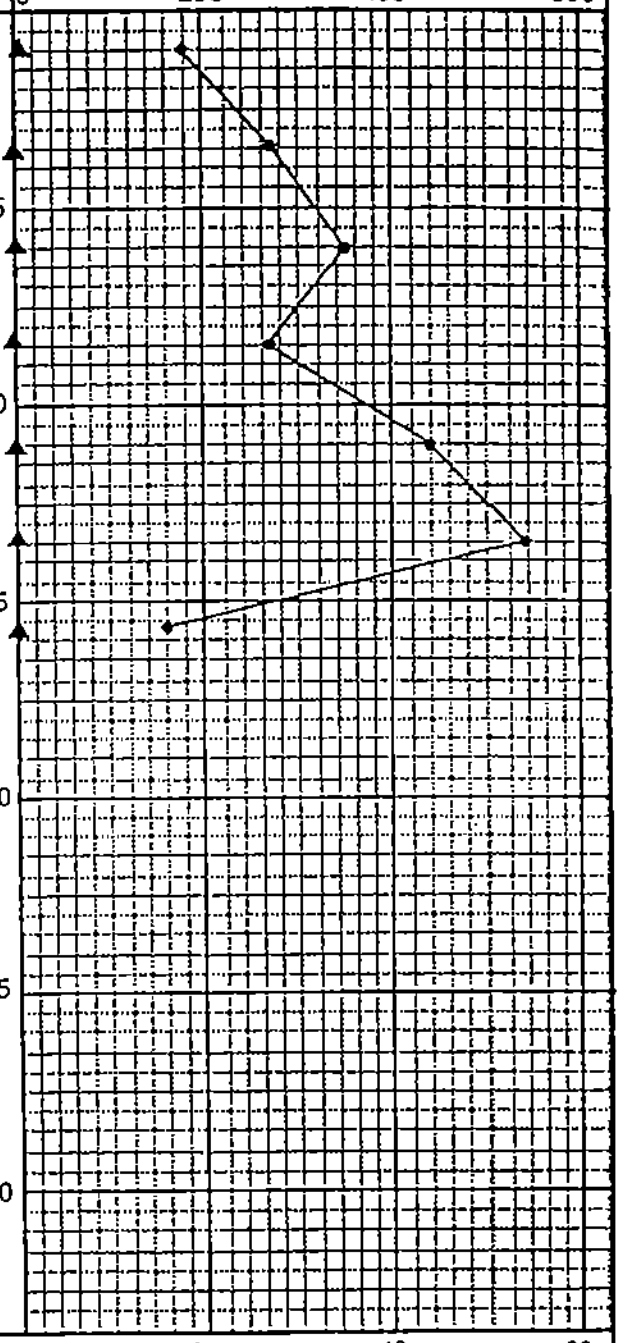
SHANNON & WILSON, INC.
Geotechnical Consultants

FIG. 6

SOIL DESCRIPTION Surface Elevation: 98.2 (estimated)	DEPTH, ft.	SAMPLES
ASPHALT	0.2	
Medium dense, brown, silty, gravelly SAND; moist		S-1
Medium dense, brownish orange, slightly silty, gravelly coarse SAND; moist		S-2
Dense, brown to gray, slightly silty SAND; moist		S-3
Medium dense, brownish orange, slightly silty coarse SAND; moist		S-4
Dense, brown to gray, slightly silty, slightly gravelly, coarse SAND; moist		S-5
Very dense, brown, slightly silty, gravelly SAND; moist		S-6
Medium dense, brown, slightly silty, coarse SAND; moist		S-7
Very stiff, gray, SILT	16.0	
	19.0	
Bottom of Boring Completed 6/15/91		

GROUND WATER — DEPTH, ft.

Groundwater Not Encountered 6/15/91



LEGEND

- Bulk sample
- 3" O.D. split spoon sample
- 3" O.D. thin-wall sample
- Sample not recovered
- Frozen
- Impervious seal
- Water level
- Slotted pipe

NOTE: The stratification lines represent the approximate boundaries between soil types and the transition may be gradual.

Spenard Road and Minnesota Drive
Anchorage, Alaska

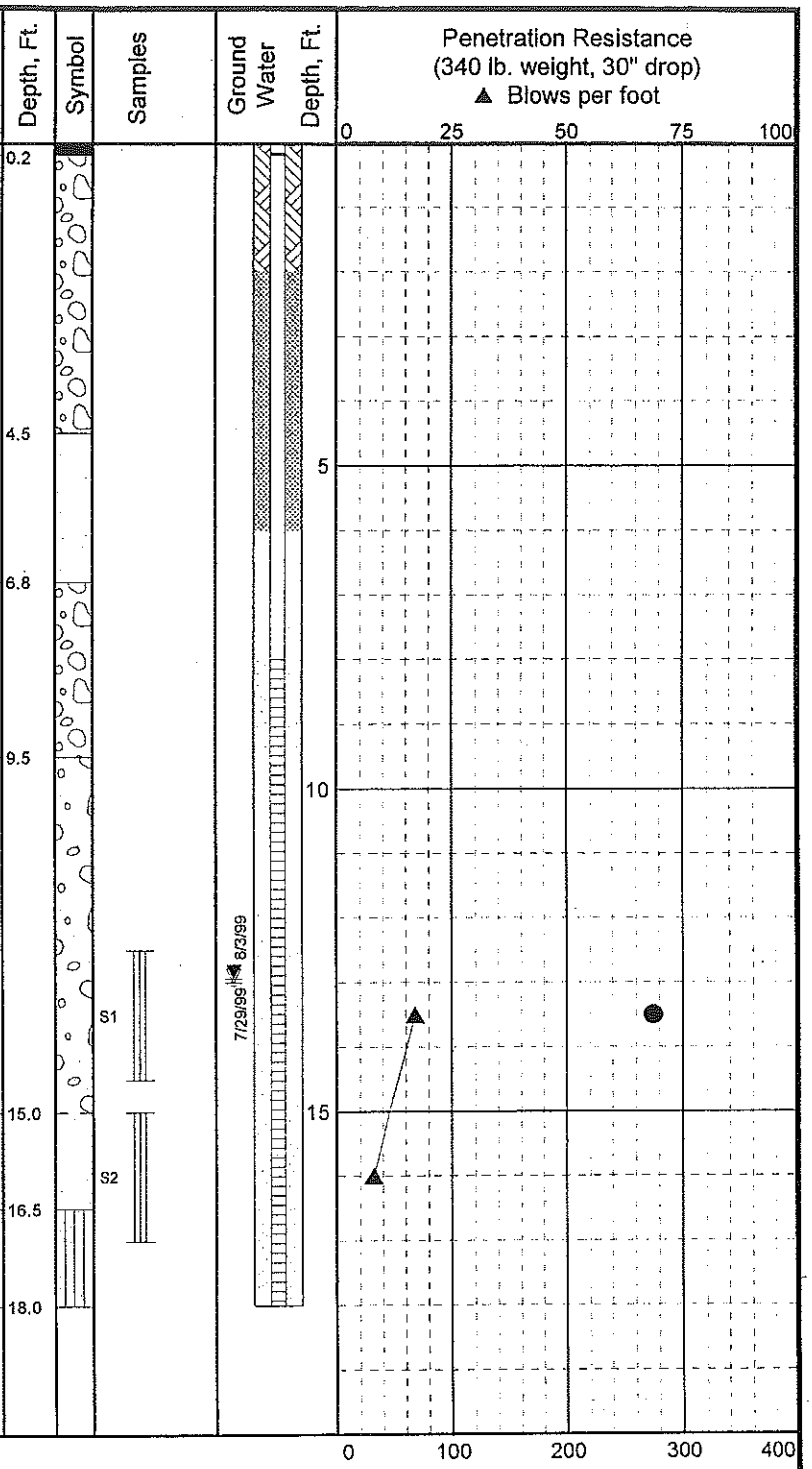
LOG OF BORING NO. B6

June, 1991 X-5042

SHANNON & WILSON, INC.
Geotechnical Consultants

FIG. 7

MATERIAL DESCRIPTION	Depth, Ft.
Asphalt	0.2
Imported GRAVEL; moist	
Plastic barrier	4.5
Imported SAND; moist	
Filter fabric	6.8
3/4" washed rock; moist	
Brown to gray, medium dense, slightly gravelly SAND; moist to wet	9.5
Gray, medium dense, coarse SAND; moist	15.0
Gray, sandy SILT; moist	16.5
Bottom of Boring Boring Completed 7/29/99	18.0



LEGEND

- * Sample Not Recovered
- 2" O.D. Split Spoon Sample
- 3" O.D. Split Spoon Sample
- 3" O.D. Split Spoon Sample
- Surface Seal
- Solid Casing and Annular Sealant
- Well Screen and Filter Sand
- Cuttings Backfill
- Ground Water Level ATD
- Static Ground Water Level

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. USC letter symbol based on visual classification.

Mapco Express Store No. 5030
Anchorage, Alaska

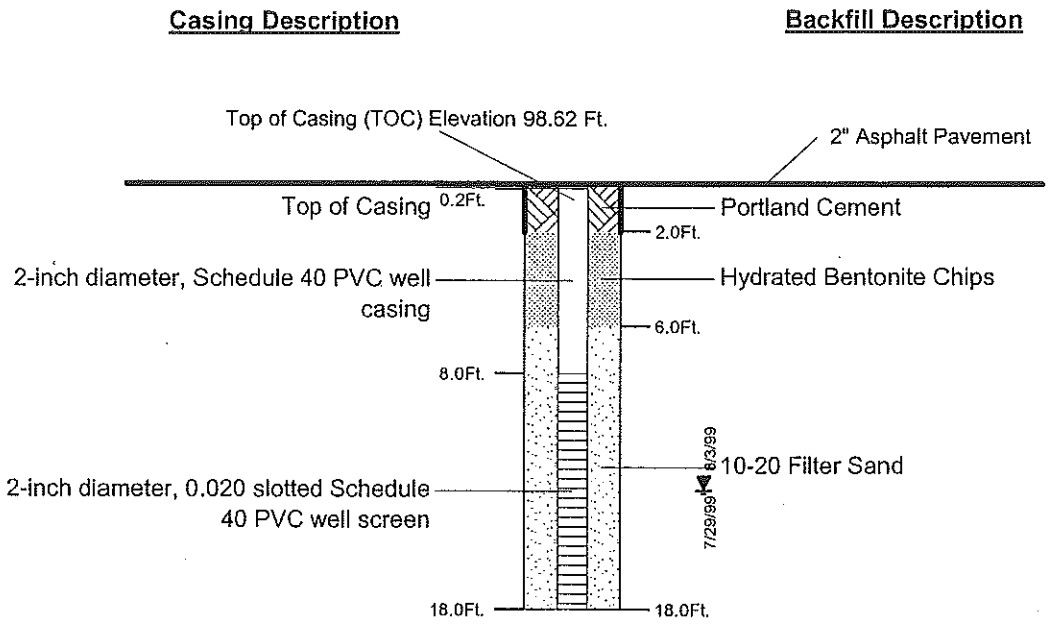
LOG OF BORING NO. B1MW

September 1999 Y-6183

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Fig. 6

MASTER LOG Y6183.GPJ SHAN WIL.GDT 8/30/99



LEGEND

▽ Ground Water Level ATD

▼ Static Ground Water Level

NOTE: All joints use threaded connections.

Mapco Express Store No. 5030 Anchorage, Alaska	
MONITORING WELL B1MW CONSTRUCTION DETAIL	
September 1999	Y-6183
SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	Fig. 7

MATERIAL DESCRIPTION	Depth, Ft.	Symbol	Samples	Ground Water	Depth, Ft.
Asphalt	0.2				
Gray, sandy GRAVEL; moist					
Brown, slightly silty SAND; moist	2.5				5
					10
Gray to brown, medium dense, sandy GRAVEL to gravelly SAND; moist to wet	12.5		S1	7/29/99 8/3/99	
Gray, medium dense, sandy GRAVEL; wet	14.5		S2		15
Gray SILT; moist	17.0				
Bottom of Boring Boring Completed 7/29/99	18.0				

Penetration Resistance
(340 lb. weight, 30" drop)
▲ Blows per foot

0 25 50 75 100

0 100 200 300 400

● PID Reading (ppm)

LEGEND

- * Sample Not Recovered
- 2" O.D. Split Spoon Sample
- 3" O.D. Split Spoon Sample
- 3" O.D. Split Spoon Sample
- Surface Seal
- Solid Casing and Annular Sealant
- Well Screen and Filter Sand
- Cuttings Backfill
- Ground Water Level ATD
- Static Ground Water Level

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. USC letter symbol based on visual classification.

Mapco Express Store No. 5030
Anchorage, Alaska

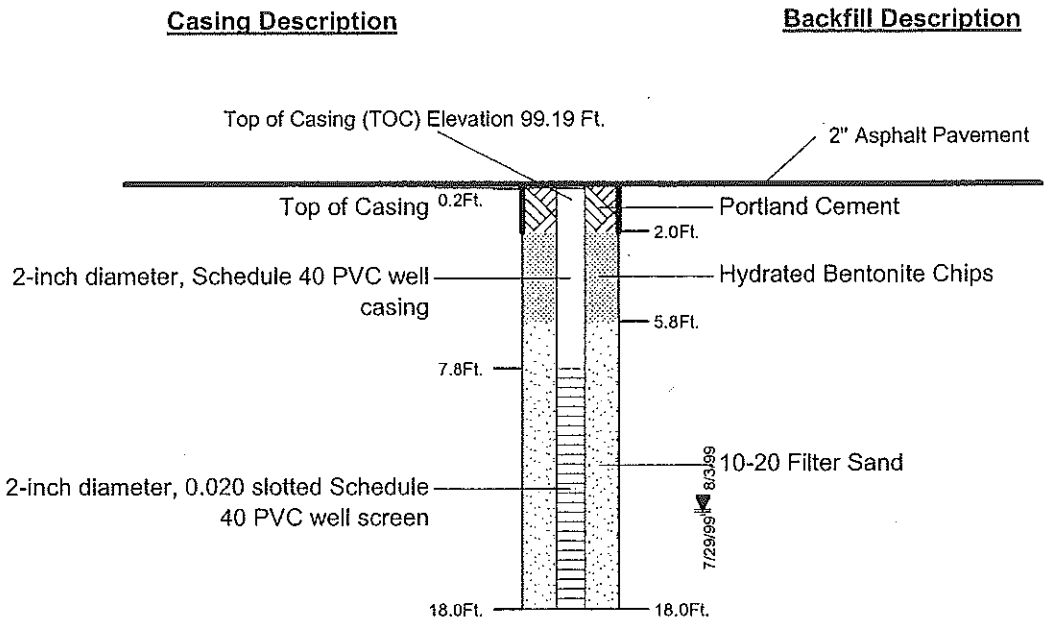
LOG OF BORING NO. B2MW

September 1999 Y-6183

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Fig. 8

MASTER LOG Y6183.GPJ SHAN WIL.GDT 8/30/99



LEGEND

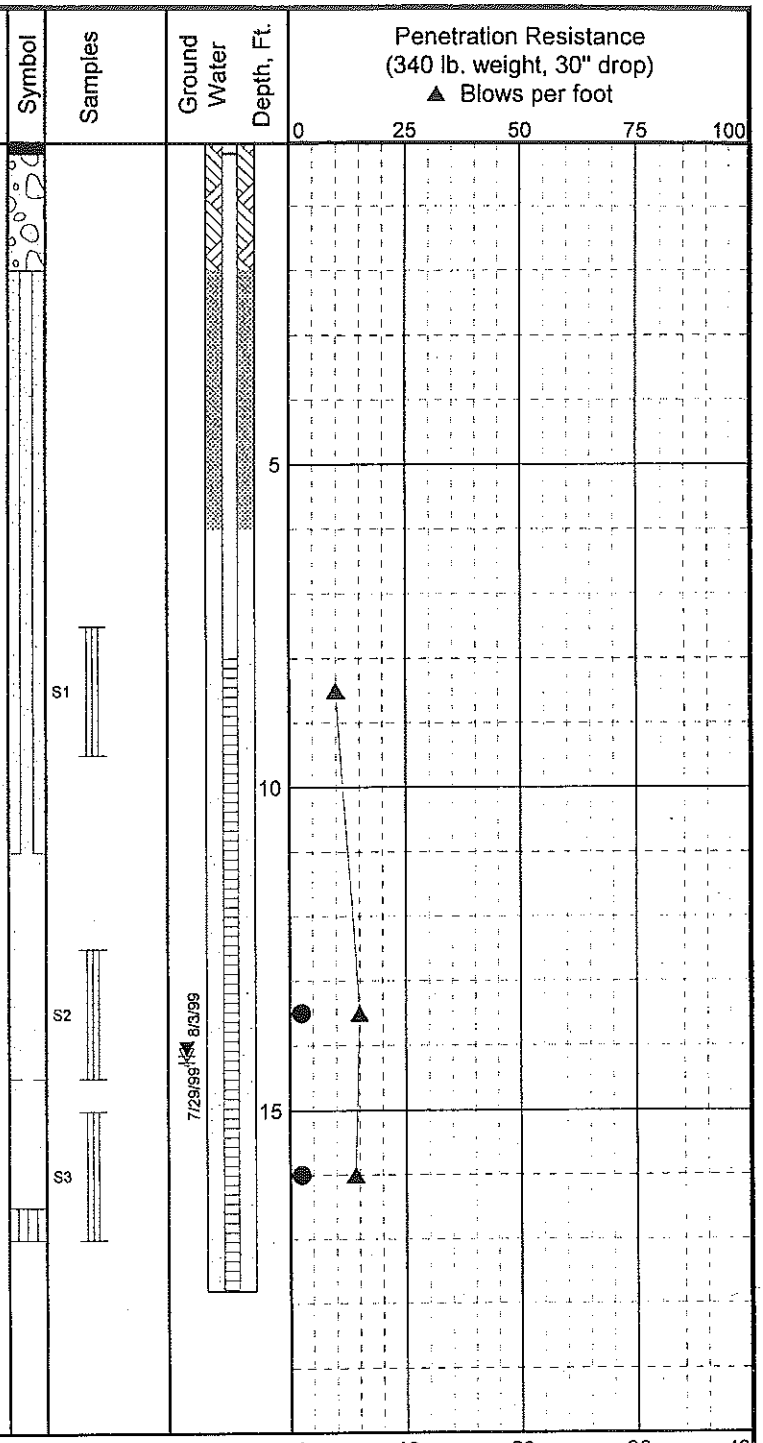
▽ Ground Water Level ATD

▼ Static Ground Water Level

NOTE: All joints use threaded connections.

Mapco Express Store No. 5030 Anchorage, Alaska	
MONITORING WELL B2MW CONSTRUCTION DETAIL	
September 1999	Y-6183
SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	**Fig. 9**

MATERIAL DESCRIPTION	Depth, Ft.
Asphalt	0.2
Brown, sandy GRAVEL; moist	2.0
Brown, medium dense, slightly silty SAND; moist	11.0
Gray, medium dense, gravelly SAND; moist to wet	14.5
Gray to brown, medium dense SAND; wet to moist	16.5
Gray, stiff SILT; moist	17.0
Bottom of Boring Boring Completed 7/29/99	



LEGEND

- * Sample Not Recovered
- 2" O.D. Split Spoon Sample
- 3" O.D. Split Spoon Sample
- 3" O.D. Split Spoon Sample
- Surface Seal
- Solid Casing and Annular Sealant
- Well Screen and Filter Sand
- Cuttings Backfill
- Ground Water Level ATD
- Static Ground Water Level

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
3. Water level, if indicated above, is for the date specified and may vary.
4. USC letter symbol based on visual classification.

Mapco Express Store No. 5030
Anchorage, Alaska

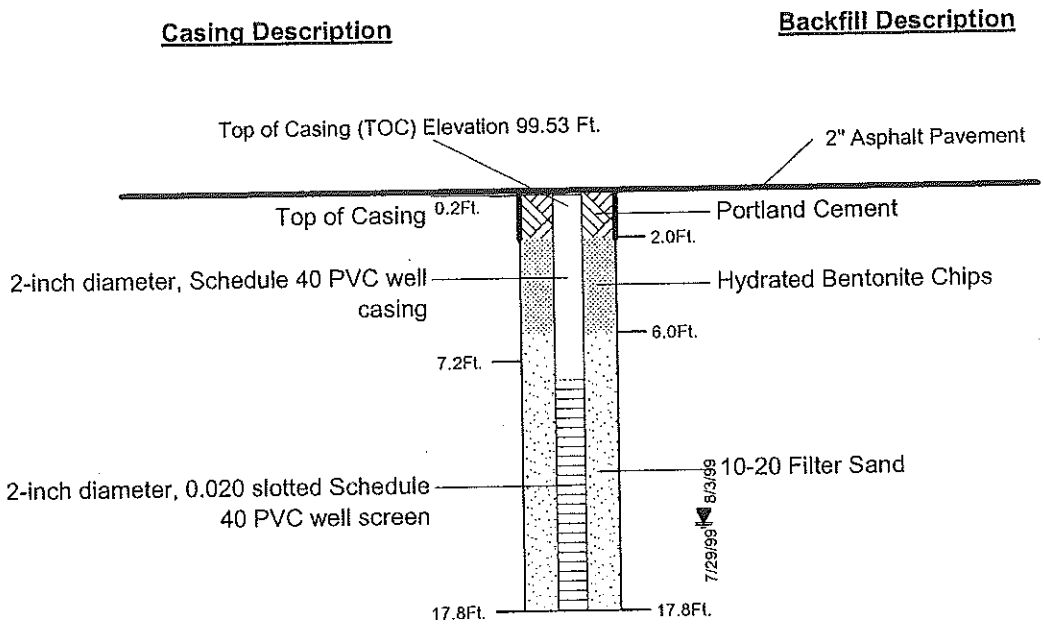
LOG OF BORING NO. B3MW

September 1999 Y-6183

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Fig. 10

MASTER LOG Y6183.GPJ SHAN WIL.GDT 8/30/99



LEGEND

▽ Ground Water Level ATD

▼ Static Ground Water Level

NOTE: All joints use threaded connections.

Mapco Express Store No. 5030 Anchorage, Alaska	
MONITORING WELL B3MW CONSTRUCTION DETAIL	
September 1999	Y-6183
SHANNON & WILSON, INC. Geotechnical and Environmental Consultants	Fig. 11

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-1
LOCATION	3608 MINNESOTA DRIVE	PAGE	1 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	98.61
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/29/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
								ASPHALT
								SILTY SAND WITH GRAVEL (SM); Very dark grayish brown (10YR, 3/2); 20% fines (low plasticity), 50-60% sand (fine to medium), 20-30% gravel (up to 1 inch diameter); dry; no odor.
13/11/15	1.5/1.5	5.1		5				@ 6 feet. POORLY GRADED SAND (SP); Dark olive gray (5Y, 3/2); 95% sand (fine to medium), 5% gravel (up to 0.5 inches diameter); dry; medium dense; no odor.
19/20/23	1.5/1.5	32		10				POORLY GRADED SAND WITH GRAVEL (SP); Dark olive gray (5Y, 3/2); 60-70% sand (fine to coarse), 30-40% gravel; moist; dense; slight hydrocarbon-like odor.
			6/29/92					
16/26/25	1.5/1.5	307	7/6/92					As above.
				15				
42/29/35	0.5/1.5	54.6						POORLY GRADED SAND (SP); Dark gray (2.5Y, 4/0); 90% sand, 10% gravel (up to 1 inch diameter); wet; very dense; hydrocarbon-like odor.
				20				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well.

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-1
LOCATION	3608 MINNESOTA DRIVE	PAGE	2 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	98.61
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/29/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
10/18/24	1.0/1.5	3.6		25				As above. @ 23 feet. SILT WITH SAND (ML); Dark gray (2.5Y, 4/0); 80% silt (low to moderate plasticity), 10% sand, 10% gravel (up to 1 inch diameter); wet; dense; no odor. BORING TERMINATED AT 25 FEET AND CONVERTED TO MONITORING WELL MW-1.
				30				
				35				
				40				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well.

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-2
LOCATION	3608 MINNESOTA DRIVE	PAGE	1 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	98.73
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/30/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
								ASPHALT
								SILTY SAND WITH GRAVEL (SM); Dark brown (7.5YR, 3/2); 20% fines (low plasticity), 50-60% sand (fine to medium), 20-30% gravel (up to 1 inch diameter); moist; no odor.
15/6/6	1.3/1.5	231		5				As above. Dark grayish brown (10YR, 4/2); moist; medium dense; hydrocarbon-like odor.
20/30/45	1.3/1.5	31		10				POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); Dark yellowish brown (10YR, 4/4); 10% fines (low plasticity), 50-60% sand (medium to coarse), 30-40% gravel (up to 1 inch diameter); moist; medium dense; no odor.
10/24/35	1.5/1.5	55	6/30/92					POORLY GRADED SAND WITH GRAVEL (SP); Dark yellowish brown (10YR, 4/4); 60-70% sand (medium to coarse), 30-40% gravel (up to 1 inch diameter); very moist; very dense; hydrocarbon-like odor.
			7/6/92	15				@ 15.5 feet. POORLY GRADED SAND (SP); Dark olive gray (5Y, 3/2); 90% sand (fine to medium), 10% gravel (up to 0.5 inches diameter); wet; very dense; hydrocarbon-like odor.
22/27/31	1.5/1.5	4						As above. Very dark gray (2.5Y, 3/0); wet; very dense; no odor.
				20				

REMARKS

A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well.

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-2
LOCATION	3608 MINNESOTA DRIVE	PAGE	2 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	98.73
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/30/92

Blows/6 Inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
23/30/34	1.5/1.5	2.3						As above. 90% sand (medium to coarse), 10% gravel (up to 1.5 inches diameter); wet; very dense; no odor.
				25				BORING TERMINATED AT 25 FEET AND CONVERTED TO MONITORING WELL MW-2.
				30				
				35				
				40				

REMARKS

A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well.

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-3
LOCATION	3608 MINNESOTA DRIVE	PAGE	1 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	99.15
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/30/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
								ASPHALT
								SILTY SAND WITH GRAVEL (SM); Dark brown (10YR, 3/3); 20% fines (low plasticity), 50-60% sand (fine to medium), 20-30% gravel (up to 1 inch diameter); moist; no odor.
5/12/13	1.5/1.5	2.9		5				POORLY GRADED SAND (SP); Olive (5Y, 4/3); 95% sand (fine to medium), 5% gravel (up to 0.5 inches diameter); moist; medium dense; no odor.
14/21/25	1.5/1.5	14.6		10				POORLY GRADED SAND WITH GRAVEL (SP); Dark gray (2.5Y, 4/0); 50-60% sand (fine to medium), 40-50% gravel (up to 1 inch diameter); dry; very dense; no odor.
10/22/26	1.5/1.5	22.8	6/30/92					As above. Dark grayish brown (2.5Y, 4/2); 60-70% sand (medium to coarse), 30-40% gravel (up to 0.75 inches diameter); very moist; very dense; hydrocarbon-like odor.
			7/6/92	15				
16/34	1.0/1.0	26.9						As above. Dark gray (2.5Y, 4/0); wet; hydrocarbon-like odor.
				20				

REMARKS

A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well.

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-3
LOCATION	3608 MINNESOTA DRIVE	PAGE	2 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	99.15
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/30/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
29/45	1.0/1.0	1.1						As above. Black (2.5Y, 2/0); wet; hydrocarbon-like odor.
				25				BORING TERMINATED AT 25 FEET AND CONVERTED TO MONITORING WELL MW-3.
				30				
				35				
				40				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well.

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-4
LOCATION	3608 MINNESOTA DRIVE	PAGE	1 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	97.31
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/29/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
								ASPHALT
								SILTY SAND WITH GRAVEL (SM); Dark yellowish brown (10YR, 4/4); 20-30% fines (low plasticity), 50-60% sand (fine to medium), 10-20% gravel (up to 0.5 inches diameter); moist; no odor.
								As above. Very dark grayish brown (10YR, 3/2).
22/17/17	1.5/1.5	32		5				POORLY GRADED SAND (SP); Dark grayish brown (2.5Y, 4/2); 90% sand (fine to medium), 10% gravel (up to 0.5 inches diameter); moist; medium dense; no odor.
45/31/32	1.5/1.5	147		10				SILTY SAND WITH GRAVEL (SM); Dark grayish brown (10YR, 4/2); 20% fines, 40-50% sand (fine to medium), 30% gravel (up to 0.5 inches diameter); dry; dense; no odor.
			7/6/92					
1/10/19	1.5/1.5	436						@ 11 feet. POORLY GRADED SAND WITH GRAVEL (SP); Very dark gray (5Y, 3/1); 60-70% sand (medium to coarse), 30-40% gravel (up to 0.75 inches diameter); wet; medium dense; hydrocarbon-like odor.
			6/29/92	15				
40/50R	1.0/1.0	359						POORLY GRADED SAND (SP); 90% sand (medium to coarse), 10% gravel (up to 0.5 inches diameter); wet; very dense; hydrocarbon-like odor.
				20				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well.

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-4
LOCATION	3608 MINNESOTA DRIVE	PAGE	2 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	97.31
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/29/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
33/50/30	1.5/1.5	NS						As above.
				25				BORING TERMINATED AT 25 FEET AND CONVERTED TO MONITORING WELL MW-4.
				30				
				35				
				40				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well.

America North/EMCON, Inc.

Environmental Consulting/Natural Resources Management

WELL DETAILS

PROJECT NUMBER 13907.00

PROJECT NAME CHEVRON SS99014

LOCATION 3608 MINNESOTA

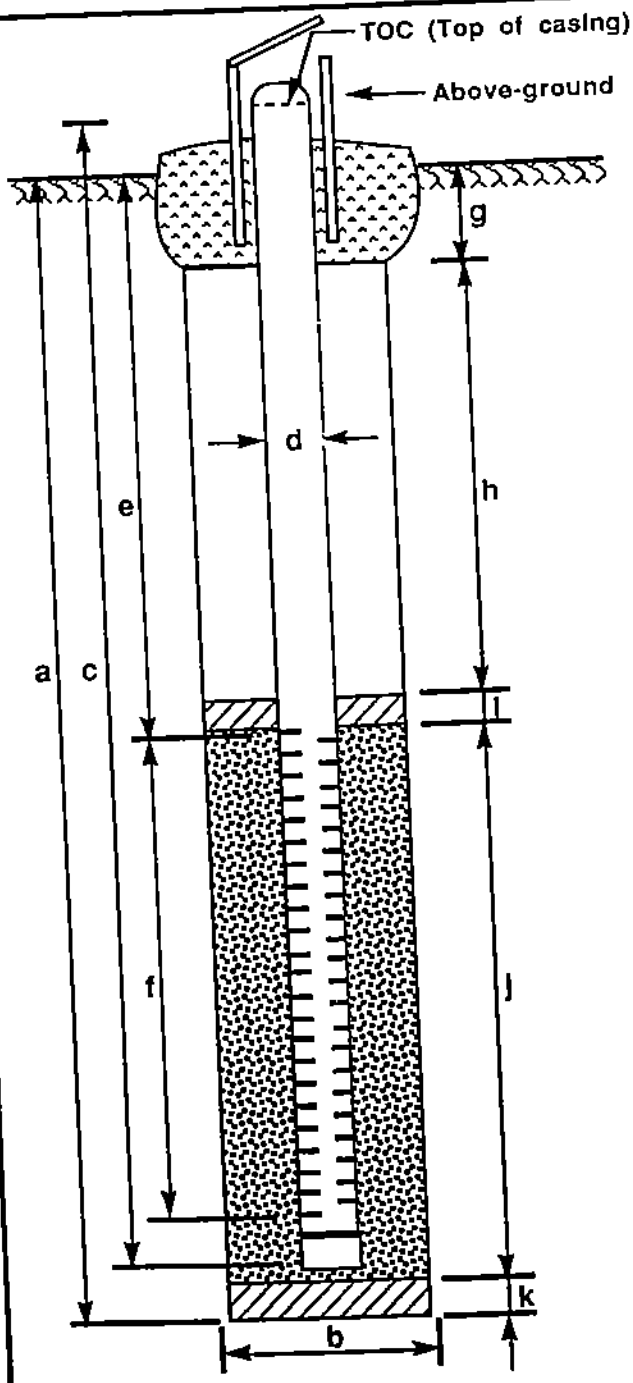
INSTALLATION DATE 6/29/92

BORING/WELL NO. MW-4

TOP OF CASING ELEV. 97.31

GROUND SURFACE ELEV.

DATUM PROJECT DATUM 100.00



EXPLORATORY BORING

a. Total depth 25.0 ft.

b. Diameter 10.0 in.

Drilling method HOLLOW STEM AUGER

WELL CONSTRUCTION

c. Total casing length 24.38 ft.

Material PVC

d. Diameter 4.0 in.

e. Depth to top perforations 4.26 ft.

f. Perforated length 19.32 ft.

Perforated interval from 4.26 to 23.58 ft.

Perforation type MACHINE SLOTTED

Perforation size 0.02

g. Surface seal 1.0 ft.

Seal material CONCRETE

h. Backfill N/A ft.

Backfill material N/A

i. Seal 2.0 ft.

Seal material HYDRATED BENTONITE CHIPS

j. Gravel pack 22.0 ft.

Pack material 8/12 COLORADO SILICA SAND

k. Bottom seal N/A ft.

Seal material N/A

Form prepared by AD Date 7/7/92

MAC/site/forms/well details casing

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-5
LOCATION	3608 MINNESOTA DRIVE	PAGE	1 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	98.02
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/30/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
								ASPHALT
								SILTY SAND WITH GRAVEL (SM); Dark brown (7.5YR, 3/3); 10-20% fines (low plasticity), 50-60% sand (fine to medium), 10-20% gravel (up to 1 inch diameter); dry; no odor.
								As above.
16/17/25	1.5/1.5	9.3		5				@ 5.5 feet. POORLY GRADED SAND (SP); Dark olive gray (5Y, 3/2); 95% sand (medium to coarse), 5% gravel (up to 0.5 inches diameter); moist; dense; no odor.
12/16/20	1.5/1.5	43.9		10				As above.
			7/6/92					
			6/30/92	15				POORLY GRADED SAND WITH GRAVEL (SP); Dark gray (7.5YR, 4/0); 70-80% sand (medium to coarse), 20-30% gravel (up to 1.5 inches diameter); wet; very dense; no odor.
15/27/43	1.5/1.5	7						
				20				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well.

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-5
LOCATION	3608 MINNESOTA DRIVE	PAGE	2 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	98.02
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/30/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
25/34	1.0/1.0	8.7						POORLY GRADED SAND (SP); Dark gray (7.5YR, 4/0); 95% sand (medium to coarse), 5% gravel (up to 0.75 inches diameter); wet; no odor.
								@ 24 feet. Soil cuttings from the augers indicate silt at this depth.
				25				BORING TERMINATED AT 25 FEET AND CONVERTED TO MONITORING WELL MW-5.
				30				
				35				
				40				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well.

America North/EMCON, Inc.

Environmental Consulting/Natural Resources Management

WELL DETAILS

PROJECT NUMBER 13907.00

PROJECT NAME CHEVRON SS99014

LOCATION 3608 MINNESOTA

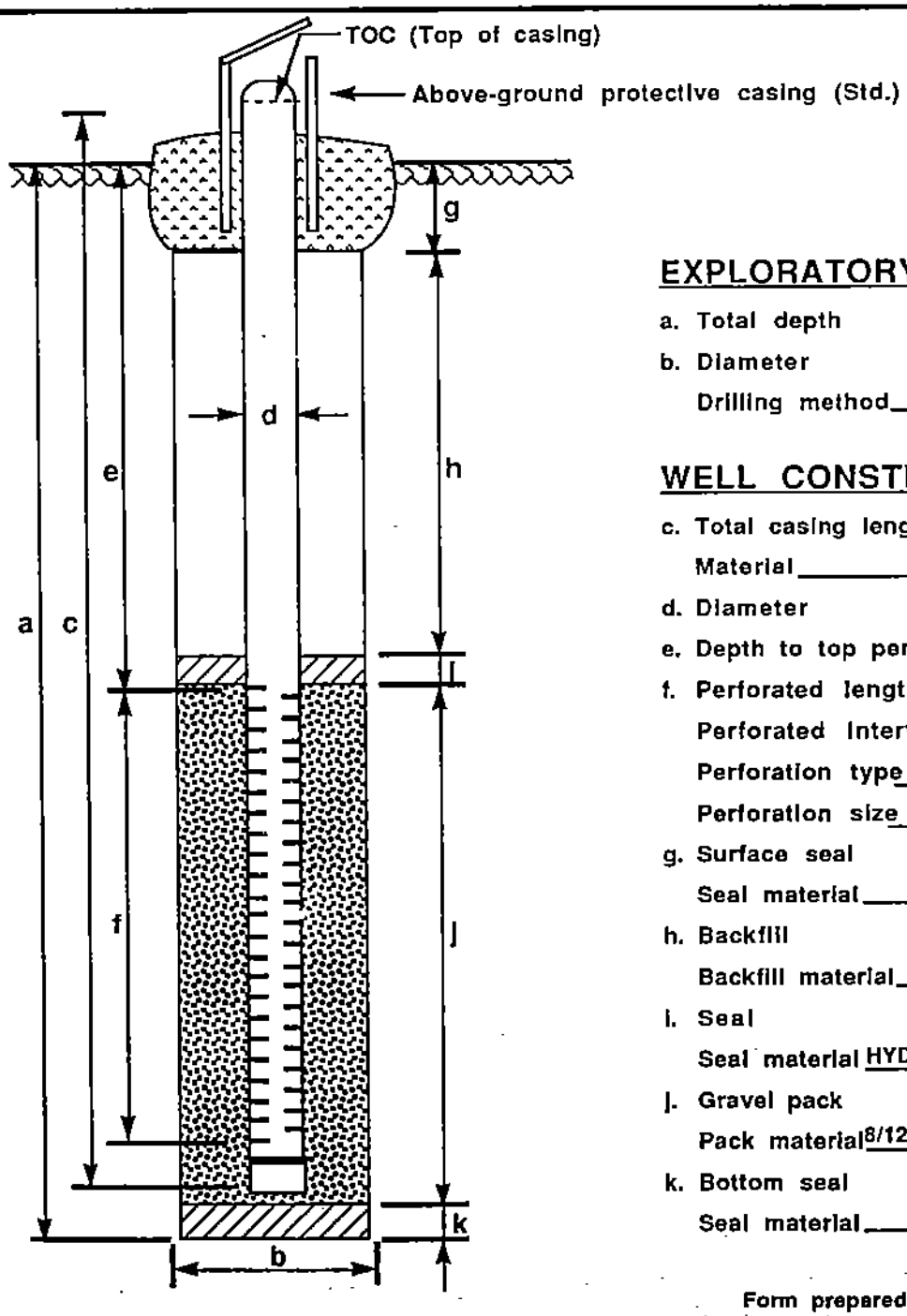
INSTALLATION DATE 6/30/92

BORING/WELL NO. MW-5

TOP OF CASING ELEV. 98.02

GROUND SURFACE ELEV.

DATUM PROJECT DATUM 100.00



EXPLORATORY BORING

a. Total depth 25.0 ft.

b. Diameter 10.0 in.

Drilling method HOLLOW STEM AUGER

WELL CONSTRUCTION

c. Total casing length 24.35 ft.

Material PVC

d. Diameter 4.0 in.

e. Depth to top perforations 4.40 ft.

f. Perforated length 19.32 ft.

Perforated interval from 4.40 to 23.72 ft.

Perforation type MACHINE SLOTTED

Perforation size 0.02

g. Surface seal 1.0 ft.

Seal material CONCRETE

h. Backfill N/A ft.

Backfill material N/A

i. Seal 2.0 ft.

Seal material HYDRATED BENTONITE CHIPS

j. Gravel pack 22.0 ft.

Pack material 8/12 COLORADO SILICA SAND

k. Bottom seal N/A ft.

Seal material N/A

Form prepared by AD Date 7/7/92

MAC/site/forms/well details casing

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-6
LOCATION	3608 MINNESOTA DRIVE	PAGE	1 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	97.4
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/30/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
								ASPHALT
								SILTY SAND WITH GRAVEL (SM); Dark brown (10YR, 4/3); 10-20% fines (low plasticity), 30-40% sand (fine to medium), 40-50% gravel (up to 1 inch diameter); dry; no odor.
								As above.
12/18/21	1.5/1.5	0.5		5				@ 5.3 feet POORLY GRADED SAND (SP); Olive (5Y, 4/3); 100% sand (medium to coarse); dry; dense; no odor.
11/21/27	1.5/1.5	0.5	7/6/92	10				POORLY GRADED SAND WITH GRAVEL (SP); Olive (5Y, 4/3); 80% sand (medium to coarse), 20% gravel (up to 1 inch diameter); dense; moist; no odor.
			6/30/92					POORLY GRADED SAND (SP); Dark olive gray (5Y, 3/2); 95% sand (fine to medium), 5% gravel; very dense; wet; no odor.
24/32/37	1.5/1.5	1.1		15				@ 16 feet POORLY GRADED SAND WITH GRAVEL (SP); Dark olive gray (5Y, 3/2); 80% sand (medium to coarse), 20% gravel (up to 1 inch diameter); very dense; wet; no odor.
				20				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well. NS = Not Screened.

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-6
LOCATION	3608 MINNESOTA DRIVE	PAGE	2 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	97.4
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	6/30/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
50R	0.6/0.6	NS						As above.
								@ 23 feet. Soil cuttings from the augers indicate silt at this depth.
				25				BORING TERMINATED AT 25 FEET AND CONVERTED TO MONITORING WELL MW-6.
				30				
				35				
				40				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well. NS = Not Screened.

America North/EMCON, Inc.

Environmental Consulting/Natural Resources Management

WELL DETAILS

PROJECT NUMBER 13907.00

PROJECT NAME CHEVRON SS99014

LOCATION 3608 MINNESOTA

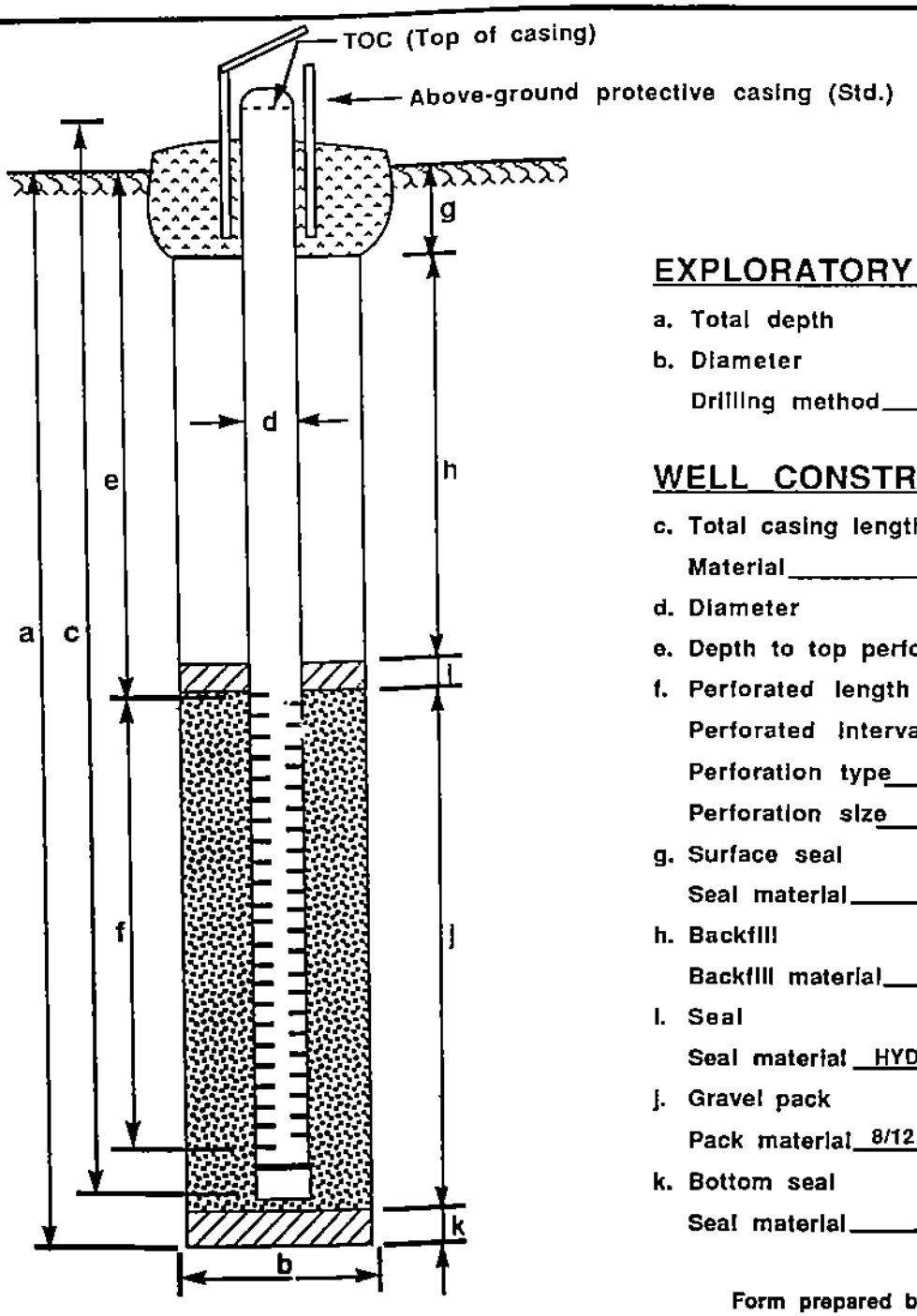
INSTALLATION DATE 6/30/92

BORING/WELL NO. MW-6

TOP OF CASING ELEV. 97.40

GROUND SURFACE ELEV.

DATUM PROJECT DATUM 100.00



EXPLORATORY BORING

a. Total depth 25.0 ft.

b. Diameter 10.0 in.

Drilling method HOLLOW STEM AUGER

WELL CONSTRUCTION

c. Total casing length 24.58 ft.

Material PVC

d. Diameter 4.0 in.

e. Depth to top perforations 4.71 ft.

f. Perforated length 19.32 ft.

Perforated interval from 4.71 to 24.03 ft.

Perforation type MACHINE SLOTTED

Perforation size 0.02

g. Surface seal 1.0 ft.

Seal material CONCRETE

h. Backfill N/A ft.

Backfill material N/A

i. Seal 2.0 ft.

Seal material HYDRATED BENTONITE CHIPS

j. Gravel pack 22.0 ft.

Pack material 8/12 COLORADO SILICA SAND

k. Bottom seal N/A ft.

Seal material N/A

Form prepared by AD Date 7/7/92

MAC/site/forms/well details casing

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-7
LOCATION	3608 MINNESOTA DRIVE	PAGE	1 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	97.01
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	7/2/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
								ASPHALT
								SILTY SAND WITH GRAVEL (SM); Dark yellowish brown (10YR, 4/6); 20% fines (low to moderate plasticity), 50-60% sand (fine to medium), 20-30% gravel (up to 1 inch diameter); moist; no odor.
2/9/14	1.3/1.5	0.0		5				As above.
								@ 5.5 feet. POORLY GRADED SAND (SP); Olive gray (5Y, 4/2); 95% sand (medium to coarse), 5% gravel (up to 0.5 inches diameter); medium dense; moist; no odor.
32/25/25	1.5/1.5	0.0		10				POORLY GRADED SAND WITH GRAVEL (SP); Olive gray (5Y, 4/2); 70% sand (medium to coarse), 30% gravel (up to 0.75 inches diameter); medium dense; moist; no odor.
			7/6/92					
13/13/14	1.3/1.5	45						As above. 80% sand, 20% gravel; medium dense; wet; no odor. Viscous, black oil stain on the exterior of sampler.
			7/2/92	15				
50R	0.3/0.3	1.1						POORLY GRADED SAND (SP); Dark gray (7.5YR, 3/0); 100% sand (fine to medium); dense; wet; no odor.
				20				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well. NS = Not Screened.

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON	BORING NO.	MW-7
LOCATION	3608 MINNESOTA DRIVE	PAGE	2 OF 2
DRILLED BY	DISCOVERY DRILLING	REFERENCE ELEV.	97.01
DRILL METHOD	HSA	TOTAL DEPTH	25.00'
LOGGED BY	CRAIG BOECKMAN	DATE COMPLETED	7/2/92

Blows/6 inches	Recovery ft/ft	PID (ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
21/50/R	0.8/0.8	NS						As above. Dense.
				25				BORING TERMINATED AT 25 FEET AND CONVERTED TO MONITORING WELL MW-7.
				30				
				35				
				40				

REMARKS
A pilot boring was advanced for sampling purposes using 8 inch outside diameter (OD) augers, followed by 10 inch OD augers to set the well. NS = Not Screened.

America North/EMCON, Inc.

Environmental Consulting/Natural Resources Management

WELL DETAILS

PROJECT NUMBER 13907.00

PROJECT NAME CHEVRON SS99014

LOCATION 3608 MINNESOTA

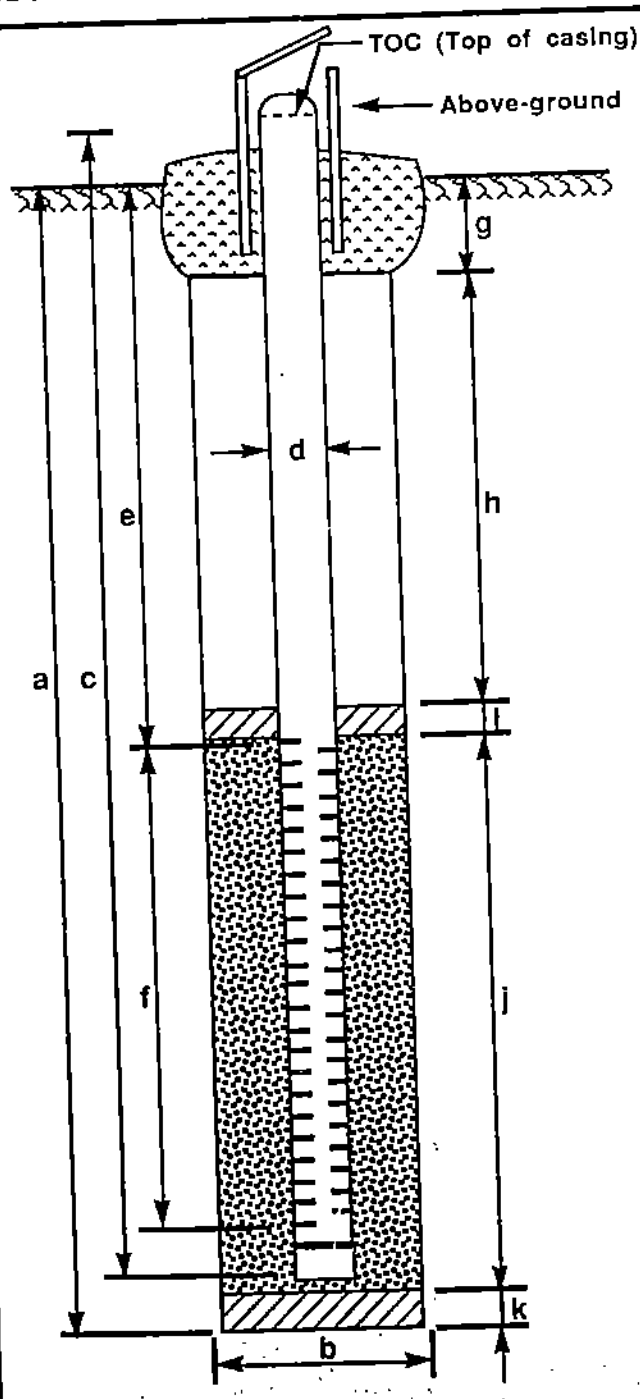
INSTALLATION DATE 7/02/92

BORING/WELL NO. MW-7

TOP OF CASING ELEV. 97.01

GROUND SURFACE ELEV.

DATUM PROJECT DATUM 100.00



EXPLORATORY BORING

a. Total depth 25.0 ft.

b. Diameter 10.0 in.

Drilling method HOLLOW STEM AUGER

WELL CONSTRUCTION

c. Total casing length 24.09 ft.

Material PVC

d. Diameter 4.0 in.

e. Depth to top perforations 4.29 ft.

f. Perforated length 19.32 ft.

Perforated interval from 4.29 to 23.61 ft.

Perforation type MACHINE SLOTTED

Perforation size 0.02

g. Surface seal 1.0 ft.

Seal material CONCRETE

h. Backfill N/A ft.

Backfill material N/A

i. Seal 2.0 ft.

Seal material HYDRATED BENTONITE CHIPS

j. Gravel pack 22.0 ft.

Pack material 8/12 COLORADO SILICA SAND

k. Bottom seal N/A ft.

Seal material N/A

Form prepared by AD Date 7/7/92

MAC/site/forms/well details casing

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON #9-9014	BORING NO.	MW-8
LOCATION	Spenard and Minnesota	PAGE	1 OF 1
DRILLED BY	Discovery Drilling	REFERENCE ELEV.	
DRILL METHOD	H.S. Auger	TOTAL DEPTH	19.00'
LOGGED BY	C. Boeckman	DATE COMPLETED	11/5/92

BLOWS PER 6 INCHES	RECOVERY (INCHES)	PID (in ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
								ASPHALT.
6 6	12	37.8		5				POORLY GRADED SAND with SILT and GRAVEL (SP-SM); dark grayish-brown (2.5Y, 4/2); 10% low plasticity fines; 60% fine to coarse sand; 30% gravel (to 1-inch diameter); slightly moist; no odor; medium dense.
				6				POORLY GRADED SAND (SP); olive (5Y, 4/3); 90% medium to coarse sand; 10% gravel (to 1/2-inch diameter); moist; no odor; medium dense.
				7				
				8				
9 8 9		46.5		9				POORLY GRADED GRAVEL with SAND (GP); olive brown (2.5Y, 4/4); 40 to 50% medium to coarse sand; 50 to 60% gravel (to 3/4-inch diameter); moist; no odor; medium dense.
				10				
3 S R	12	86.3						POORLY GRADED SAND (SP); olive gray (5Y, 4/2); 90% medium to coarse sand; 10% gravel (to 1/2-inch diameter); moist; no odor; loose?
			▽					Water at 14.0 feet bgs.
				15				POORLY GRADED SAND with GRAVEL (SP); very dark gray (5Y, 3/1); 60 to 70% coarse sand; 30 to 40% gravel; wet; slight odor; medium dense.
4 8 11	12	188.1		16				
				17				
				18				@ 19.0 feet: clay as indicated by cuttings on augers.
				19				Bottom of boring at 19.0 feet.
				20				

REMARKS

America North/EMCON, Inc.

Environmental Consulting/Natural Resources Management

WELL DETAILS

PROJECT NUMBER 13907.00

PROJECT NAME Chevron Station #9-9014

LOCATION 3608 Minnesota Drive

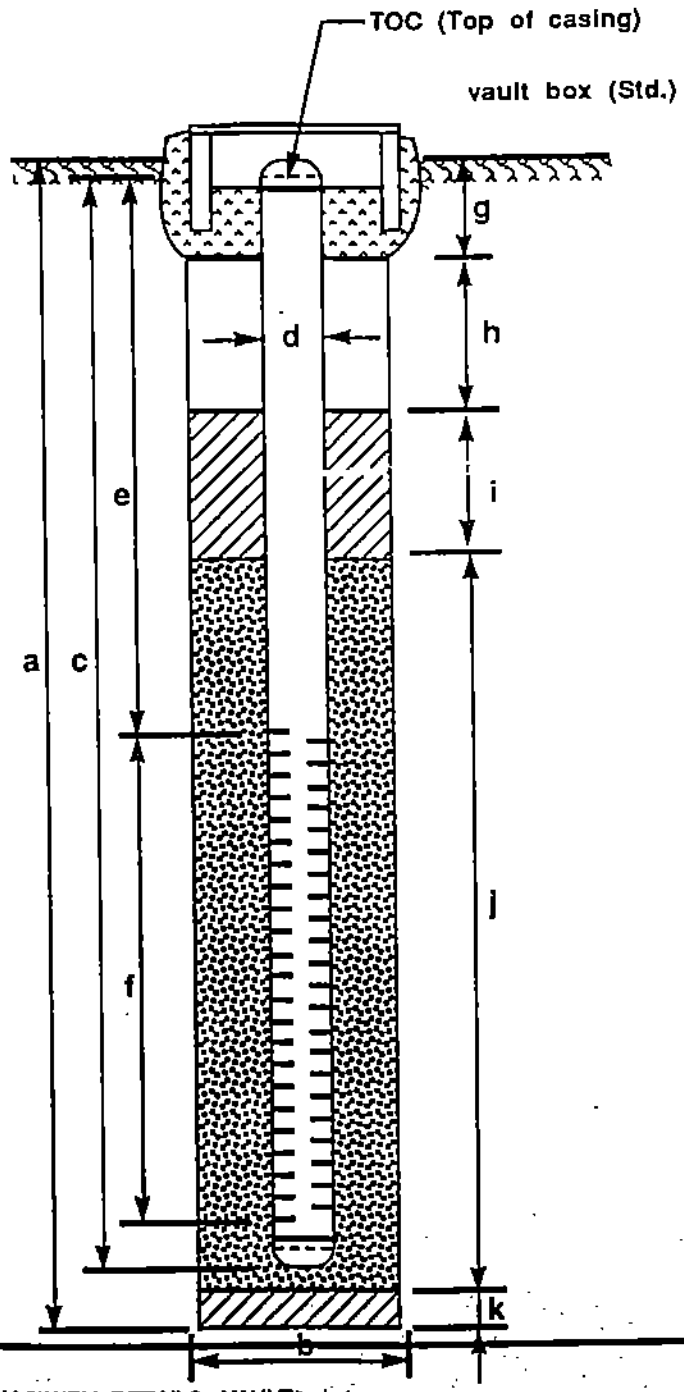
INSTALLATION DATE 11-05-92

BORING/WELL NO. MW-8

TOP OF CASING ELEV. 97.95

GROUND SURFACE ELEV.

DATUM



EXPLORATORY BORING

a. Total depth 19.0 ft.

b. Diameter 8.0 in.

Drilling method HOLLOW STEM AUGER

WELL CONSTRUCTION

c. Total casing length 19.10 ft.

Material PVC

d. Diameter 2.0 in.

e. Depth to top perforations 9.3 ft.

f. Perforated length 9.75 ft.

Perforated interval from 9.05 to 18.8 ft.

Perforation type MACHINE SLOTTED

Perforation size 0.2 in.

g. Surface seal 1.0 ft.

Seal material CONCRETE

h. Backfill 3.0 ft.

Backfill material #8/12 COLO SILICA SAND

i. Seal 2.0 ft.

Seal material HYDRATED BENTONITE CHIPS

j. Gravel pack 13.0 ft.

Pack material #8/12 COLO SILICA SAND

k. Bottom seal 0 ft.

Seal material N/A

Form prepared by _____ Date _____

MAC\WELL DETAILS - VAULT/tmb:1

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON #9-9014	BORING NO.	MW-9
LOCATION	Spenard and Minnesota	PAGE	1 OF 2
DRILLED BY	Discovery Drilling	REFERENCE ELEV.	
DRILL METHOD	H.S. Auger	TOTAL DEPTH	20.50'
LOGGED BY	C. Boeckman	DATE COMPLETED	11/5/92

BLOWS PER 6 INCHES	RECOVERY (INCHES)	PID (in ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHOLOGIC COLUMN	LITHOLOGIC DESCRIPTION
								ASPHALT.
								POORLY GRADED SAND with SILT and GRAVEL (SP-SM); brown (10YR, 4/3); 10% low plasticity fines; 50 to 60% fine to medium sand; 30 to 40% gravel (to 1-inch diameter); dry; no odor; medium dense.
9 7 10	12	85.1		5 6 7 8				POORLY GRADED SAND with GRAVEL (SP); olive (5Y, 4/3); 80 to 90% medium to coarse sand; 10 to 20% gravel (to 1/2-inch diameter); moist; no odor; medium dense.
3 8 7	18	879		10				As above.
								@ 11.0 feet: black-stained gravel or coal debris (fill). Iron oxide staining below this material; slight odor; medium dense.
4 7 10	12	234	▽					As above.
								Water at 14.0 feet bgs.
				15 16 17 18				POORLY GRADED SAND with GRAVEL (SP); very dark gray (5Y, 3/1); 70 to 80% medium to coarse sand; 20 to 30% gravel (to 3/4-inch diameter); wet; strong odor; medium dense.
3 8	12	639		19 20				As above: wet; strong odor.

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON #9-9014	BORING NO.	MW-9
LOCATION	Spenard and Minnesota	PAGE	2 OF 2
DRILLED BY	Discovery Drilling	REFERENCE ELEV.	
DRILL METHOD	H.S. Auger	TOTAL DEPTH	20.50'
LOGGED BY	C. Boeckman	DATE COMPLETED	11/5/92

BLOWS PER 6 INCHES	RECOVERY (INCHES)	PID (in ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
8								SILT (ML); dark gray (5Y, 4/1); 90% low to medium plasticity silt; 10% gravel (to 1-inch diameter); strong wet odor; medium dense.
								Bottom of boring at 20.5 feet.
				25				
				30				
				35				
				40				

REMARKS

America North/EMCON, Inc.

Environmental Consulting/Natural Resources Management

WELL DETAILS

PROJECT NUMBER 13907.00

PROJECT NAME Chevron Station #9-9014

LOCATION 3608 Minnesota Drive

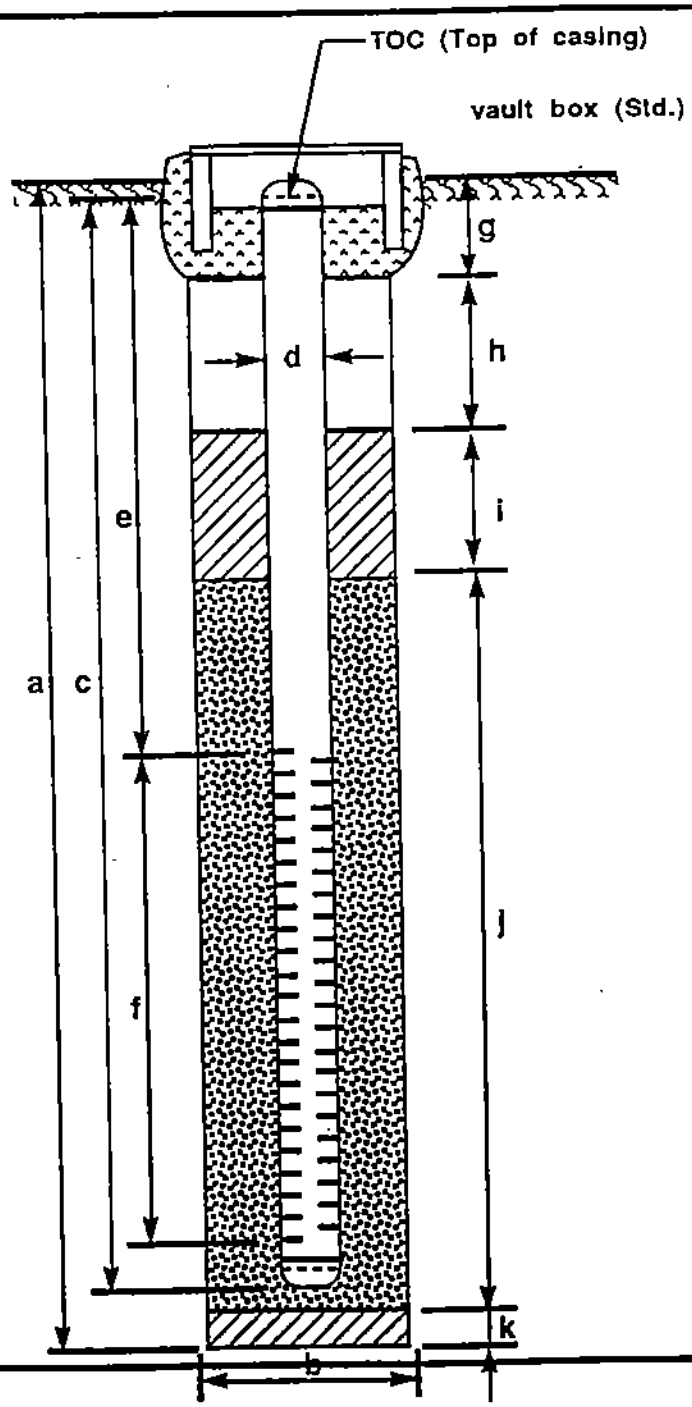
INSTALLATION DATE 11-05-92

BORING/WELL NO. MW-9

TOP OF CASING ELEV. 98.28

GROUND SURFACE ELEV.

DATUM



EXPLORATORY BORING

a. Total depth 20.5 ft.

b. Diameter 8.0 in.

Drilling method HOLLOW STEM AUGER

WELL CONSTRUCTION

c. Total casing length 18.6 ft.

Material PVC

d. Diameter 2.0 in.

e. Depth to top perforations 8.7 ft.

f. Perforated length 9.75 ft.

Perforated interval from 8.7 to 18.45 ft.

Perforation type MACHINE SLOTTED

Perforation size 0.2 in.

g. Surface seal 1.0 ft.

Seal material CONCRETE

h. Backfill 3.0 ft.

Backfill material #8/12 COLO SILICA SAND

i. Seal 2.0 ft.

Seal material HYDRATED BENTONITE CHIPS

j. Gravel pack 12.5 ft.

Pack material #8/12 COLO SILICA SAND

k. Bottom seal 2.0 ft.

Seal material #8/12 COLO SILICA SAND

Form prepared by _____ Date _____

MAC\WELL DETAILS - VAULT/tmb:1

LOG OF EXPLORATORY BORING

PROJECT NAME	CHEVRON #9-9014	BORING NO.	MW-10
LOCATION	Spenard and Minnesota	PAGE	1 OF 1
DRILLED BY	Discovery Drilling	REFERENCE ELEV.	
DRILL METHOD	H.S. Auger	TOTAL DEPTH	19.50'
LOGGED BY	C. Boeckman	DATE COMPLETED	11/6/92

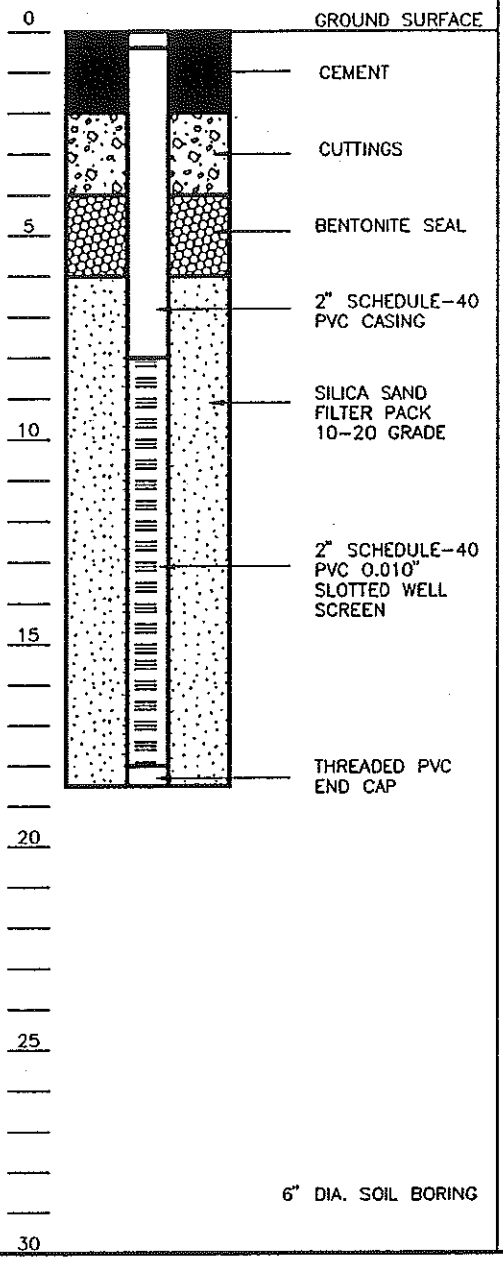
BLOWS PER 6 INCHES	RECOVERY (INCHES)	PID (in ppm)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	WELL DETAILS	LITHO-LOGIC COLUMN	LITHOLOGIC DESCRIPTION
								ASPHALT.
								POORLY GRADED SAND with SILT and GRAVEL (SP-SM); dark brown (10YR, 4/3); 10% low plasticity fines: 50 to 60% fine to medium sand: 30 to 40% gravel (to 1-inch diameter); moist: no odor; medium dense.
2 9 10	16	7.2		5 6 7 8				As above; 0 to 10% low plasticity fines: 60 to 70% fine to medium sand: 20 to 30% gravel (to 1 1/2-inch diameter); moist: no odor; medium dense.
4 4 4		3.2		10				POORLY GRADED SAND with SILT and GRAVEL (SP-SM); olive brown (2/5Y, 4/3); 0 to 10% low plasticity fines: 60 to 70% fine to coarse sand: 30% gravel (up to 3/4-inch diameter); moist: no odor; loose.
1 2 1	12	8.5	▽					Water at 13.0 feet bgs.
								As above; 80 to 90% medium to coarse sand: 10 to 20% gravel (to 3/4-inch diameter); moist: no odor; loose.
				15 16 17 18				POORLY GRADED SAND (SP); very dark gray (5Y, 3/1); 100% medium to coarse sand: wet; no odor; medium dense.
9 10 10	18	1.9						Set well at 18.0 feet bgs.
				20				Bottom of boring at 19.5 feet.

REMARKS

ELEVATION REFERENCE: ON SITE REFERENCE DATUM 100.00 FEET
GROUND SURFACE ELEVATION: 97.71' CASING ELEVATION: 97.41'

DEPTH (feet)	SOIL DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER
0	Damp, brown, GP. Poorly graded GRAVEL with sand. (FILL)						
5	Moist, brown-grey, SW. Well graded gravelly SAND.			S-1	40	--	
10	Moist, grey-black, SW. Well graded gravelly SAND.			S-2	65	--	
	Wet to saturated, grey-orange, SP. Poorly graded gravelly SAND.			S-3	75	--	ATD
15							
20							
25							
30	Boring Terminated 18.4-Feet						

AS-BUILT DESIGN



TESTING

8020 8015 8100

8020 8015 8100

8020 8015 8100

LEGEND

- Grab Sample
- 2-inch O.D. split-spoon sample
- ATD — Observed groundwater level at time of drilling (ATD)

ANALYTICAL METHODS (8020 8015 8100)
8020 = BTEX
8015 = GRPH
8100 = DRPH

Distinct Contact
Graduational Contact

Gravel
Sand
Silt
Clay
Organics

NOTES:

1.

DATE STARTED: 2/16/94 DATE COMPLETED: 2/16/94

RZA AGRA Alaska, Inc.
ENGINEERING & ENVIRONMENTAL SERVICES
711 H Street
Suite 450
Anchorage, Alaska 99501

W.O. 31-1489
FILE MW11
DRAWN 5/6/94
SCALE AS NOTED
LOGGED JBB

CHEVRON STATION NO. 9-1893
MINNESOTA & SPENARD
ANCHORAGE, ALASKA

WELL NO. MW-11
DRILL LOG

America North/EMCON, Inc.

Environmental Consulting/Natural Resources Management

WELL DETAILS

PROJECT NUMBER 13907.00

PROJECT NAME Chevron Station #9-9014

LOCATION 3608 Minnesota Drive

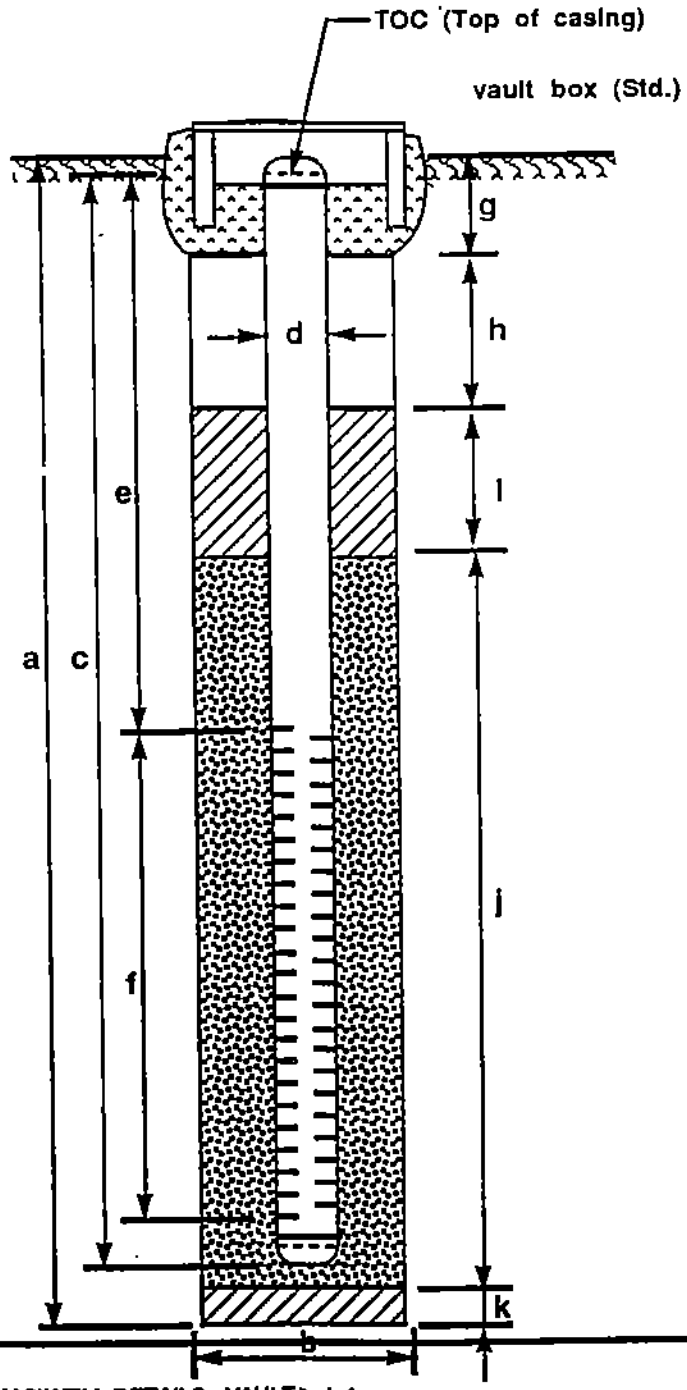
INSTALLATION DATE 11-06-92

BORING/WELL NO. MW-10

TOP OF CASING ELEV. 98.60

GROUND SURFACE ELEV.

DATUM



EXPLORATORY BORING

a. Total depth 19.5 ft.

b. Diameter 8.0 in.

Drilling method HOLLOW STEM AUGER

WELL CONSTRUCTION

c. Total casing length 17.9 ft.

Material PVC

d. Diameter 2.0 in.

e. Depth to top perforations 8.1 ft.

f. Perforated length 9.75 ft.

Perforated interval from 8.1 to 17.85 ft.

Perforation type MACHINE SLOTTED

Perforation size 0.2 in.

g. Surface seal 1.0 ft.

Seal material CONCRETE

h. Backfill 2.0 ft.

Backfill material NATIVE SOIL

i. Seal 2.0 ft.

Seal material HYDRATED BENTONITE CHIPS

j. Gravel pack 14.5 ft.

Pack material #8/12 COLO SILICA SAND

k. Bottom seal 0 ft.

Seal material N/A

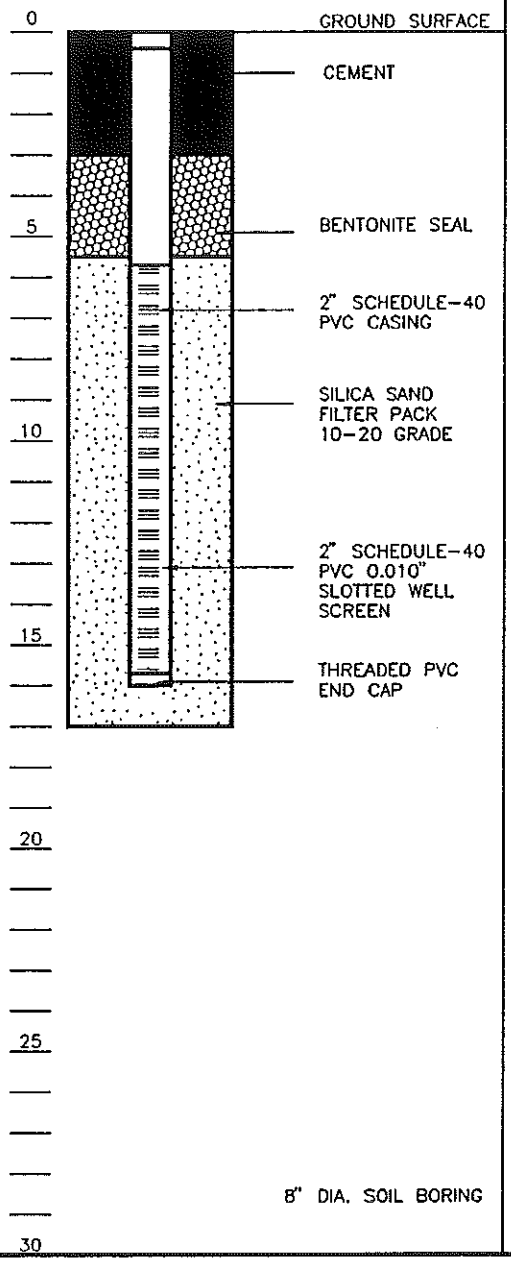
Form prepared by _____ Date _____

MAC\WELL DETAILS - VAULT/mb:1

ELEVATION REFERENCE: ON SITE REFERENCE DATUM 100.00 FEET
GROUND SURFACE ELEVATION: 97.95' CASING ELEVATION: 97.75'

DEPTH (feet)	SOIL DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	BLOW COUNTS	OVM READING	GROUND WATER
0	Moist, light brown to grey, GM. Silty GRAVEL with sand. (Frozen Fill) @ 2.5-feet: Thawed gravel.						
5				S-1 -5	19	--	
	Moist, light grey, GP. Poorly graded GRAVEL. (Pea gravel fill)						
10	Loose, moist, light grey, SP. Poorly graded SAND with gravel.						
				S-2 -12	14	--	ATD
15							
20							
25							
30	Boring Terminated 17-Feet						

AS-BUILT DESIGN



TESTING: 8020, 8015, 8100 (S-1 -5); 8020, 8015, 8100 (S-2 -12)

LEGEND

- Grab Sample
- 2-inch O.D. split-spoon sample
- ATD — Observed groundwater level at time of drilling (ATD)
- 8020, 8015, 8100

ANALYTICAL METHODS
8020 = BTEX
8015 = GRPH
8100 = DRPH

Distinct Contact
Graduational Contact

Gravel
Sand
Silt
Clay
Organics

NOTES:
1.

DATE STARTED: 2/28/94 DATE COMPLETED: 2/28/94

RZA AGRA Alaska, Inc.
ENGINEERING & ENVIRONMENTAL SERVICES
711 H Street
Suite 450
Anchorage, Alaska 99501

W.O. 31-1489
FILE MW12
DRAWN 3/16/94
SCALE AS NOTED
LOGGED JBB

CHEVRON STATION NO. 9-1893
MINNESOTA & SPENARD
ANCHORAGE, ALASKA

WELL NO. MW-12
DRILL LOG

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
BS	6/22/01 6/22/01	DISCOVERY	CHEVRON 9-9014 ANCHORAGE, ALASKA	SPLIT SPOON CME 75	MW-13

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8		▽ 12 FIRST ▼ 12 STAB.	20.0	280	30

Well Construction	Depth, (ft.)	Sample Recovery	Blows/6"	Description	PID (PPM)	SAMPLE NUMBER
TRAFFIC RATED WELL BOX				Concrete		
				Fill		
BENTONITE SEAL						
	5		6 5 6 7	**SAND (SP):** light brown, fine to medium grained, damp, loose, no hydrocarbon odor, (0,100,0,0).	0	MW-13 @5'
SAND						
2" SLOTTED SCREEN	10		4 8 8 12	**SAND (SP):** dark grey, fine grained, loose, moist, no hydrocarbon odor, (0,100,0,0).	1.3	MW-13 @10'
				GRADES TO GRAVELLY SAND (SP): yellowish orange, fine to medium sand, fine gravel, medium dense, wet, (10,90,0,0).		
	15					
THREADED END CAP	20		2 4 7 8	**SAND (SP):** dark grey, fine to coarse sand, wet, loose, no hydrocarbon odor, (0,100,0,0).	1.6	MW-13 @20'
				SILT (ML): dark grey, medium stiff, wet, (0,0,100,0).		

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. 077.43525.270 Date 7/05/01 DM

Log of Well

99014W13.GPJ
LOG OF BOREHOLE

Approved by _____

Figure (sheet 1 of 1)

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
BS	6/21/01 6/21/01	DISCOVERY	CHEVRON 9-9014 ANCHORAGE, ALASKA	SPLIT SPOON CME 75	MW-14

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8		▽ 14.5 FIRST ▼ 12 STAB.	25.0	280	30

Well Construction	Depth, (ft.)	Sample Recovery	Blows/6"	Description	PID (PPM)	SAMPLE NUMBER
TRAFFIC RATED WELL BOX				Asphalt		
				Fill		
BENTONITE SEAL						
	5		4 8 9 11	**GRAVELLY SAND (SP):** light brown, fine to medium grained sand, medium dense, damp, trace fine grained gravel increasing with depth, no hydrocarbon odor, (5,95,0,0).	1.8	MW-14 @5'
SAND						
	10		3 8 11 14	Same as above.	25.7	MW-14 @10'
2" SLOTTED SCREEN						
	15		3 4 5 5	**SAND (SP):** light brown, fine to medium grained, loose, wet, trace fine grained gravel, no hydrocarbon odor, (0,100,0,0).	40.1	MW-14 @15'
	20		5 6 8 8		31.5	MW-14 @20'
THREADED						

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Project No. 077.43525.270 Date 7/05/01 DM

Log of Well

99014W14.GPJ
LOG OF BOREHOLE

Approved by _____

Figure (sheet 1 of 2)

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
BS	6/21/01 6/21/01	DISCOVERY	CHEVRON 9-9014 ANCHORAGE, ALASKA	SPLIT SPOON CME 75	MW-14

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8		▽ 14.5 FIRST ▼ 12 STAB.	25.0	280	30

Well Construction	Depth, (ft.)	Sample Recovery	Blows/6"	Description	PID (PPM)	SAMPLE NUMBER
END CAP				Same as above.		
				SANDY SILT (ML): dark grey, with trace gravel, fine grained, sandy gravel, medium stiff, wet, no hydrocarbon odor (0,40,60,0).		
	30					
	35					
	40					
	45					

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **077.43525.270** Date **7/05/01 DM**

Log of Well

99014W14.GPJ
LOG OF BOREHOLE

Approved by _____

Figure (sheet 2 of 2)

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
BS	6/21/01 6/21/01	DISCOVERY	CHEVRON 9-9014 ANCHORAGE, ALASKA	SPLIT SPOON CME 75	MW-15

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8		▽ 17 FIRST ▼ 12.3 STAB.	24.0	280	30

Well Construction	Depth, (ft.)	Sample Recovery	Blows/6"	Description	PID (PPM)	SAMPLE NUMBER
TRAFFIC RATED WELL BOX				Base rock		
BENTONITE SEAL						
SAND	5		4 4 7 9	**SAND (SP):** light brown to olive grey, medium to coarse grained, loose, damp, no hydrocarbon odor, (0,100,0,0).	9.5	MW-15 @5'
2" SLOTTED SCREEN	10		8 9 13 15	**GRAVELLY SAND (SP):** light brown to olive grey, medium to coarse sand, fine gravel, medium dense, damp, no hydrocarbon odor, (40,60,0,0).	10.4	MW-15 @10'
	15		5 6 13 16	**SAND (SP):** light brown to dark grey, fine to medium grained sand, medium dense, wet, no hydrocarbon odor, (0,100,0,0).	0.3	MW-15 @15'
			3 3 6 9	**SAND (SP):** dark grey, fine to medium grained, loose, wet, (0,100,0,0).	0	MW-15 @17'
	20		5 6 7 10	**SAND (SP):** light brown, fine to medium grained, wet, loose, no hydrocarbon odor, (0,100,0,0). **SILTY SAND (ML):** dark grey, fine grained sand, wet, medium dense, no hydrocarbon odor, (0,60,40,0).	3.5	MW-15 @22'
THREADED END CAP						

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **077.43525.270** Date **7/05/01 DM**

Log of Well

99014W15.GPJ
LOG OF BOREHOLE

Approved by _____

Figure (sheet 1 of 1)

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
BS	6/21/01 6/21/01	DISCOVERY	CHEVRON 9-9014 ANCHORAGE, ALASKA	SPLIT SPOON CME 75	MW-16

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8		▽ 19.5 FIRST ▼ 17 STAB.	25.0	280	30

Well Construction	Depth, (ft.)	Sample Recovery	Blows/6"	Description	PID (PPM)	SAMPLE NUMBER
TRAFFIC RATED WELL BOX				Base rock		
BENTONITE SEAL						
	5	X	3 3 4 6	**SAND (SP):** light brown to olive grey, sand with trace silt, fine to medium grain, damp, loose, no hydrocarbon odor, (0,100,0,0).	3.0	MW-16 @5'
SAND						
	10	X	6 6 10 13	**SILTY SAND (SM):** light brown to olive grey, medium dense, damp, fine grained sand, no hydrocarbon odor, (0,60,40,0).	17.3	MW-16 @10'
2" SLOTTED SCREEN						
	15	X	7 9 10 11	**SANDY SILT (ML):** dark grey, fine grained sand, damp, stiff, no hydrocarbon odor, (0,30,70,0).	1.4	MW-16 @15'
	20	X	4 4 5 6	**SANDY SILT (ML):** dark grey, fine grained sand, wet, medium stiff, no hydrocarbon odor, (0,10,90,0).	48.2	MW-16 @20'
THREADED						

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **077.43525.270** Date **7/05/01 DM**

Log of Well

99014W16.GPJ
LOG OF BOREHOLE

Approved by _____

Figure (sheet 1 of 2)

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
BS	6/21/01 6/21/01	DISCOVERY	CHEVRON 9-9014 ANCHORAGE, ALASKA	SPLIT SPOON CME 75	MW-16

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8		▽ 19.5 FIRST ▼ 17 STAB.	25.0	280	30

Well Construction	Depth, (ft.)	Sample Recovery	Blows/6"	Description	PID (PPM)	SAMPLE NUMBER
END CAP			4 4 5 5	Same as above.	33.1	MW-16 @25'
	30					
	35					
	40					
	45					

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **077.43525.270** Date **7/05/01 DM**

Log of Well

99014W16.GPJ
LOG OF BOREHOLE

Approved by _____

Figure (sheet 2 of 2)

SECOR

Logged By:	Date Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
TM	5/27/04	DISCOVERY	CHEVRON 9-9014 ANCHORAGE, ALASKA	810 VACTOR TRUCK CME 75 RIG	MW-17

Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
2.0		▽ 15 FIRST ▼ 10.5 STATIC	20.5	340	30

Well Construction	Depth, (ft.)	Sample Recovery	Blows/6"	Description	PID/FID (ppm)	Sample Name
Asphalt				1 1/2" to 2" Asphalt		
Bentonite 2" Schedule 40 PVC Casing	5			Cleared to 8'-4 1/2" with Vac Truck No Sample Recovered		
#3 Sand						
▼	10		5 9 12 13	**POORLY GRADED SAND WITH GRAVEL (SP):** yellowish brown (10YR 5/6), medium to coarse grained sand, fine grained gravel, sub angular, moist, soft, medium dense (15,85,0,0). @ 10' grades to fine grained sand, dark greenish gray (GLEY 4/106Y), (0,100,0,0).	0.0	MW-17
▽	15			As above, very dark greenish gray (GLEY 3/5GY), medium to fine grained sand, sub angular, moist, soft, medium dense. @ 16' grades to fine grained sand, dark greenish gray (GLEY 4/5GY), (5,95,0,0).		
Threaded End Cap 2" Schedule 40 PVC 0.010" Slotted Screen	20			**GRAVELLY SILT (ML):** greenish gray (GLEY 1 5/10GY), angular, coarse to fine, silt to clay, soft, wet (25,5,60,10). @ 20' grades to silt, dark bluish gray (0,0,90,10), very soft, fines.		

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **77CH.99014.270** Date **5/27/04**

Log of Well

99014MW17-18.GPJ
LOG OF BOREHOLE

Figure

MW-17 (sheet 1 of 1)

SECOR

Logged By:	Date Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Well Number:
TM	5/27/04	DISCOVERY	CHEVRON 9-9014 ANCHORAGE, ALASKA	810 VACTOR TRUCK CME 75 RIG	MW-18

Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
2.0		▽ 15.5 FIRST ▼ 10.25 STATIC	20.5	340	30

Well Construction	Depth, (ft.)	Sample Recovery	Blows/6"	Description	PID/FID (ppm)	Sample Name
Asphalt				1 1/2" Asphalt		
Bentonite 2" Schedule 40 PVC Casing	5			Cleared to 8'-4" with Vac Truck No Sample Recovered		
#3 Sand ▼	10	■	4 11 12 15	**WELL GRADED GRAVEL WITH SAND (GW):** greenish gray (GLEY 1 5/10Y), very soft, angular, damp (55,45,0,0).	5.2	MW-18 @10'
▽	15	■	4 5 6 7	**POORLY GRADED SAND WITH GRAVEL(SP):** dark greenish gray (GLEY 1 4/10Y), very soft, sub angular, damp (10,90,0,0). **LEAN CLAY (CL):** gray (GLEY 1 4/N), hard, damp (0,0,5,95).	9.9	MW-18 @15'
	20			**SILT (ML):** dark gray (GLEY 1 5/N), hard, damp (0,0,95,5).		
Threaded End Cap 2" Schedule 40 PVC 0.010" Slotted Screen				* Silt below water bearing zone soil was wet in the sample		

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **77CH.99014.270** Date **5/27/04**

Log of Well

99014MW17-18.GPJ
LOG OF BOREHOLE

Figure

MW-18 (sheet 1 of 1)

MONITORING WELL LOG

WELL NUMBER: **MW-19**

WELL DEPTH: **20 feet bgs** HOLE DIAMETER: **8-Inch**

ARCADIS

PROJECT INFORMATION

PROJECT:	Former Chevron 9-9014
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska
PROJECT NUMBER:	B0045499.0000
LOGGED BY:	Michael Cleary
DATE STARTED:	8-16-07
DATE COMPLETED:	8-16-07

DRILLING INFORMATION

DRILLING CO.:	Discovery Drilling
DRILLER:	Scott Clinkenbeard
DRILLING METHOD:	Hollow Stem Auger
ELEVATION:	Default
REFERENCE:	Default
NORTHING:	Default
EASTING:	Default

WELL CONSTRUCTION

WELL CASING
Material: Schedule 40 PVC
Diameter: 2.0-Inch

WELL SCREEN
Material: Schedule 40 PVC
Diameter: 2-Inch
Opening: 0.02-Inch

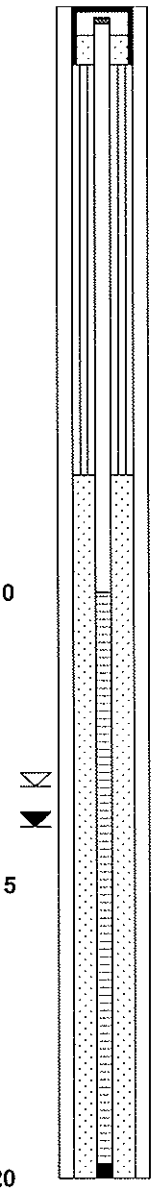
SAND PACK
#10-20 Silica Sand

ANNULUS SEAL
Hydrated Bentonite Chips

GROUT
NA

WATER LEVEL:
During drilling
After completion

DEPTH (ft bgs)	RECOVERY (ft)	USCS	SYMBOL	SOIL DESCRIPTIONS	SAMPLE COLLECTED	BLOWS/FT	ANALYTES	PID (ppm)	DEPTH (ft bgs)
0	NM	NA		ASPHALT AND SUBGRADE	No sample collected.	NM	NA	0.0	0
		CL		SILTY CLAY: tan; medium plasticity; soft; trace rounded pebbles; no odor; no slag; moist.					
	NM	CL		SILTY CLAY: Same as above.	No sample collected.	NM	NA	0.0	
		SP		POORLY GRADED SAND: gray; coarse sand; subangular; poorly sorted; abundant rounded pebbles; no odor; no stains; moist.					
	NM	SP		POORLY GRADED SAND: Same as above.	No sample collected.	NM	NA	0.0	
5									5
	NM	SP		POORLY GRADED SAND: Same as above.	Soil Sample MW-19 (5-10') was collected at 0940.	NM	BTEX & MTBE by EPA Method 8021; GRO by AK Method 101	0.0	
	NM	SP		POORLY GRADED SAND: Same as above.		NM		0.0	
10									10
	NM	SP		POORLY GRADED SAND: Same as above; except wet at 14 feet bgs.	Soil Sample MW-19 (10-15') was collected at 0945.	NM	BTEX & MTBE by EPA Method 8021; GRO by AK Method 101	0.0	
				Note: Depth to groundwater was measured at 13.32 feet below top of casing on 9-10-07.					
15									15
	NM	SP		POORLY GRADED SAND: Same as above.	No sample collected.	NM	NA	0.0	
20									20



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

Monitoring Well Log
Prepared by: Brett Bardsley

Monitoring Well MW-19

MONITORING WELL LOG

WELL NUMBER: **MW-20**

WELL DEPTH: **20 feet bgs** HOLE DIAMETER: **8-inches**

ARCADIS

PROJECT INFORMATION

PROJECT:	Former Chevron 9-9014
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska
PROJECT NUMBER:	B0045499.0000
LOGGED BY:	Michael Cleary
DATE STARTED:	8-16-07
DATE COMPLETED:	8-16-07

DRILLING INFORMATION

DRILLING CO.:	Discovery Drilling
DRILLER:	Scott
DRILLING METHOD:	Hollow Stem Auger
ELEVATION:	Default
REFERENCE:	Default
NORTHING:	Default
EASTING:	Default

WELL CONSTRUCTION

WELL CASING
Material: Schedule 40 PVC
Diameter: 2.0-Inch

WELL SCREEN
Material: Schedule 40 PVC
Diameter: 2-Inch
Opening: 0.02-Inch

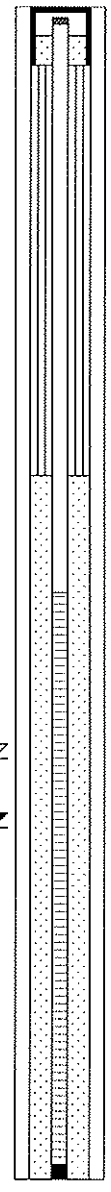
SAND PACK
#10-20 Silica Sand

ANNULUS SEAL
Hydrated Bentonite Chips

GROUT
NA

WATER LEVEL:
During drilling
After completion

DEPTH (ft bgs)	RECOVERY (ft)	USCS	SYMBOL	SOIL DESCRIPTIONS	SAMPLE COLLECTED	BLOWS/FT	ANALYTES	PID (ppm)	DEPTH (ft bgs)
0	NM	NA		ASPHALT AND SUBGRADE	No sample collected.	NM	NA	0.0	0
		CL		SILTY CLAY: brown; medium plasticity; trace rounded pebbles; no odor; no stains; moist.					
		SP		POORLY GRADED SAND: gray; coarse sand; subangular; poorly sorted; abundant rounded pebbles; no odor; no slag; moist.					
5	NM	SP		POORLY GRADED SAND: coarse grained sand; gray; subangular; poorly sorted; abundant round pebbles; no odor; no slag; moist.	Soil Sample MW-20 (5-10') was collected at 1135.	NM	BTEX & MTBE by EPA Method 8021; GRO by AK Method 101	0.0	5
10	NM	SP		POORLY GRADED SAND: Same as above; except wet at 14 feet bgs. Note: Depth to groundwater was measured at 12.82 feet below top of casing on 9-10-07.	Soil Sample MW-20 (10-15') was collected at 1140.	NM	BTEX & MTBE by EPA Method 8021; GRO by AK Method 101	0.0	10
15	NM	SP		POORLY GRADED SAND: Same as above.	No sample collected.	NM	NA	0.0	15
20									20



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

MONITORING WELL LOG

WELL NUMBER: **MW-21**

WELL DEPTH: **20 feet bgs** HOLE DIAMETER: **8-inches**

PROJECT INFORMATION

PROJECT:	Former Chevron 9-9014
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska
PROJECT NUMBER:	B0045499.0000
LOGGED BY:	Michael Cleary
DATE STARTED:	8-16-07
DATE COMPLETED:	8-16-07

DRILLING INFORMATION

DRILLING CO.:	Discovery Drilling
DRILLER:	Scott Clinkenbeard
DRILLING METHOD:	Hollow Stem Auger
ELEVATION:	Default
REFERENCE:	Default
NORTHING:	Default
EASTING:	Default

WELL CONSTRUCTION

WELL CASING
Material: Schedule 40 PVC
Diameter: 2.0-Inch

WELL SCREEN
Material: Schedule 40 PVC
Diameter: 2-Inch
Opening: 0.02-Inch

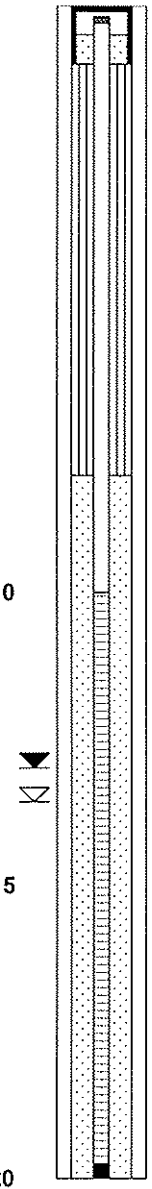
SAND PACK
#10-20 Silica Sand

ANNULUS SEAL
Hydrated Bentonite Chips

GROUT
NA

WATER LEVEL:
During drilling
After completion

DEPTH (ft bgs)	RECOVERY (ft)	USCS	SYMBOL	SOIL DESCRIPTIONS	SAMPLE COLLECTED	BLOWS/FT	ANALYTES	PID (ppm)	DEPTH (ft bgs)
0	NM	NA		ASPHALT AND SUBGRADE	No sample collected.	NM	NA	0.0	0
		CL		SILTY CLAY: brown; medium plasticity; trace rounded pebbles; no odor; no stains; moist.					
		SP		POORLY GRADED SAND: gray; coarse sand; subangular; poorly sorted; abundant rounded cobbles; no odor; no slag; moist.					
5	NM	SP		POORLY GRADED SAND: gray; coarse sand; subangular; poorly sorted; no odor; no stains; moist.	Sample MW-21 (5-10') was collected at 1415.	NM	BTEX & MTBE by EPA Method 8021; GRO by AK Method 101	0.0	5
10	NM	SP		POORLY GRADED SAND: Same as above; wet at 13 feet bgs. Note: Depth to groundwater was measured at 13.58 feet below top of casing on 9-10-07.	Sample MW-21 (10-15') was collected at 1420.	NM	BTEX & MTBE by EPA Method 8021; GRO by AK Method 101	1,100	10
15	NM	SP		POORLY GRADED SAND: Same as above.	No sample collected.	NM	NA	145	15
20									20



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

Monitoring Well Log
Prepared by: Brett Bardsley

Monitoring Well MW-21

MONITORING WELL LOG

WELL NUMBER: **MW-22**

WELL DEPTH: **20 feet bgs** HOLE DIAMETER: **8-Inches**

ARCADIS

PROJECT INFORMATION

PROJECT:	Former Chevron 9-9014
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska
PROJECT NUMBER:	B0045499.0000
LOGGED BY:	Michael Cleary
DATE STARTED:	8-17-07
DATE COMPLETED:	8-17-07

DRILLING INFORMATION

DRILLING CO.:	Discovery Drilling
DRILLER:	Scott Clinkenbeard
DRILLING METHOD:	Hollow Stem Auger
ELEVATION:	Default
REFERENCE:	Default
NORTHING:	Default
EASTING:	Default

WELL CONSTRUCTION

WELL CASING
Material: Schedule 40 PVC
Diameter: 2.0-Inch

WELL SCREEN
Material: Schedule 40 PVC
Diameter: 2-Inch
Opening: 0.02-Inch

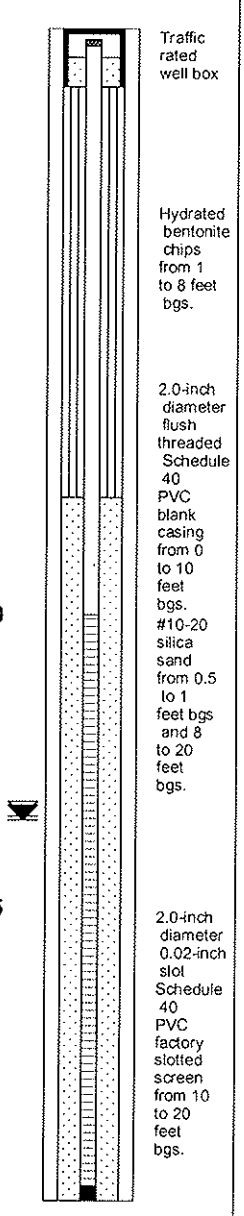
SAND PACK
#10-20 Silica Sand

ANNULUS SEAL
Hydrated Bentonite Chips

GROUT
NA

WATER LEVEL:
During drilling
After completion

DEPTH (ft bgs)	RECOVERY (ft)	USCS	SYMBOL	SOIL DESCRIPTIONS	SAMPLE COLLECTED	BLOWS/FT	ANALYTES	PID (ppm)	DEPTH (ft bgs)
0	NM	NA		ASPHALT AND SUBGRADE	No sample collected.	NM	NA	0.0	0
		CL		SILTY CLAY: tan; medium plasticity; rounded pebbles; no odor; no stains; moist.					
		SP		POORLY GRADED SAND: gray; coarse sand; subangular; poorly sorted; abundant rounded pebbles; no odor; no stains; moist.					
5	NM	SP		POORLY GRADED SAND: gray; coarse sand; subangular; poorly sorted; abundant rounded pebbles; no odor; no stains; moist.	Soil Sample MW-22 (5-10') was collected at 1050.	NM	BTEX & MTBE by EPA Method 8021; GRO by AK Method 101	0.0	5
10	NM	SP		POORLY GRADED SAND: Same as above; wet at 13.5 feet bgs. Note: Depth to water was measured at 13.44 feet below top of casing on 9-10-07.	Soil Sample MW-22 (10-15') was collected at 1055.	NM	BTEX & MTBE by EPA Method 8021; GRO by AK Method 101	0.0	10
15	NM	SP		POORLY GRADED SAND: Same as above.	No sample collected.	NM	NA	0.0	15
20									20



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million; NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX; Privileged and Confidential = Attorney/Client Work Product

Monitoring Well Log
Prepared by: Brett Bardsley

Monitoring Well MW-22

Date Start/Finish: 06/09/08 **Drilling Company:** Discovery Drilling **Driller's Name:** Tim Beckner **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 75 **Sampling Method:** 2' Split Spoon	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 20 **Surface Elevation:** **Descriptions By:** DR	**Well/Boring ID:** **MW-23** **Client:** Chevron **Location:** 3608 Minnesota Avenue, Anchorage, AK

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0										Boring was manually cleared from 0 to 8 feet bgs.	Locking Monument and 2-inch J-Plug Concrete 2-inch Sch. 40 PVC Well Casing Bentonite Seal
5	-5											
		1	8-10	2.0	9 8 12	20	0.6	X			SAND (SP); brown; poorly graded; fine to medium sand; fine subrounded gravel; density (medium); damp.	10/20 Silica Sand
10	-10	2	10-12.5	2.0	6 8 11	19	1.4					2-inch Sch. 40 PVC 0.010-inch Slot Width
		3	12.5-15	2.0	7 10 12	22	2.1	X	SP		Increasing grain size (fine to coarse sand); wet.	
15	-15	4	15-17.5	2.0	7 9 10	19	1.8				1-inch layer of black, brittle material	
		5	17.5-20	2.0	6 9 10	19	0.8		SW		GRAVELLY SAND (SW); gray; fine to coarse sand; fine subrounded gravel; density (medium); wet.	Base of well at 20'
20	-20											

Remarks: bgs = below ground surface

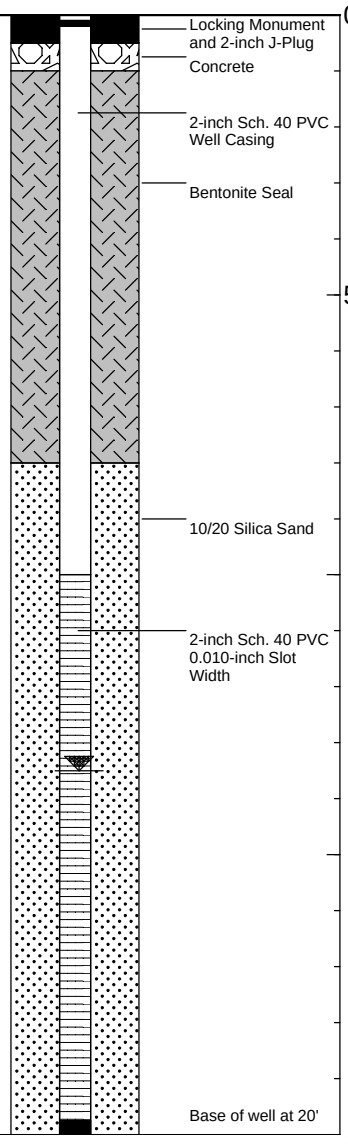
Analytical sample (MW-23-9.0) collected from 9-9.5' bgs; analytical sample (MW-23-12.5) collected from 12.5-13' bgs.

ARCADIS
Infrastructure, environment, facilities

Date Start/Finish: 06/09/08 **Drilling Company:** Discovery Drilling **Driller's Name:** Tim Beckner **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 75 **Sampling Method:** 2' Split Spoon	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 20 **Surface Elevation:** **Descriptions By:** AF	**Well/Boring ID:** **MW-24** **Client:** Chevron **Location:** 3608 Minnesota Avenue, Anchorage, AK

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0										Boring was manually cleared from 0 to 8 feet bgs.
		1	8-10	2.0	4 8 9	17	1.8	X	SP		SAND (SP); dark brown; poorly graded; very fine to medium sand; density (medium); damp.
									SW		GRAVELLY SAND (SW); dark brown; very fine to medium sand; few fine gravel; subrounded to subangular; density (medium); damp.
10	-10	2	10-12.5	2.0	7 8 9	17	2.2	X	SP		SAND (SP); dark brown to yellow-red; poorly graded; very fine to medium sand; trace fine gravel; subrounded to subangular; density (medium); moist.
		3	12.5-15	2.0	8 9 9	18	872				Color change to gray; wet. Heavy hydrocarbon-like odor.
15	-15	4	15-17.5	2.0	6 10 12	22	24.7				
									SW		GRAVELLY SAND (SW); gray; very fine to coarse sand; few fine gravel; subrounded to subangular; density (medium); wet.
		5	17.5-20	2.0	5 8 10	18	28.6		ML		SANDY SILT (ML); gray; nonplastic; very fine sand; trace fine subrounded gravel; density (very stiff); wet.
20	-20										

Well/Boring Construction



ARCADIS
Infrastructure, environment, facilities

Remarks: bgs = below ground surface

Analytical sample (MW-24-9.0) collected from 9-9.5' bgs; analytical sample (MW-24-12) collected from 12-12.5' bgs.

Date Start/Finish: 06/06/08 **Drilling Company:** Discovery Drilling **Driller's Name:** Tim Beckner **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 75 **Sampling Method:** 2' Split Spoon	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 20 **Surface Elevation:** **Descriptions By:** AF	**Well/Boring ID:** **MW-25** **Client:** Chevron **Location:** 3608 Minnesota Avenue, Anchorage, AK

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0										Boring was manually cleared from 0 to 8 feet bgs.	Locking Monument and 2-inch J-Plug Concrete 2-inch Sch. 40 PVC Well Casing Bentonite Seal
5	-5											
		1	8-10	2.0	5 5 9	14	0.8	X	SP		SAND (SP); dark brown; poorly graded; very fine to medium sand; trace fine gravel; subrounded to subangular; density (medium); damp.	10/20 Silica Sand
10	-10	2	10-12.5	2.0	5 9 9	18	0.5					2-inch Sch. 40 PVC 0.010-inch Slot Width
		3	12.5-15	2.0	7 8 10	18	3.1	X			Wet. Increasing coarse sand.	
15	-15	4	15-17.5	2.0	5 10 12	22	1.2				SAND (SP); gray; poorly graded; very fine to coarse sand; trace fine gravel; subrounded to subangular; density (medium); wet.	
		5	17.5-20	2.0	4 6 8	14	0.6				Decreasing fine gravel.	Base of well at 20'
20	-20											

ARCADIS
Infrastructure, environment, facilities

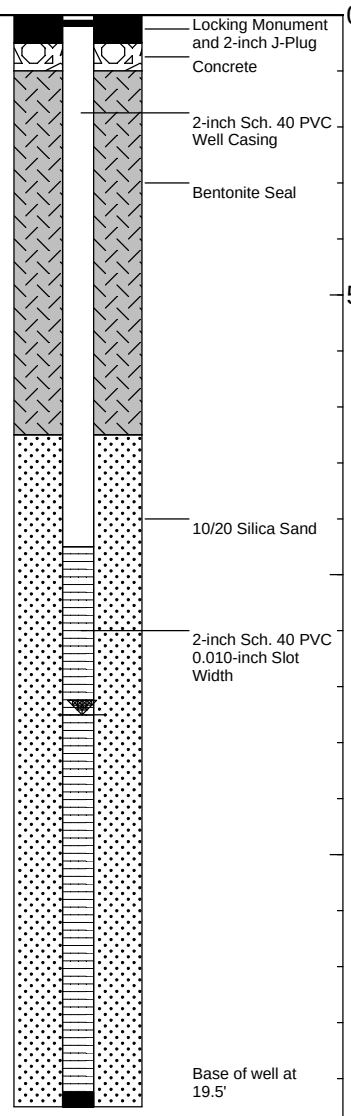
Remarks: bgs = below ground surface

Analytical sample (MW-25-9.0) collected from 9-9.5' bgs; analytical sample (MW-25-13) collected from 13-13.5' bgs.

Date Start/Finish: 06/05/08 **Drilling Company:** Discovery Drilling **Driller's Name:** Tim Beckner **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 75 **Sampling Method:** 2' Split Spoon	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 20 **Surface Elevation:** **Descriptions By:** DR	**Well/Boring ID:** **MW-26** **Client:** Chevron **Location:** 3608 Minnesota Avenue, Anchorage, AK

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0										Boring was manually cleared from 0 to 8 feet bgs.
		1	8-10	2.0	6 7 6	13	1.0	X	SP		SAND (SP); brown; poorly graded; fine to medium sand; fine subrounded gravel; trace fines; density (medium); moist.
											SAND (SP); gray; poorly graded; very fine to fine sand; density (medium); moist.
5	-5										
10	-10	2	10-12.5	2.0	6 6 6	12	0.9				
		3	12.5-15	2.0	9 11 10	21	152	X	SW		GRAVELLY SAND (SW); dark brown; fine to coarse sand; fine subrounded gravel; trace fines; density (medium); wet. Strong hydrocarbon-like odor.
15	-15	4	15-17.5	2.0	6 9 7	16	880		SP		SAND (SP); gray; poorly graded; very fine to coarse sand; trace fine subrounded gravel; density (medium); wet. Strong hydrocarbon-like odor.
									SW		GRAVELLY SAND (SW); gray; fine to coarse sand; fine to medium subrounded gravel; density (medium); wet. Strong hydrocarbon-like odor.
		5	17.5-20	2.0	6 8 7	15	1.7		SP		SAND (SP); gray; poorly graded; very fine to fine sand; density (medium); wet.
20	-20								ML		SANDY SILT (ML); gray; nonplastic; very fine sand; density stiff); wet.

Well/Boring Construction



ARCADIS
Infrastructure, environment, facilities

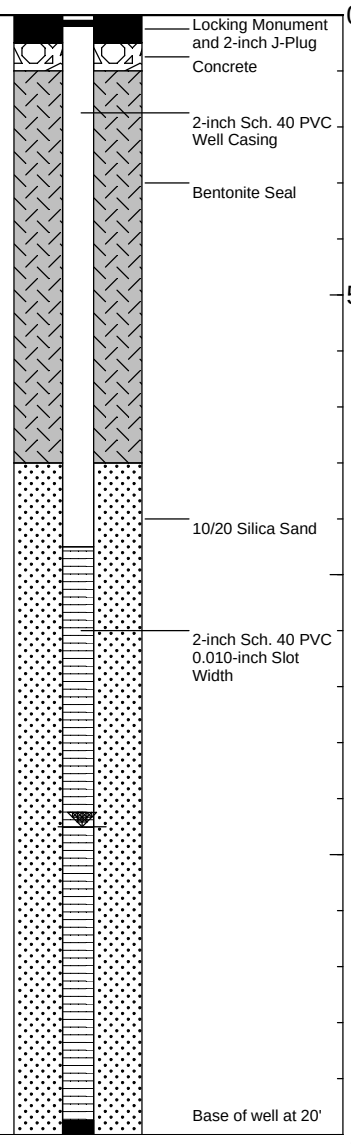
Remarks: bgs = below ground surface

Analytical sample (MW-26-8.0) collected from 8-8.5' bgs; analytical sample (MW-26-12.5) collected from 12.5-13' bgs.

Date Start/Finish: 06/05/08 **Drilling Company:** Discovery Drilling **Driller's Name:** Tim Beckner **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 75 **Sampling Method:** 2' Split Spoon	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 20 **Surface Elevation:** **Descriptions By:** AF	**Well/Boring ID:** **MW-27** **Client:** Chevron **Location:** 3608 Minnesota Avenue, Anchorage, AK

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0										Boring was manually cleared from 0 to 8 feet bgs.
5	-5										
		1	8-10	2.0	8 8 7	15	1.2	X			SAND (SP); brown; poorly graded; trace fine gravel; subrounded to subangular; density (medium); damp.
10	-10	2	10-12.5	2.0	6 6 8	14	4.9	X			Decreasing fine gravel.
		3	12.5-15	2.0	10 8 6	14	1,337	X	SP		SAND (SP); gray; poorly graded; trace (1-inch layer) of dark gray brittle material; density (medium); moist; wet at 14.5' bgs. Heavy hydrocarbon-like odor.
15	-15	4	15-17.5	2.0	8 9 8	17	601				Increasing coarse sand.
		5	17.5-20	2.0	5 4 4	8	173				Decreasing coarse sand.
20	-20										

Well/Boring Construction



ARCADIS
Infrastructure, environment, facilities

Remarks: bgs = below ground surface

Analytical sample (MW-27-8) collected from 8-8.5' bgs; analytical sample (MW-27-12) collected from 12-12.5' bgs; analytical sample (MW-27-14) collected from 14-14.5' bgs.

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
S.Coyle	11/30/04 12/1/04	Discovery Drilling	Chevron Station #9-9014 3608 Minnesota Anchorage, AK	Hollow-Stem Auger CME-75	BA-1

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8	~90	▽ 13 First Encountered ▼ 13.45 Static	17.0	320	30

Backfill Details	Depth, (ft.)	Sample Type	Blows/6"	Description	PID Readings (PPM)	Laboratory Analysis	Sample ID
Asphalt				Asphalt Surface			
Cement/Sand Slurry				**WELL GRADED GRAVEL with sand (GW):** Very dark grayish brown (2.5Y 3/2); moist; fine to coarse gravel; 30-40% fine- to coarse-grained sand subangular to subrounded; 5% fines; cobbles to 4'; no hydrocarbon odor.			
	5			**WELL GRADED SAND with silt (SW-SM):** Very dark grayish brown (2.5Y 3/2); damp; fine- to coarse-grained sand subangular to subrounded; 10% silt; 5% gravel; no hydrocarbon odor.	0.0	AK101 8260B	BA-1-5
Hydrated Bentonite Granules	10						
			4 5 4	**Same As Above (SW-SM)**	0.0	AK101 8260B	BA-1-13
	15			Groundwater sample collected at 13.45-17'		AK101 8260B	BA-1
				Total Depth = 17 feet below ground surface Groundwater sample collected by installing temporary 2-inch diameter PVC casing w/ a 5 foot section of 0.020-inch slotted PVC at the bottom. Approximately 2.5 gallons was purged prior to collecting sample. Groundwater sample collected with clean disposable bailer.			

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **04CH.99014.00** Date **December 2004**

Log of Boring

9-9014 BORING LOGS.GPJ
LOG OF BOREHOLE

Approved by _____

Figure **BA-1** (sheet 1 of 1)

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
S.Coyle	11/30/04 12/1/04	Discovery Drilling	Chevron Station #9-9014 3608 Minnesota Anchorage, AK	Hollow-Stem Auger CME-75	BA-2

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8	~90	▽ 13 First Encountered ▼ 12.82 Static	17.0	320	30

Backfill Details	Depth, (ft.)	Sample Type	Blows/6"	Description	PID Readings (PPM)	Laboratory Analysis	Sample ID
Asphalt				Asphalt Surface			
Cement/Sand Slurry				**WELL GRADED GRAVEL with sand (GW):** Dark olive brown (2.5Y 3/3); moist; fine to coarse gravel; 20-30% fine- to coarse-grained sand subangular to subrounded; 5% fines; cobbles to 5'; no hydrocarbon odor.			
	5			**WELL GRADED SAND (SW):** Dark olive brown (2.5Y 3/3); damp; fine- to coarse-grained sand subangular to subrounded; 10-20% fine to coarse gravel; 5% fines; no hydrocarbon odor.	0.0	AK101 8260B	BA-2-5
Hydrated Bentonite Granules	10		8 8 9	**Same As Above (SW)**	0.0	AK101 8260B	BA-2-12.5
	15			Groundwater sample collected at 12.82-17'		AK101 8260B	BA-2
				Total Depth = 17 feet below ground surface Groundwater sample collected by installing temporary 2-inch diameter PVC casing w/ a 5 foot section of 0.020-inch slotted PVC at the bottom. Approximately 2.5 gallons was purged prior to collecting sample. Groundwater sample collected with clean disposable bailer.			

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **04CH.99014.00** Date **December 2004**

Log of Boring

9-9014 BORING LOGS.GPJ
LOG OF BOREHOLE

Approved by _____

Figure **BA-2** (sheet 1 of 1)

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
S.Coyle	11/30/04 12/1/04	Discovery Drilling	Chevron Station #9-9014 3608 Minnesota Anchorage, AK	Hollow-Stem Auger CME-75	BA-3

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8	~90	▽ 13 First Encountered ▼ 12.77 Static	17.0	320	30

Backfill Details	Depth, (ft.)	Sample Type	Blows/6"	Description	PID Readings (PPM)	Laboratory Analysis	Sample ID
Asphalt				Asphalt Surface			
Cement/Sand Slurry				**WELL GRADED GRAVEL with sand (GW):** Dark grayish brown (2.5Y 4/2); moist; fine to coarse gravel; 30-45% fine- to medium-grained sand subangular to subrounded; 5% fines; cobbles to 5'; no hydrocarbon odor.			
	5			**SILTY SAND (SM):** Dark grayish brown (2.5Y 4/2); moist; fine- to medium-grained sand subangular to subrounded; 20-30% silt; organic matter; no hydrocarbon odor.	0.0	AK101 8260B	BA-3-5
Hydrated Bentonite Granules	10		7 7 11				
				WELL GRADED SAND with gravel (SW): Dark grayish brown (2.5 Y 4/2); moist to wet; fine- to coarse-grained sand subangular to subrounded; 10-20% fine to coarse gravel; 5% silt; no hydrocarbon odor. Groundwater sample collected at 12.77-17'	0.0	AK101 8260B AK101 8260B	BA-3-12.5 BA-3
	15						
				Total Depth = 17 feet below ground surface Groundwater sample collected by installing temporary 2-inch diameter PVC casing w/ a 5 foot section of 0.020-inch slotted PVC at the bottom. Approximately 2.5 gallons was purged prior to collecting sample. Groundwater sample collected with clean disposable bailer.			

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **04CH.99014.00** Date **December 2004**

Log of Boring

9-9014 BORING LOGS.GPJ
LOG OF BOREHOLE

Approved by _____

Figure **BA-3** (sheet 1 of 1)

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
S.Coyle	11/30/04 12/1/04	Discovery Drilling	Chevron Station #9-9014 3608 Minnesota Anchorage, AK	Hollow-Stem Auger CME-75	BA-4

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8	~90	▽ 13 First Encountered ▼ 13.27 Static	17.0	320	30

Backfill Details	Depth, (ft.)	Sample Type	Blows/6"	Description	PID Readings (PPM)	Laboratory Analysis	Sample ID
Asphalt				Asphalt Surface			
Cement/Sand Slurry				**WELL GRADED GRAVEL with sand (GW):** Dark grayish brown (2.5Y 4/2); moist; fine to coarse gravel; 30-45% fine- to medium-grained sand subangular to subrounded; 5% fines; cobbles to 4'; no hydrocarbon odor.			
	5			**WELL GRADED SAND with silt (SW-SM):** Olive brown (2.5Y 4/4); damp; fine to coarse-grained sand subangular to subrounded; 10% silt; 5% gravel rounded; no hydrocarbon odor.	0.0	AK101 8260B	BA-4-5
Hydrated Bentonite Granules	10						
			5 7 10	**Same As Above (SW-SM)**	0.0	AK101 8260B	BA-4-13
	15			Groundwater sample collected at 13.27-17'		AK101 8260B	BA-4
				Total Depth = 17 feet below ground surface Groundwater sample collected by installing temporary 2-inch diameter PVC casing w/ a 5 foot section of 0.020-inch slotted PVC at the bottom. Approximately 2.5 gallons was purged prior to collecting sample. Groundwater sample collected with clean disposable bailer.			

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **04CH.99014.00** Date **December 2004**

Log of Boring

9-9014 BORING LOGS.GPJ
LOG OF BOREHOLE

Approved by _____

Figure **BA-4** (sheet 1 of 1)

SECOR
International Incorporated

Logged By:	Dates Drilled:	Drilling Contractor	Project Name:	Method/Equipment:	Boring Number:
S.Coyle	11/30/04 12/1/04	Discovery Drilling	Chevron Station #9-9014 3608 Minnesota Anchorage, AK	Hollow-Stem Auger CME-75	BA-5

See "Legend to Logs" for sampling method, classifications and laboratory testing methods	Boring Diam.(in.):	Surface Elev.(ft.):	Groundwater Depth (ft.):	Total Depth (ft.):	Drive wt.(lbs.):	Drop Dist.(in.):
	8	~90	▽ 13 First Encountered ▼ 13.7 Static	17.0	320	30

Backfill Details	Depth, (ft.)	Sample Type	Blows/6"	Description	PID Readings (PPM)	Laboratory Analysis	Sample ID
Asphalt				Asphalt Surface			
Cement/Sand Slurry				**WELL GRADED GRAVEL with sand (GW):** Dark grayish brown (2.5Y 4/2); moist; fine to coarse-grained gravel; 20-30% fine- to coarse-grained sand subangular to subrounded; 5% fines; cobbles to 5'; no hydrocarbon odor.			
	5			**SAND with silt (SW-SM):** Dark olive brown (2.5Y 3/3); damp; fine- to coarse-grained sand subangular to subrounded; 5-10% silt; no hydrocarbon odor.	0.0	AK101 8260B	BA-5-5
Hydrated Bentonite Granules	10		5 7 10				
				WELL GRADED SAND with gravel (SW): Dark olive brown (2.5Y 3/3); damp fine to coarse-grained sand subangular to subrounded; 10-20% fine to medium-grained gravel; 5% silt; no hydrocarbon odor.. Groundwater sample collected at 13.70-17'	0.0	AK101 8260B AK101 8260B	BA-5-13 BA-5
	15						
				Total Depth = 17 feet below ground surface Groundwater sample collected by installing temporary 2-inch diameter PVC casing w/ a 5 foot section of 0.020-inch slotted PVC at the bottom. Approximately 2.5 gallons was purged prior to collecting sample. Groundwater sample collected with clean disposable bailer.			

The substrata descriptions above are generalized representations and based upon visual/manual classification of cuttings and/or samples obtained during drilling. Predominant material types shown on the log may contain different materials and the change from one predominant material type to another could be different than indicated. Descriptions on this log apply only at the specific location at the time of drilling and may not be representative of subsurface conditions at other locations or times.

Project No. **04CH.99014.00** Date **December 2004**

Log of Boring

9-9014 BORING LOGS.GPJ
LOG OF BOREHOLE

Approved by _____

Figure **BA-5** (sheet 1 of 1)

Monitoring Well Geologic & Construction Log

Project Number	[redacted]	Sheet
31-0148908		1 of 1

Project	CHEVRON STATION No. 9-9014	Location	ANCHORAGE, ALASKA
Elevation (Top of Well Casing)	XXX	Surface Elevation	XXX
Water Level Elevation	13 ft. ADT	Start Date	9/20/95 — Start Time 9:00
Drilling Contractor	AMBLER	Finish Date	9/20/95 — Finish Time 9:30
Drilling Method	SIMPCO. 4 1/4" ID. HSA. PLUG		

Depth feet	Well Construction	Lab Tests	ST	Blows/6"	OVM Reading	Description
	Flush mounted steel monument compression cap					tan, saturated, SW, SAND
	native backfill					
5						dark grey-blk, damp, SW, SAND
	grout seal					
10	2.0" schedule 80 PVC					dark grey-blk, saturated, SW, SAND w/ gravel
	ATD					
15	bentonite seal					
	8/12 silica sand filter pack 2 sacks					saturated, grey, SP , SAND slight petroleum type odor
20	well screen 2.0" ID schedule 80 PVC with 0.020" slots					
25	slip endcap					TOTAL DEPTH 24 ft. — tan, saturated, SW , SAND

ST – Sampler Type:
- I 2" OD Split Spoon
- 0 Bulk Grab Sample
- 0 Drive Barrel

Lab Tests:
- S – Soil Properties
- C – Chemical Properties
- ▼ Water Level (at time of drilling)

Logged by: JBB
Approved by: JJL

FIGURE 1

AGRA Earth & Environmental
711 H Street, Suite 450
Anchorage, AK, U.S.A. 99501

W.O.	31-01489-08
DESIGN	CHEVRON
DRAWN	RRM
DATE	OCT. 6, 1995
SCALE	NOT TO SCALE

CHEVRON STATION No. 9-9014
3608 MINNESOTA DRIVE
ANCHORAGE, ALASKA

TEST BORING LOG
WELL No. AS-1

AGRA EARTH & ENVIRONMENTAL, INC. DRAWING NO. \T:\projects\1589\mwAS1.DWG

Monitoring Well Geologic & Construction Log

Project Number	Well Number	Sheet
31-0148908	[redacted]	1 of 1

Project	CHEVRON STATION No. 9-9014	Location	ANCHORAGE, ALASKA
Elevation (Top of Well Casing)	XXX	Surface Elevation	XXX
Water Level Elevation	13 ft. ADT	Start Date	9/20/95
Drilling Contractor	AMBLER	Start Time	15:00
Drilling Method	SIMPCO, 4 1/4" ID, HSA, PLUG	Finish Date	9/20/95
		Finish Time	16:30

Depth feet	Well Construction	Lab Tests	ST	Blows/6"	OVM Reading	Description
	Flush mounted steel monument compression cap					tan, damp, SW, SAND
	native backfill					
5						dark grey-blk, damp, SW, SAND
	grout seal					
10	2.0" schedule 80 PVC					
	AID					saturated, grey, SP, SAND w/gravel
						slight petroleum type odor
15	bentonite seal					
	8/12 silica sand filter pack 2 sacks					saturated, grey, SP, SAND slight petroleum type odor
20	well screen 2.0" ID schedule 80 PVC with 0.020" slots					
25	slip endcap					TOTAL DEPTH 25 ft.

ST – Sampler Type:
- I 2" OD Split Spoon
- B Bulk Grab Sample
- D Drive Barrel

Lab Tests:
- S – Soil Properties
- C – Chemical Properties
- ▼ Water Level (at time of drilling)

Logged by: JBB
Approved by: JJL

FIGURE 2

AGRA Earth & Environmental
711 H Street, Suite 450
Anchorage, AK, U.S.A. 99501

W.O.	31-01489-08
DESIGN	CHEVRON
DRAWN	RRM
DATE	OCT. 6, 1995
SCALE	NOT TO SCALE

CHEVRON STATION No. 9-9014
3608 MINNESOTA DRIVE
ANCHORAGE, ALASKA

TEST BORING LOG
WELL No. AS-2

Monitoring Well Geologic & Construction Log

Project Number	Well Number	Sheet
31-0148908	AS-3	1 of 1

Project: CHEVRON STATION No. 9-9014
Location: ANCHORAGE, ALASKA
Elevation (Top of Well Casing): XXX
Surface Elevation: XXX
Water Level Elevation: 13 ft. ADT
Start Date: 9/20/95 Start Time: 17:00
Drilling Contractor: AMBLER
Finish Date: 9/20/95 Finish Time: 18:00
Drilling Method: SIMPCO, 4 1/4" ID, HSA, PLUG

Depth feet	Well Construction	Lab Tests	ST	Blows/6"	OVM Reading	Description
	Flush mounted steel monument compression cap					saturated, tan, SW SAND
	native backfill					
5						brown-black, SW, SAND
	grout seal					
10	2.0" schedule 80 PVC					saturated, grey, SP-GP, SAND w/GRAVEL
	ATD					
15	bentonite seal					
	8/12 silica sand filter pack 2 sacks					
20	well screen 2.0" ID schedule 80 PVC with 0.020" slots					saturated, grey, SP, SAND
25	slip endcap					TOTAL DEPTH 24.5 ft.

ST - Sampler Type:
- I 2" OD Split Spoon
- ▯ Bulk Grab Sample
- ▯ Drive Barrel

Lab Tests:
- S - Soil Properties
- C - Chemical Properties
- ▼ Water Level (at time of drilling)

Logged by: JBB
Approved by: JJL

FIGURE 3

AGRA Earth & Environmental
711 H Street, Suite 450
Anchorage, AK, U.S.A. 99501

W.O.	31-01489-08
DESIGN	CHEVRON
DRAWN	RRM
DATE	OCT. 6, 1995
SCALE	NOT TO SCALE

CHEVRON STATION No. 9-9014
3608 MINNESOTA DRIVE
ANCHORAGE, ALASKA

TEST BORING LOG
WELL No. AS-3

AGRA EARTH & ENVIRONMENTAL, INC. DRAWING NO. \I:\projects\1589\mwtAS3.DWG

AIR SPARGE WELL LOG

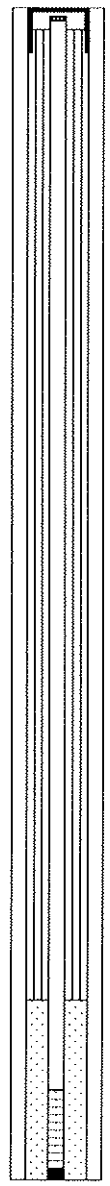
WELL NUMBER: **AS-4**

WELL DEPTH: **26 feet bgs** HOLE DIAMETER: **8-Inches**

PROJECT INFORMATION		DRILLING INFORMATION		WELL CONSTRUCTION	
PROJECT:	Former Chevron 9-9014	DRILLING CO.:	Discovery Drilling	WELL CASING	SAND PACK
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska	DRILLER:	Scott Clinkenbeard	Material: Schedule 40 PVC	No. 3 Silica Sand
PROJECT NUMBER:	B0045499.0000	DRILLING METHOD:	Hollow Stem Auger	Diameter: 2.0-Inch	
LOGGED BY:	Michael Cleary	ELEVATION:	NM	WELL SCREEN	ANNULUS SEAL
DATE STARTED:	8-20-07	REFERENCE:	NM	Material: Schedule 40 PVC	Bentonite Slurry
DATE COMPLETED:	8-20-07	NORTHING:	NM	Diameter: 2-Inch	GROUT
		EASTING:	NM	Opening: 0.02-Inch	NA

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTIONS	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: BLOWS/FT	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0				Boring was manually cleared by Alaska Pipeliners from 0 to 8 feet bgs.					
5									
10									
15									
20									
25									

WATER LEVEL:
During drilling
After completion



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

AIR SPARGE WELL LOG

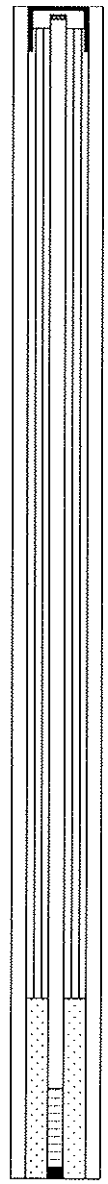
WELL NUMBER: **AS-5**

WELL DEPTH: **26 feet bgs** HOLE DIAMETER: **8-Inches**

PROJECT INFORMATION		DRILLING INFORMATION		WELL CONSTRUCTION	
PROJECT:	Former Chevron 9-9014	DRILLING CO.:	Discovery Drilling	WELL CASING	SAND PACK
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska	DRILLER:	Scott Clinkenbeard	Material: Schedule 40 PVC	No. 3 Silica Sand
PROJECT NUMBER:	B0045499.0000	DRILLING METHOD:	Hollow Stem Auger	Diameter: 2.0-Inch	
LOGGED BY:	Michael Cleary	ELEVATION:	NM	WELL SCREEN	ANNULUS SEAL
DATE STARTED:	8-20-07	REFERENCE:	NM	Material: Schedule 40 PVC	Bentonite Slurry
DATE COMPLETED:	8-22-07	NORTHING:	NM	Diameter: 2-Inch	GROUT
		EASTING:	NM	Opening: 0.02-Inch	NA

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTIONS	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: BLOWS/FT	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0				Boring was manually cleared by Alaska Pipeliners from 0 to 8 feet bgs.					
5									
10									
15									
20									
25									

WATER LEVEL:
During drilling
After completion



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

AIR SPARGE WELL LOG

WELL NUMBER: **AS-6**

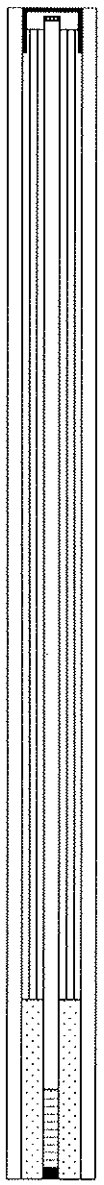
WELL DEPTH: **26 feet bgs** HOLE DIAMETER: **8-Inches**

ARCADIS

PROJECT INFORMATION		DRILLING INFORMATION		WELL CONSTRUCTION	
PROJECT:	Former Chevron 9-9014	DRILLING CO.:	Discovery Drilling	WELL CASING	SAND PACK
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska	DRILLER:	Scott Clinkenbeard	Material: Schedule 40 PVC	No. 3 Silica Sand
PROJECT NUMBER:	B0045499.0000	DRILLING METHOD:	Hollow Stem Auger	Diameter: 2.0-Inch	
LOGGED BY:	Michael Cleary	ELEVATION:	NM	WELL SCREEN	ANNULUS SEAL
DATE STARTED:	8-24-07	REFERENCE:	NM	Material: Schedule 40 PVC	Bentonite Slurry
DATE COMPLETED:	8-24-07	NORTHING:	NM	Diameter: 2-Inch	GROUT
		EASTING:	NM	Opening: 0.02-Inch	NA

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTIONS	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: BLOWS/FT	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0				Boring was manually cleared by Alaska Pipeliners from 0 to 8 feet bgs.					
5									
10									
15									
20									
25									

WATER LEVEL:
- During drilling
- After completion



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million; NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX; Privileged and Confidential = Attorney/Client Work Product

Air Sparge Well Log

Prepared by: Brett Bardsley

Air Sparge Well AS-6

AIR SPARGE WELL LOG

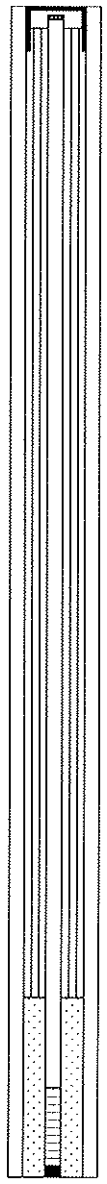
WELL NUMBER: **AS-7**

WELL DEPTH: **26 feet bgs** HOLE DIAMETER: **8-Inches**

PROJECT INFORMATION		DRILLING INFORMATION		WELL CONSTRUCTION	
PROJECT:	Former Chevron 9-9014	DRILLING CO.:	Discovery Drilling	WELL CASING	SAND PACK
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska	DRILLER:	Scott Clinkenbeard	Material: Schedule 40 PVC	No. 3 Silica Sand
PROJECT NUMBER:	B0045499.0000	DRILLING METHOD:	Hollow Stem Auger	Diameter: 2.0-Inch	
LOGGED BY:	Michael Cleary	ELEVATION:	NM	WELL SCREEN	ANNULUS SEAL
DATE STARTED:	8-23-07	REFERENCE:	NM	Material: Schedule 40 PVC	Bentonite Slurry
DATE COMPLETED:	8-23-07	NORTHING:	NM	Diameter: 2-Inch	GROUT
		EASTING:	NM	Opening: 0.02-Inch	NA

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTIONS	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: BLOWS/FT	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0				Boring was manually cleared by Alaska Pipeliners from 0 to 8 feet bgs.					0
5									5
10									10
15									15
20									20
25									25

WATER LEVEL:
- During drilling
- After completion



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

Air Sparge Well Log
Prepared by: Brett Bardsley

Air Sparge Well AS-7

AIR SPARGE WELL LOG

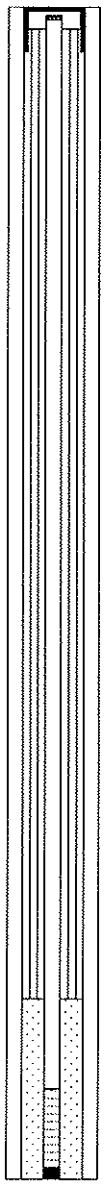
WELL NUMBER: **AS-8**

WELL DEPTH: **26 feet bgs** HOLE DIAMETER: **8-inches**

PROJECT INFORMATION		DRILLING INFORMATION		WELL CONSTRUCTION	
PROJECT:	Former Chevron 9-9014	DRILLING CO.:	Discovery Drilling	WELL CASING	SAND PACK
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska	DRILLER:	Scott Clinkenbeard	Material: Schedule 40 PVC	No. 3 Silica Sand
PROJECT NUMBER:	B0045499.0000	DRILLING METHOD:	Hollow Stem Auger	Diameter: 2.0-Inch	
LOGGED BY:	Michael Cleary	ELEVATION:	NM	WELL SCREEN	ANNULUS SEAL
DATE STARTED:	8-24-07	REFERENCE:	NM	Material: Schedule 40 PVC	Bentonite Slurry
DATE COMPLETED:	8-24-07	NORTHING:	NM	Diameter: 2-Inch	GROUT
		EASTING:	NM	Opening: 0.02-Inch	NA

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTIONS	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: BLOWS/FT	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0				Boring was manually cleared by Alaska Pipeliners from 0 to 8 feet bgs.					
5									
10									
15									
20									
25									

WATER LEVEL:
During drilling
After completion



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

Air Sparge Well Log
Prepared by: Brett Bardsley

Air Sparge Well AS-8

AIR SPARGE WELL LOG

WELL NUMBER: **AS-9**

WELL DEPTH: **26 feet bgs** HOLE DIAMETER: **8-Inches**

ARCADIS

PROJECT INFORMATION		DRILLING INFORMATION		WELL CONSTRUCTION	
PROJECT:	Former Chevron 9-9014	DRILLING CO.:	Discovery Drilling	WELL CASING	SAND PACK
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska	DRILLER:	Scott Clinkenbeard	Material: Schedule 40 PVC	No. 3 Silica Sand
PROJECT NUMBER:	B0045499.0000	DRILLING METHOD:	Hollow Stem Auger	Diameter: 2.0-Inch	
LOGGED BY:	Michael Cleary	ELEVATION:	NM	WELL SCREEN	ANNULUS SEAL
DATE STARTED:	8-23-07	REFERENCE:	NM	Material: Schedule 40 PVC	Bentonite Slurry
DATE COMPLETED:	8-23-07	NORTHING:	NM	Diameter: 2-Inch	GROUT
		EASTING:	NM	Opening: 0.02-Inch	NA

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTIONS	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: BLOWS/FT	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0				Boring was manually cleared by Alaska Pipeliners from 0 to 8 feet bgs.					
5									
10									
15									
20									
25									

WATER LEVEL:
During drilling
After completion

Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

AIR SPARGE WELL LOG

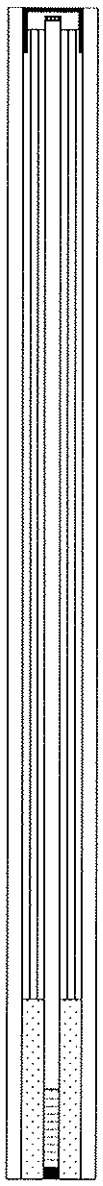
WELL NUMBER: **AS-10**

WELL DEPTH: **26 feet bgs** HOLE DIAMETER: **8-Inches**

PROJECT INFORMATION		DRILLING INFORMATION		WELL CONSTRUCTION	
PROJECT:	Former Chevron 9-9014	DRILLING CO.:	Discovery Drilling	WELL CASING	SAND PACK
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska	DRILLER:	Scott Clinkenbeard	Material: Schedule 40 PVC	No. 3 Silica Sand
PROJECT NUMBER:	B0045499.0000	DRILLING METHOD:	Hollow Stem Auger	Diameter: 2.0-Inch	
LOGGED BY:	Michael Cleary	ELEVATION:	NM	WELL SCREEN	ANNULUS SEAL
DATE STARTED:	8-23-07	REFERENCE:	NM	Material: Schedule 40 PVC	Bentonite Slurry
DATE COMPLETED:	8-23-07	NORTHING:	NM	Diameter: 2-Inch	GROUT
		EASTING:	NM	Opening: 0.02-Inch	NA

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTIONS	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: BLOWS/FT	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0				Boring was manually cleared by Alaska Pipeliners from 0 to 8 feet bgs.					
5									
10									
15									
20									
25									

WATER LEVEL:
During drilling
After completion



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

AIR SPARGE WELL LOG

WELL NUMBER: **AS-11**

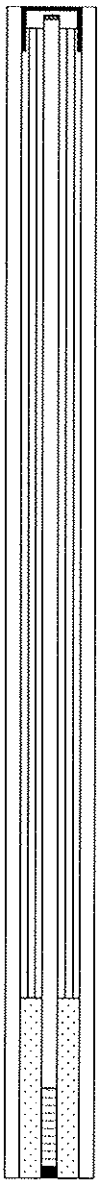
WELL DEPTH: **26 feet bgs** HOLE DIAMETER: **8-Inches**

ARCADIS

PROJECT INFORMATION		DRILLING INFORMATION		WELL CONSTRUCTION	
PROJECT:	Former Chevron 9-9014	DRILLING CO.:	Discovery Drilling	WELL CASING	SAND PACK
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska	DRILLER:	Scott Clinkenbeard	Material: Schedule 40 PVC	No. 3 Silica Sand
PROJECT NUMBER:	B0045499.0000	DRILLING METHOD:	Hollow Stem Auger	Diameter: 2.0-Inch	
LOGGED BY:	Michael Cleary	ELEVATION:	NM	WELL SCREEN	ANNULUS SEAL
DATE STARTED:	8-24-07	REFERENCE:	NM	Material: Schedule 40 PVC	Bentonite Slurry
DATE COMPLETED:	8-24-07	NORTHING:	NM	Diameter: 2-Inch	GROUT
		EASTING:	NM	Opening: 0.02-Inch	NA

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTIONS	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: BLOWS/FT	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0				Boring was manually cleared by Alaska Pipeliners from 0 to 8 feet bgs.					
5									
10									
15									
20									
25									

WATER LEVEL:
During drilling
After completion



Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

Air Sparge Well Log
Prepared by: Brett Bardsley

Air Sparge Well AS-11

AIR SPARGE WELL LOG

WELL NUMBER: **AS-12**

WELL DEPTH: **26 feet bgs** HOLE DIAMETER: **8-Inches**

PROJECT INFORMATION		DRILLING INFORMATION		WELL CONSTRUCTION	
PROJECT:	Former Chevron 9-9014	DRILLING CO.:	Discovery Drilling	WELL CASING	SAND PACK
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska	DRILLER:	Scott Clinkenbeard	Material: Schedule 40 PVC	No. 3 Silica Sand
PROJECT NUMBER:	B0045499.0000	DRILLING METHOD:	Hollow Stem Auger	Diameter: 2.0-inch	
LOGGED BY:	Michael Cleary	ELEVATION:	NM	WELL SCREEN	ANNULUS SEAL
DATE STARTED:	8-23-07	REFERENCE:	NM	Material: Schedule 40 PVC	Bentonite Slurry
DATE COMPLETED:	8-23-07	NORTHING:	NM	Diameter: 2-Inch	GROUT
		EASTING:	NM	Opening: 0.02-Inch	NA

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTIONS	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: BLOWS/FT	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0				Boring was manually cleared by Alaska Pipeliners from 0 to 8 feet bgs.					0
5									5
10									10
15									15
20									20
25									25

WATER LEVEL:
During drilling
After completion

Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

AIR SPARGE WELL LOG

WELL NUMBER: **AS-13**

WELL DEPTH: **26 feet bgs** HOLE DIAMETER: **8-Inches**

PROJECT INFORMATION		DRILLING INFORMATION		WELL CONSTRUCTION	
PROJECT:	Former Chevron 9-9014	DRILLING CO.:	Discovery Drilling	WELL CASING	SAND PACK
SITE LOCATION:	3608 Minnesota Drive, Anchorage, Alaska	DRILLER:	Scott Clinkenbeard	Material: Schedule 40 PVC	No. 3 Silica Sand
PROJECT NUMBER:	B0045499.0000	DRILLING METHOD:	Hollow Stem Auger	Diameter: 2.0-Inch	
LOGGED BY:	Michael Cleary	ELEVATION:	NM	WELL SCREEN	ANNULUS SEAL
DATE STARTED:	8-23-07	REFERENCE:	NM	Material: Schedule 40 PVC	Bentonite Slurry
DATE COMPLETED:	8-23-07	NORTHING:	NM	Diameter: 2-Inch	GROUT
		EASTING:	NM	Opening: 0.02-Inch	NA

DEPTH (ft bgs)	RECOVERY (ft)	LITHOLOGY: USCS	LITHOLOGY: SYMBOL	LITHOLOGY: SOIL DESCRIPTIONS	SAMPLING DETAIL: SAMPLE COLLECTED	SAMPLING DETAIL: BLOWS/FT	SAMPLING DETAIL: ANALYTES	SAMPLING DETAIL: PID (ppm)	SAMPLING DETAIL: DEPTH (ft bgs)
0				Boring was manually cleared by Alaska Pipeliners from 0 to 8 feet bgs.					
5									
10									
15									
20									
25									

WATER LEVEL:
- During drilling
- After completion

Measuring point is ground surface unless otherwise noted.

Notes: ft bgs = feet below ground surface; ppm = part per million;
NA = not applicable; NM = not measured, USCS = Unified Soil Classification System; benzene, toulene, ethylbenzene, total xylenes = BTEX;
Privileged and Confidential = Attorney/Client Work Product

Date Start/Finish: 06/06/08 **Drilling Company:** Discovery Drilling **Driller's Name:** Tim Beckner **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 75 **Sampling Method:** 2' Split Spoon	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 20 **Surface Elevation:** **Descriptions By:** DR	**Well/Boring ID:** **SB-1** **Client:** Chevron **Location:** 3608 Minnesota Avenue, Anchorage, AK

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0										Boring was manually cleared from 0 to 8 feet bgs.	Borehole capped with asphalt patch Borehole backfilled with Bentonite
5	-5											
		1	8-10	2.0	4 5 6	11	0.5	X	SP		SAND (SP); brown; poorly graded; very fine to medium sand; fine subrounded gravel; density (medium); damp.	
10	-10	2	10-12.5	2.0	7 8 5	13	1.7				Decreasing gravel. Wet.	
		3	12.5-15	2.0	8 9 11	20	171	X	SW		GRAVELLY SAND (SW); gray; fine to medium sand; fine subrounded gravel; density (medium); wet. Moderate hydrocarbon-like odor. Color change to red from 14.5-15' bgs.	
15	-15	4	15-17.5	2.0	4 6 9	15	1265 48.7					
		5	17.5-20	2.0	5 7 8	15	0.0		SP		SAND (SP); gray; poorly graded; fine to coarse sand; density (medium); wet. Trace fine subrounded gravel.	
20	-20											

ARCADIS
Infrastructure, environment, facilities

Remarks: bgs = below ground surface

Analytical sample (SB-1-8.0) collected from 8-8.5' bgs; analytical sample (SB-1-13.5) collected from 13.5-14' bgs.

Date Start/Finish: 06/06/08 **Drilling Company:** Discovery Drilling **Driller's Name:** Tim Beckner **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 75 **Sampling Method:** 2' Split Spoon	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 20 **Surface Elevation:** **Descriptions By:** AF	**Well/Boring ID:** **SB-2** **Client:** Chevron **Location:** 3608 Minnesota Avenue, Anchorage, AK

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0										Boring was manually cleared from 0 to 8 feet bgs.	Borehole capped with asphalt patch Borehole backfilled with Bentonite
5	-5											
		1	8-10	2.0	7 8 8	16	0.2	X	SP		SAND (SP); dark brown; poorly graded; very fine to medium sand; trace fine gravel; subrounded to subangular; density (medium); damp.	
10	-10	2	10-12.5	2.0	8 9 10	19	2.2				2-inch thick black brittle material.	
		3	12.5-15	2.0	7 7 8	15	4,085	X			SAND (SP); yellow-red; poorly graded; very fine to medium; 2 inches thick; density (medium); damp. SAND (SP); gray; poorly graded; very fine to coarse sand; trace fine gravel; subrounded to subangular; density (medium); moist; wet at 14.5 bgs. Strong hydrocarbon-like odor.	
15	-15	4	15-17.5	2.0	7 9 10	19	562					
									SW		GRAVELLY SAND (SW); gray; very fine to coarse sand; few fine gravel; subrounded to subangular; density (medium); wet. Strong hydrocarbon-like odor.	
		5	17.5-20	2.0	5 4 11	15	38.1		SP		SAND (SP); gray; poorly graded; very fine to medium sand; trace fine gravel; subrounded to subangular; density (medium); wet.	
20	-20								ML		SANDY SILT (ML); gray; nonplastic fines; few very fine to fine sand; density (stiff); wet.	

ARCADIS
Infrastructure, environment, facilities

Remarks: bgs = below ground surface

Analytical sample (SB-2-8.0) collected from 8-8.5' bgs; analytical sample (Dup-1) collected from 8-8.5' bgs; analytical sample (SB-2-13.5) collected from 13.5-14' bgs.

Date Start/Finish: 06/07/08 **Drilling Company:** Discovery Drilling **Driller's Name:** Tim Beckner **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 75 **Sampling Method:** 2' Split Spoon	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 20 **Surface Elevation:** **Descriptions By:** AF	**Well/Boring ID:** **SB-3** **Client:** Chevron **Location:** 3608 Minnesota Avenue, Anchorage, AK

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0										Boring was manually cleared from 0 to 8 feet bgs.	Borehole capped with asphalt patch Borehole backfilled with Bentonite
5	-5											
		1	8-10	2.0	8 10 10	20	1.0	X	SP		SAND (SP); dark brown; poorly graded; very fine to medium sand; fine gravel; subrounded to subangular; density (medium); damp.	
10	-10	2	10-12.5	2.0	8 9 10	19	1.4	X				
		3	12.5-15	2.0	6 9 10	19	1,367				Strong hydrocarbon-like odor; visible sheen.	
15	-15	4	15-17.5	2.0	7 12 9	21	1,012		SW		GRAVELLY SAND (SW); gray; very fine to coarse sand; few fine gravel; subrounded to subangular; density (medium); wet. Hydrocarbon-like odor. 4-inch thick lense of black brittle material at 16.5' bgs.	
		5	17.5-20	2.0	8 12 16	28	8.2		SP		SAND (SP); gray; poorly graded; very fine to medium sand; density (medium); wet.	
									ML		SANDY SILT (ML); gray; nonplastic fines; few very fine to fine sand; trace fine gravel; subrounded to subangular; density (very stiff); wet.	
20	-20								SW		GRAVELLY SAND (SW); gray; very fine to coarse sand; few fine gravel; subrounded to subangular; density (medium); wet.	

Remarks: bgs = below ground surface

Analytical sample (SB-3-9.5) collected from 9.5-10' bgs; analytical sample (SB-3-12.0) collected from 12-12.5' bgs.

ARCADIS
Infrastructure, environment, facilities

Date Start/Finish: 06/10/08 **Drilling Company:** Discovery Drilling **Driller's Name:** Tim Beckner **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 75 **Sampling Method:** 2' Split Spoon	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 20 **Surface Elevation:** **Descriptions By:** AF	**Well/Boring ID:** **SB-5** **Client:** Chevron **Location:** 3608 Minnesota Avenue, Anchorage, AK

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2								SAND (SP); dark brown; poorly graded; very fine to medium; trace fine subrounded gravel; damp. Boring was manually cleared from 0 to 8 feet bgs.	Borehole capped with asphalt patch
		2	2-4				1.0					Borehole backfilled with Bentonite
5	-5	3	4-6								Increasing gravel.	
		4	6-8				0.3				SAND (SP); dark brown; poorly graded; very fine to medium sand; fine to medium subrounded gravel; damp.	
		5	8-10	2.0	7 7 9	16	0.5	X	SP		SAND (SP); dark brown; poorly graded; very fine to medium sand; trace fine gravel; subrounded to subangular; density (medium); damp.	
10	-10	6	10-12.5	2.0	6 8 8	16	0.9				Decreasing fine gravel.	
		7	12.5-15	2.0	8 7 10	17	1,677	X			Increasing coarse sand. Heavy hydrocarbon-like odor. Wet.	
15	-15	8	15-17.5	2.0	6 8 9	17	55.0					
									SW		GRAVELLY SAND (SW); gray; very fine to coarse sand; few fine gravel; subrounded to subangular; density (medium); wet. Hydrocarbon-like odor.	
		9	17.5-20	2.0	8 18 8	26	9.4		SP		SAND (SP); gray; poorly graded; very fine to medium sand; trace coarse gravel; subrounded to subangular; density (medium); wet.	
20	-20								ML		SANDY SILT (ML); gray; nonplastic; very fine to fine sand; density (very stiff); wet.	

Remarks: bgs = below ground surface

Analytical sample (SB-5-8.5) collected from 8.5-9' bgs; analytical sample (SB-5-13.0) collected from 13-13.5' bgs.

ARCADIS
Infrastructure, environment, facilities

Date Start/Finish: 06/10/08 **Drilling Company:** Discovery Drilling **Driller's Name:** Tim Beckner **Drilling Method:** Hollow Stem Auger **Auger Size:** 4.25" ID **Rig Type:** CME 75 **Sampling Method:** 2' Split Spoon	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 20 **Surface Elevation:** **Descriptions By:** DR	**Well/Boring ID:** **SB-6** **Client:** Chevron **Location:** 3608 Minnesota Avenue, Anchorage, AK

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2						SW		GRAVELLY SAND (SW); dark brown; fine to medium sand; fine to coarse subrounded gravel; few nonplastic fines; damp. Boring was manually cleared from 0 to 8 feet bgs.	Borehole capped with asphalt patch
		2	2-4				0.8		SM		SILTY SAND (SM); dark brown; very fine to fine sand; nonplastic; damp.	Borehole backfilled with Bentonite
5	-5	3	4-6									
		4	6-8				0.1		SP		SAND (SP); dark brown; poorly graded; fine to medium sand; damp.	
		5	8-10	2.0	8 7 8	15	0.6	X			SAND (SP); dark brown; poorly graded; very fine to fine sand; fine subrounded gravel; trace nonplastic fines; density (medium); damp.	
10	-10	6	10-12.5	2.0	5 8 9	17	1.3					
		7	12.5-15	2.0	8 9 10	19	3.7 250	X	SM		SILTY SAND (SM); dark brown; very fine to fine sand; nonplastic; density (medium); wet.	
									SP		SAND (SP); dark brown; poorly graded; fine to coarse sand; trace fine subrounded gravel; density(medium); wet. Hydrocarbon-like odor.	
15	-15	8	15-17.5	2.0	8 6 9	15	29.0				Decreasing grain size (fine to medium sand). Slight hydrocarbon-like odor.	
		9	17.5-20	2.0	9 9 15	24	0.7				Very fine to fine sand; no gravel or fines.	
20	-20											

Remarks: bgs = below ground surface

Analytical sample (SB-6-9) collected from 9-9.5' bgs; analytical sample (SB-6-12.5) collected from 12.5-13' bgs.

ARCADIS
Infrastructure, environment, facilities

TEST BORING LOG – TY1

DEPTH (feet)	SOIL DESCRIPTION	GRAPHIC LOG	SAMPLING METHOD	SAMPLE NUMBER	PENETRATION RESISTANCE	OVM READING	GROUND WATER	DEPTH (feet)
0	0–2" ASPHALT							0
	2"–3' SILTY CLAY (MH) occassional gravel to 1/4" moist					15		
	3'–5' SAND medium to Poorly graded with silt SP dry					25		
5	5'–6.5' SAND Poorly graded (SP) coarse to medium grained dark brown to gray dry		SPT	TY1–5	10–16–12	540		5
	7.5'–9.0' Poorly graded SAND (SP) with 10% gravel to 1/2," dry medium to dark brown			TY1–7.5	15–37–32	155		
10	10'–11' Poorly graded SAND (SP) with 15% gravel to 1/2", dry to moist red/brown		SPT	TY1–10	10–20	1041		10
	TOTAL DEPTH 11'							
15								15
20								20
25								25
30								30

LEGEND

- Grab Sample
- 2-inch O.D. split-spoon sample
- Observed groundwater level at time of drilling (ATD)

ANALYTICAL METHODS
8020 = BTEX
8015 = GRPH
8100 = DRPH

Distinct Contact
Gradational Contact

Gravel
Sand
Silt
Clay
Organics

GEOLOGIST/ENGINEER GLENN RUCKHAUS
DRILLING CONTRACTOR/CREW AMBLER
METHOD USED 3 1/4 ID HSA
HOLE No. TY–1 DATE BEGUN 06/29/95
SHEET 1 OF 1 DATE COMPLETED 06/29/95
TOTAL DEPTH 10' T=TUBE R=RING
SAMPLING METHOD: SPT=STANDARD PENETRATION TEST
GROUNDWATER TABLE ATD=AT TIME OF DRILLING
DEPTH TIME DATE AB=AFTER BORING

ELEVATION REFERANCE: ON SITE REFERANCE DATUM
GROUND SURFACE ELEVATION: CASING ELEVATION:

FIGURE 2

AGRA Earth & Environmental
711 H Street, Suite 450
Anchorage, AK, U.S.A. 99501

W.O. 31–148905–00
DESIGN GPR
DRAWN RRM
DATE JULY 3, 1995
SCALE 1"=5'

CHEVRON /THRIFTY
3730 SPENARD ROAD
ANCHORAGE, ALASKA

TEST BORING LOG
TY-1

TEST BORING LOG – TY2

DEPTH (feet)	SOIL DESCRIPTION	GRAPHIC LOG	SAMPLING METHOD	SAMPLE NUMBER	PENETRATION RESISTANCE	OVM READING	GROUND WATER	DEPTH (feet)
0	0–2" ASPHALT							0
	2"–3' SILTY CLAY (MH) occassional gravel to 1/4" moist					15		
	3'–5' SAND medium to Poorly graded with silt SM–SP dry SM–SW dry					25		
5	5'–7.5' Poorly graded SAND (SP) with gravel to 1/2" brown and green/brown, dry		SPT	TY2–5	02–02–02	291		5
	7'–8.5' Poorly graded SAND (SP)with gravel brown and green/brown dry		SPT	TY2–7	02–02–02	1045		
10	10'–11.5' Poorly graded SAND (SP) coarse to medium grained sand, brown green/brown, dry		SPT	TY2–10	04–05–08	1462		10
	TOTAL DEPTH 11.5'							
15								15
20								20
25								25
30								30

LEGEND

- Grab Sample
- 2-inch O.D. split-spoon sample
- Observed groundwater level at time of drilling (ATD)

ANALYTICAL METHODS
8020 = BTEX
8015 = GRPH
8100 = DRPH

Distinct Contact
Gradational Contact

Gravel
Sand
Silt
Clay
Organics

GEOLOGIST/ENGINEER GLENN RUCKHAUS
DRILLING CONTRACTOR/CREW AMBLER
METHOD USED 3 1/4 ID HSA
HOLE No. TY–2 DATE BEGUN 06/29/95
SHEET 1 OF 1 DATE COMPLETED 06/29/95
TOTAL DEPTH 10' T=TUBE R=RING
SAMPLING METHOD: SPT=STANDARD PENETRATION TEST
GROUNDWATER TABLE ATD=AT TIME OF DRILLING
DEPTH TIME DATE AB=AFTER BORING

ELEVATION REFERANCE: ON SITE REFERANCE DATUM
GROUND SURFACE ELEVATION: CASING ELEVATION:

FIGURE 3

AGRA
Earth & Environmental
711 H Street, Suite 450
Anchorage, AK, U.S.A. 99501

W.O. 31–148905–00
DESIGN GPR
DRAWN RRM
DATE JULY 3, 1995
SCALE 1"=5'

CHEVRON /THRIFTY
3730 SPENARD ROAD
ANCHORAGE, ALASKA

TEST BORING LOG
TY-2

Appendix E
Historical Soil Analytical Data

Table 1
Soil Analytical Data
Chevron 99014
3608 Minnesota Drive
Anchorage, Alaska

Sample Location	Sample Depth	Date Sampled	TPH (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	RRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Total Xylenes (mg/kg)	EPH (mg/kg)	VPH (mg/kg)	MtBE (mg/kg)
ADEC Soil Cleanup Level (Migration to groundwater)			NA	300	250	11,000	0.02	5.4	5.5	78	NA	NA	NA
MW-1	10	06/29/92	ND	--	--	ND	0.18	1.3	0.61	2.3	ND	21	
MW-1	12.5	06/29/92	ND	--	--	ND	0.05	0.53	0.28	1.3	ND	14	--
MW-2	5	06/30/92	337	--	--	331	ND	0.16	0.1	1.1	27	6	--
MW-2	12.5	06/30/92	ND	--	--	ND	ND	0.1	0.03	0.12	ND	ND	--
MW-3	10	06/30/92	ND	--	--	118	ND	0.05	ND	0.08	ND	ND	--
MW-3	12.5	06/30/92	ND	-	--	ND	ND	0.09	0.06	0.72	ND	7	--
MW-4	10	06/29/92	36.0	--	--	26	0.06	0.74	0.21	5.3	ND	10	--
MW-4	12.5	06/29/92	95	--	--	--	2.28	57	23	130	15	360	--
MW-5	5	06/30/92	ND	--	--	ND	ND	ND	ND	ND	ND	ND	--
MW-5	10	06/30/92	ND	--	--	ND	0.07	0.05	ND	0.13	ND	ND	--
MW-6*	10	06/30/92	ND	--	--	ND	ND	ND	ND	ND	ND	ND	--
MW-6*	14.5	06/30/92	ND	--	--	ND	ND	ND	ND	ND	ND	ND	--
MW-7	10	07/02/92	ND	--	--	ND	0.17	0.37	0.06	0.4	ND	ND	--
MW-7	12.5	07/02/92	ND	--	--	ND	0.04	ND	ND	ND	ND	ND	--
MW-8	5	11/05/92	160.0	--	--	129	0.27	0.601	0.072	0.332	31	ND	--
MW-8	11.5	11/05/92	45.0	--	--	77	1.2	12.5	4.74	33	ND	129	--
MW-9	10	11/05/92	ND	--	--	328	0.606	1.7	0.168	0.809	ND	6	--
MW-9	12.5	11/05/92	32.0	--	--	--	0.518	5.8	6.3	36	ND	120	--
MW-10	5	11/06/92	234.0	--	--	191	0.036	0.1	0.03	0.207	43	ND	--
MW-10	12.5	11/06/92	240	--	--	182	0.078	0.2	0.033	0.122	58	ND	--
MW-11	5	02/23/94	7	<50	<10	--	<0.1	<0.1	<0.1	<0.1	--	--	--
MW-11	13	02/23/94	920.0	5,400	29	--	41	50.0	170	870	--	--	--
MW-12	5	02/28/94	36.0	<50	<10	--	<0.1	<0.1	<0.1	<0.1	--	--	--
MW-12	12	02/28/94	<5	<50	<10	--	<0.1	<0.1	<0.1	<0.1	--	--	--
MW-13	10	06/21/01	--	<5.00	--	--	<0.0200	<0.0500	<0.0500	<0.100	--	--	<0.100
MW-13	20	06/21/01	--	<3.57	--	--	<0.0143	<0.0357	0.0398	0.165	--	--	<0.0713
MW-14	15	06/21/01	--	<3.71	--	--	<0.0148	<0.0371	<0.0371	<0.0742	--	--	<0.0742
MW-14	25	06/21/01	--	<3.21	--	--	<0.0125	<0.0312	<0.0312	<0.0625	--	--	<0.0625
MW-15	15	06/21/01	--	<4.11	--	--	<0.0164	<0.0411	<0.0411	<0.0822	--	--	<0.0822
MW-15	25	06/21/01	--	<4.32	--	--	<0.0173	<0.0432	<0.0432	<0.0865	--	--	<0.0865
MW-16	20	06/21/01	--	<4.0	--	--	<0.0160	<0.0400	<0.0400	<0.0801	--	--	<0.0801
MW-16	25	06/21/01	--	<4.02	--	--	<0.0161	<0.0402	<0.0402	<0.0803	--	--	<0.0803

Table 1
Soil Analytical Data
Chevron 99014
3608 Minnesota Drive
Anchorage, Alaska

Sample Location	Sample Depth	Date Sampled	TPH (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	RRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Total Xylenes (mg/kg)	EPH (mg/kg)	VPH (mg/kg)	MtBE (mg/kg)
ADEC Soil Cleanup Level (Migration to groundwater)			**NA**	**300**	**250**	**11,000**	**0.02**	**5.4**	**5.5**	**78**	**NA**	**NA**	**NA**
MW-17	10	05/26/04	--	<0.5	--	--	<0.027	<0.055	<0.055	<0.055	--	--	<0.027
MW-18	10	05/26/04	--	<0.5	--	--	<0.026	<0.052	<0.052	<0.052	--	--	<0.026
MW-18	15	05/26/04	--	<0.5	--	--	<0.030	<0.060	<0.060	<0.060	--	--	0.32
S11	8	06/22/99	--	9,670	--	--	225	1,650	347	1,667	3,889	--	--
S12	8	06/22/99	--	5.38	--	--	0.644	1.24	0.0426	0.618	--	--	--
S13	7	06/22/99	--	8,270	--	--	221	1,400	287	1,429	--	--	--
S14	9.5	06/22/99	--	13.6	--	--	0.503	1.66	0.167	3.91	--	--	--
S16	7	06/22/99	--	15.6	--	--	0.226	1.97	0.281	5.05	--	--	--
B121 (BMW-1)	12.5-14.5	07/29/99	--	15.9	--	--	0.906	1.92	0.102	0.986	--	--	--
B2S1 (BMW-2)	12.5-14.5	07/29/99	--	3.83	--	--	0.342	0.296	0.0988	1.048	--	--	--
B3S1 (BMW-3)	12.5-14.5	07/29/99	--	<1.95	--	--	<0.00976	<0.0390	<0.0390	<0.0390	--	--	--
B4S3 (BMW-4)	12.5-14	05/15/00	--	<1.42	--	--	<0.00708	<0.0283	<0.0283	<0.0283	--	--	--
B4S4 (BMW-4)	15-16.5	05/15/00	--	<1.51	--	--	0.0367	<0.0303	<0.0303	<0.0303	--	--	--
B5S3 (BMW-5)	12.5-14	05/15/00	--	<1.77	--	--	0.0141	0.049	<0.0353	0.0927	--	--	--
B5S4 (BMW-5)	15-16.5	05/15/00	--	12	--	--	1.48	0.045	0.0813	3.41	--	--	--
B6S3 (BMW-6)	12.5-14	05/15/00	--	<1.78	--	--	<0.00888	<0.0355	<0.0355	<0.0355	--	--	--
B6S4 (BMW-6)	15-16.5	05/15/00	--	3.46	--	--	1.32	<0.0256	<0.0256	0.238	--	--	--
MW-19	**5-10**	**08/16/07**	**--**	**<1.4**	**--**	**--**	**0.03**	**0.07**	**<0.01**	**<0.04**	**--**	**--**	**<0.1**
MW-19	**10-15**	**08/16/07**	**--**	**<1.4**	**--**	**--**	**0.01**	**0.04**	**<0.01**	**<0.04**	**--**	**--**	**<0.1**
MW-20	**5-10**	**08/16/07**	**--**	**<1.3**	**--**	**--**	**0.02**	**0.05**	**<0.01**	**<0.04**	**--**	**--**	**<0.1**
MW-20	**10-15**	**08/16/07**	**--**	**<1.4**	**--**	**--**	**0.02**	**0.05**	**<0.01**	**<0.04**	**--**	**--**	**<0.1**
MW-21	**5-10**	**08/16/07**	**--**	**1.5**	**--**	**--**	**0.03**	**0.09**	**<0.01**	**0.07**	**--**	**--**	**<0.1**
MW-21	**10-15**	**08/16/07**	**--**	**1,100**	**--**	**--**	**1.5**	**37**	**42**	**240**	**--**	**--**	**<12**
MW-22	**5-10**	**08/17/07**	**--**	**3**	**--**	**--**	**0.06**	**0.2**	**0.04**	**0.2**	**--**	**--**	**<0.1**
MW-22	**10-15**	**08/17/07**	**--**	**1,600**	**--**	**--**	**7.4**	**130**	**44**	**280**	**--**	**--**	**0.6**

Notes:
All results reported in milligram per kilogram (mg/kg).
Total petroleum hydrocarbons (TPH) was analyzed by methods 3550/418.1
Gasoline range organics (GRO) was analyzed by AK Method 101.
Desiel range organics (DRO) was analyzed by methods 3550/8015.
Benzene, toluene, ethylbenzene, and total xylenes (BTEX) were analyzed by EPA Method 8020 through 1999, BTEX analyzed by EPA Method 8260B during 2002.
Highlighted concentrations are greater than the ADEC soil cleanup level for migration to groundwater, under 40-inch zone.
* Samples were analyzed for TCLP Priority Pollutant Metals, PCBs, and VOCs. All results were below the laboratory detection limit.
NA = Not applicable
ND = Not detected, laboratory reporting limit not available.
< = not detected greater than the laboratory reporting limit.

TABLE 1
Soil Analytical Data

Chevron Service Station 9-9014
3608 Minnesota Drive
Anchorage, AK

Sample ID	Sample Depth (feet bgs)	Date Sampled	GRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MtBE (mg/kg)
MW17@10	10	05/26/04	<0.5	<0.027	<0.055	<0.055	<0.055	<0.027
MW18@10	10	05/26/04	<0.5	<0.026	<0.052	<0.052	<0.052	<0.026
MW18@15	15	05/26/04	<0.5	<0.030	<0.060	<0.060	<0.060	**0.32**

Explanations:

MW17@10 = Soil boring sample MW17 at 10 feet bgs.
bgs = Below ground surface
mg/kg = Miligram per kilogram
GRO = Gasoline range organics
MtBE = Methyl tertiary butyl ether

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
FOR TPH, BTEX, AND LEAD
Chevron Service Station No. 9-9014
3608 Minnesota Drive
Anchorage, Alaska 99503

Sample Identification	Sample Depth (feet)	Sampling Date	Feature Assessed	TPH - GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-RRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Lead (mg/kg)
				AK101	AK102	AK103	EPA 8260B				EPA 6010
BA-1-5	5	11/30/04	Fuel USTs	ND<0.4	NA	NA	ND<0.016	ND<0.033	ND<0.033	ND<0.033	NA
BA-1-13	13	12/01/04	Fuel USTs	ND<0.3	NA	NA	ND<0.019	ND<0.037	ND<0.037	ND<0.037	NA
BA-2-5	5	11/30/04	Fuel USTs	ND<0.3	NA	NA	ND<0.016	ND<0.032	ND<0.032	ND<0.032	NA
BA-2-12.5	12.5	12/01/04	Fuel USTs	ND<0.3	NA	NA	ND<0.018	ND<0.036	ND<0.036	ND<0.036	NA
BA-3-5	5	11/30/04	Fuel Dispenser Island	**19**	NA	NA	**0.17**	ND<0.035	**0.19**	**0.67**	**5**
BA-3-12.5	12.5	12/01/04	Fuel Dispenser Island	**0.7**	NA	NA	ND<0.018	ND<0.036	ND<0.036	ND<0.036	NA
BA-4-5	5	11/30/04	Fuel Dispenser Island	ND<0.3	NA	NA	ND<0.018	ND<0.035	ND<0.035	ND<0.035	NA
BA-4-13	13	12/01/04	Fuel Dispenser Island	**0.5**	NA	NA	ND<0.020	ND<0.040	ND<0.040	**0.062**	NA
BA-5-5	5	11/30/04	Fuel Dispenser Island	ND<0.4	NA	NA	ND<0.019	ND<0.039	ND<0.039	ND<0.039	NA
BA-5-13	13	12/01/04	Fuel Dispenser Island	**0.5**	NA	NA	ND<0.017	**0.045**	ND<0.033	**0.039**	NA

Bold = Detectable Concentration
NA = Not Analyzed
ND = Not Detected Above Laboratory Reporting Limits
mg/kg = milligrams per kilogram

TPH = Total Petroleum Hydrocarbons
GRO = Gasoline Range Organics (C6 - C10)
DRO = Diesel Range Organics (C10 - <C25)
RRO = Residual Range Organics (C25 - C36)

UST = Underground Storage Tank

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS
FOR ETHANOL AND GASOLINE OXYGENATES
Chevron Service Station No. 9-9014
3608 Minnesota Drive
Anchorage, Alaska 99503

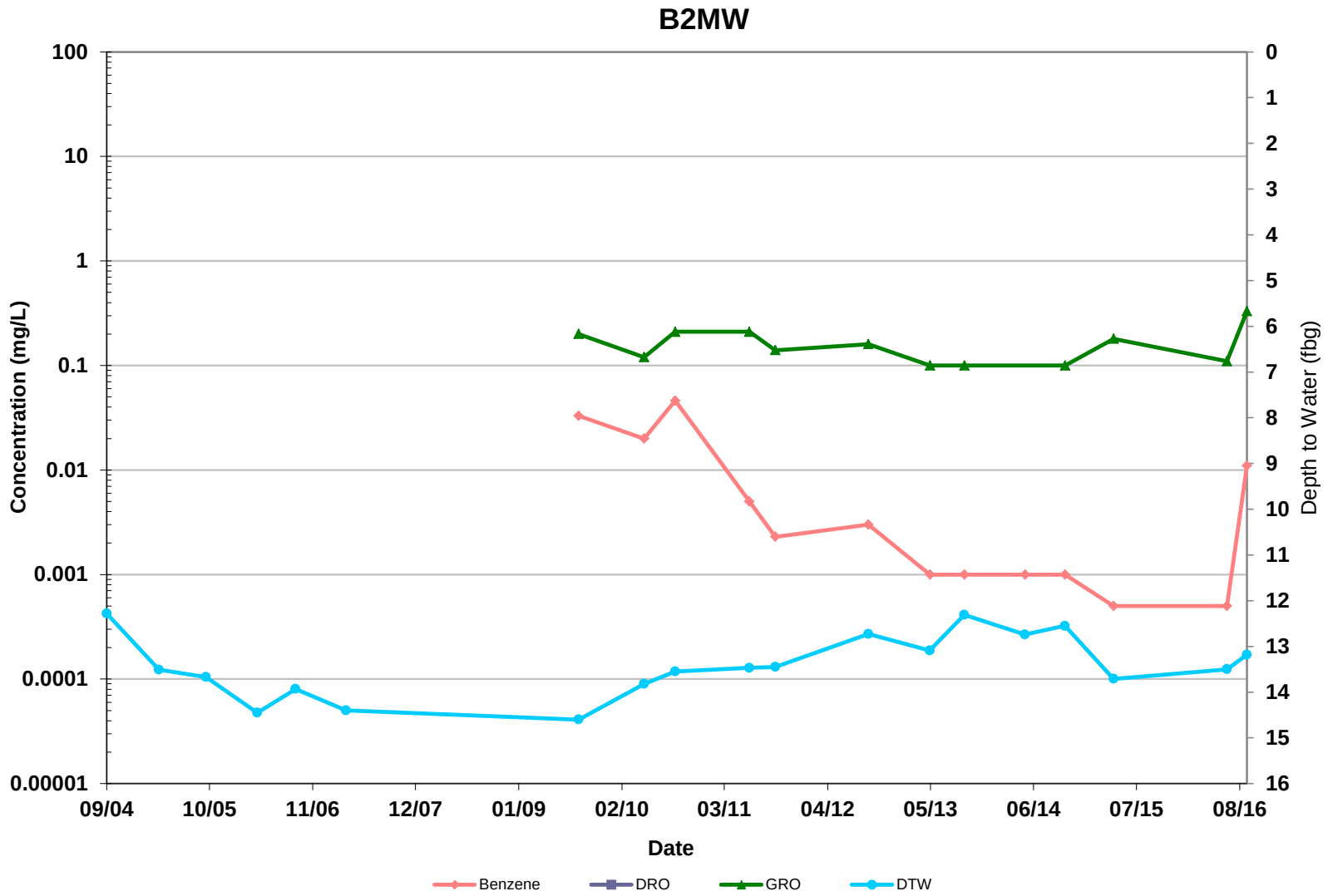
Sample Identification	Sample Depth (feet)	Sampling Date	Feature Assessed	Ethanol (mg/kg)	DIPE (mg/kg)	ETBE (mg/kg)	MTBE (mg/kg)	TAME (mg/kg)	TBA (mg/kg)
				EPA 8260B					
BA-1-5	5	11/30/04	Fuel USTs	ND<3.3	ND<0.033	ND<0.033	ND<0.016	ND<0.033	ND<0.66
BA-1-13	13	12/01/04	Fuel USTs	ND<3.7	ND<0.037	ND<0.037	ND<0.019	ND<0.037	ND<0.74
BA-2-5	5	11/30/04	Fuel USTs	ND<3.2	ND<0.032	ND<0.032	ND<0.016	ND<0.032	ND<0.64
BA-2-12.5	12.5	12/01/04	Fuel USTs	ND<3.6	ND<0.036	ND<0.036	ND<0.018	ND<0.036	ND<0.72
BA-3-5	5	11/30/04	Fuel Dispenser Island	ND<3.5	ND<0.035	ND<0.035	ND<0.017	ND<0.035	ND<0.70
BA-3-12.5	12.5	12/01/04	Fuel Dispenser Island	ND<3.6	ND<0.036	ND<0.036	ND<0.018	ND<0.036	ND<0.72
BA-4-5	5	11/30/04	Fuel Dispenser Island	ND<3.5	ND<0.035	ND<0.035	ND<0.018	ND<0.035	ND<0.71
BA-4-13	13	12/01/04	Fuel Dispenser Island	ND<4.0	ND<0.040	ND<0.040	ND<0.020	ND<0.040	ND<0.80
BA-5-5	5	11/30/04	Fuel Dispenser Island	ND<3.9	ND<0.039	ND<0.039	ND<0.019	ND<0.039	ND<0.77
BA-5-13	13	12/01/04	Fuel Dispenser Island	ND<3.3	ND<0.033	ND<0.033	ND<0.017	ND<0.033	ND<0.67

Bold = Detectable Concentration
NA = Not Analyzed
ND = Not Detected Above Laboratory Reporting Limits
mg/kg = milligrams per kilogram

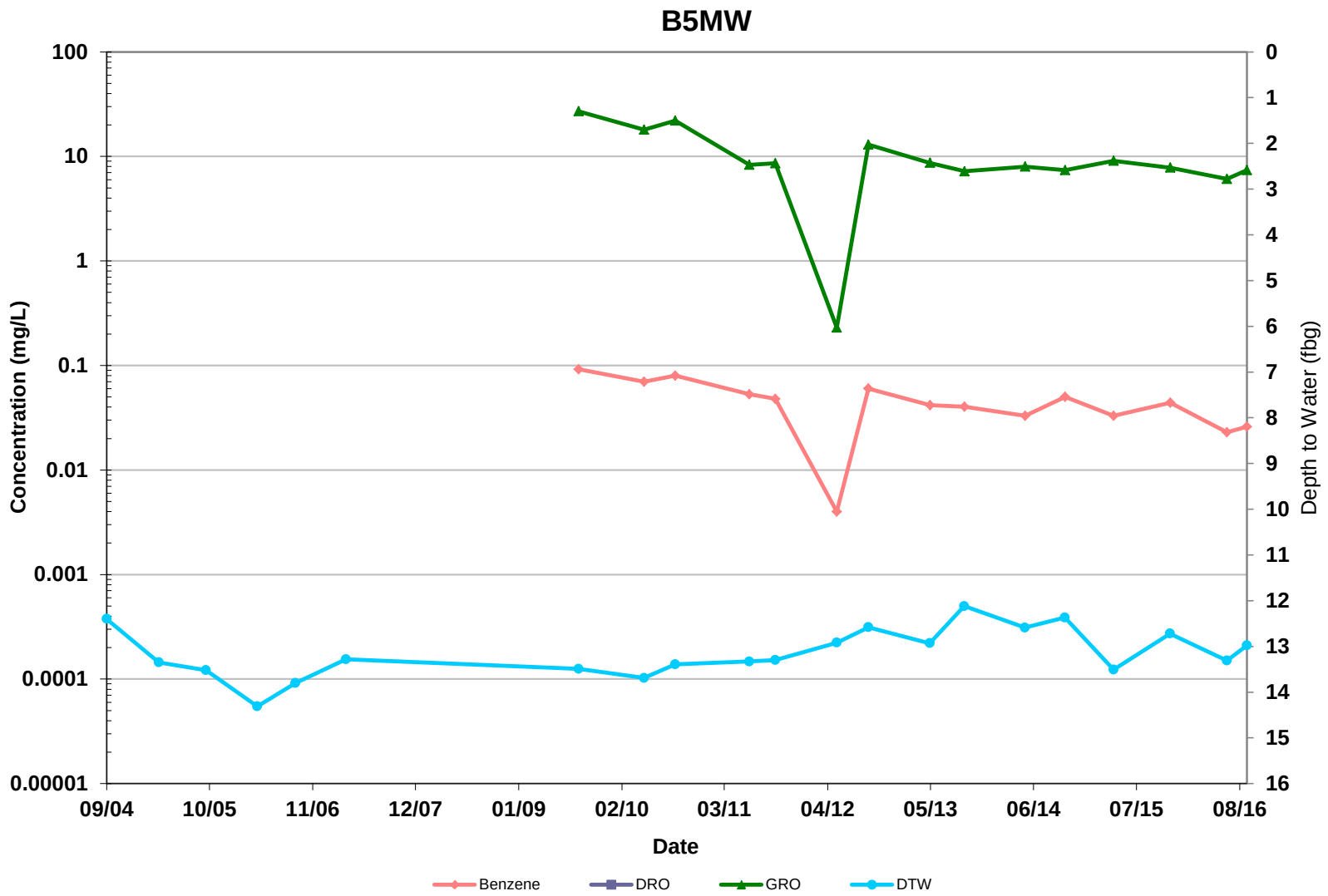
DIPE = Di-isopropyl ether
ETBE = Ethyl tertiary-butyl ether
MTBE = Methyl-tert-butyl-ether
TAME = Tert-amyl methyl ether

TBA = Tert-butanol
UST = Underground storage tank

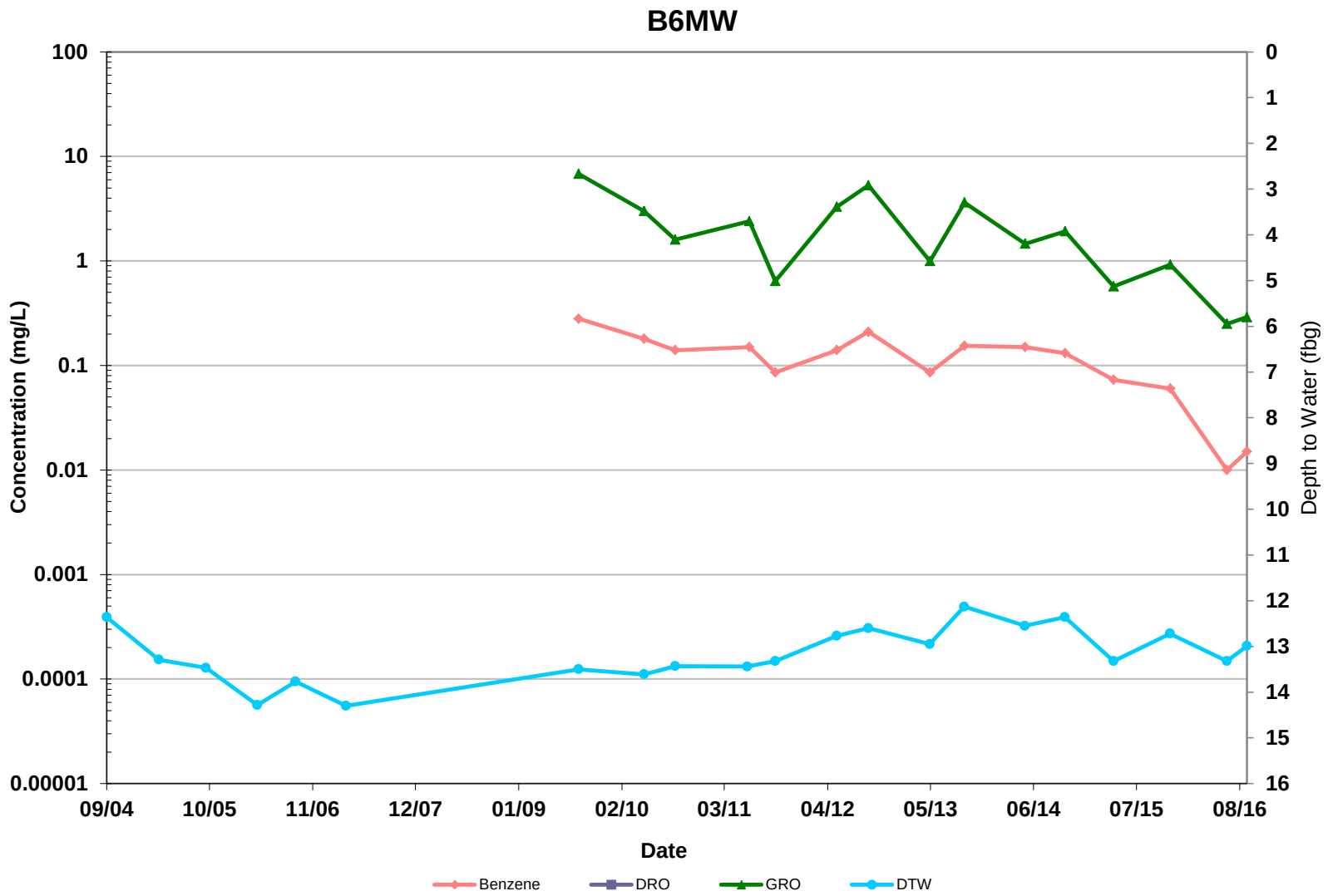
Appendix F
Hydrographs



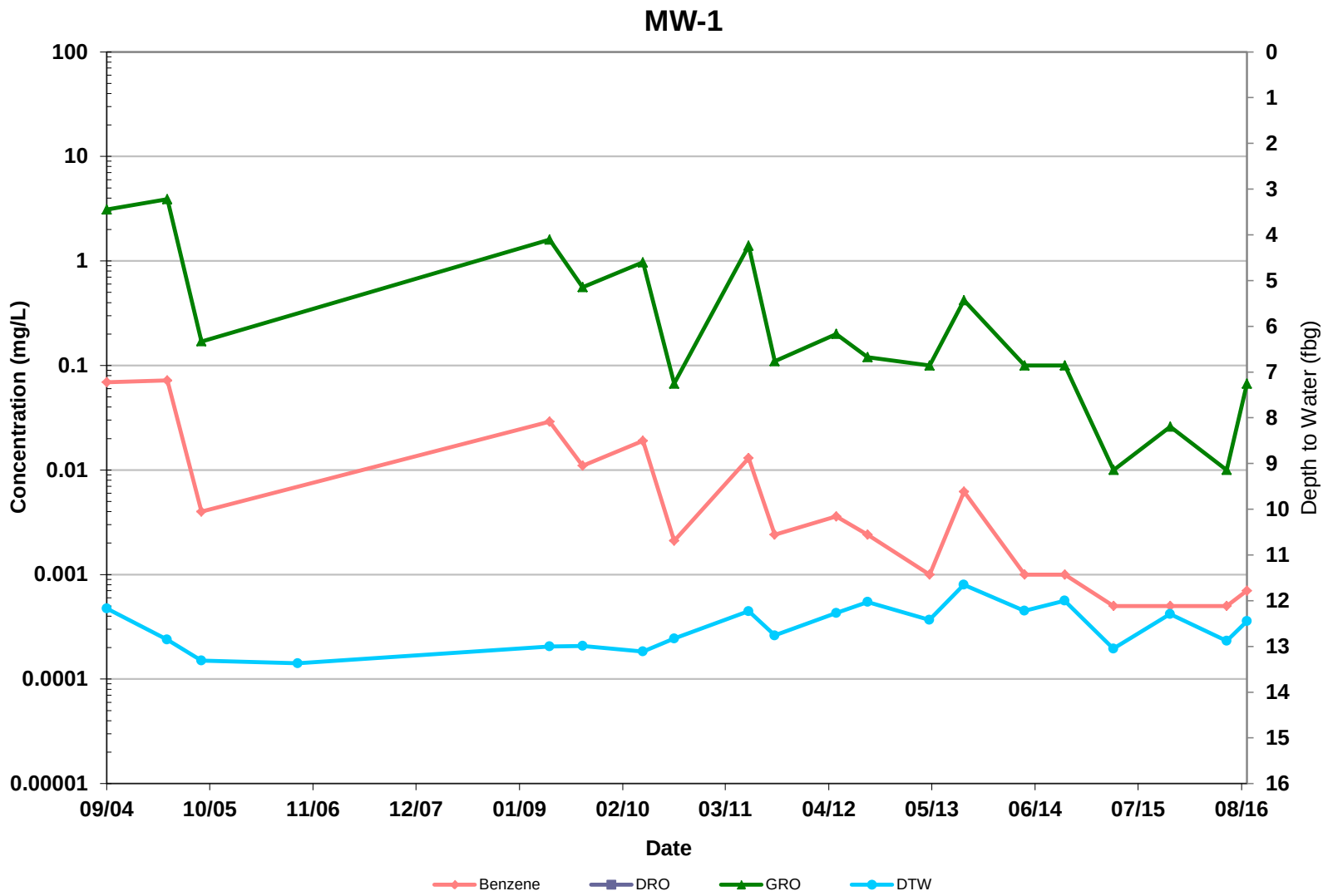
Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



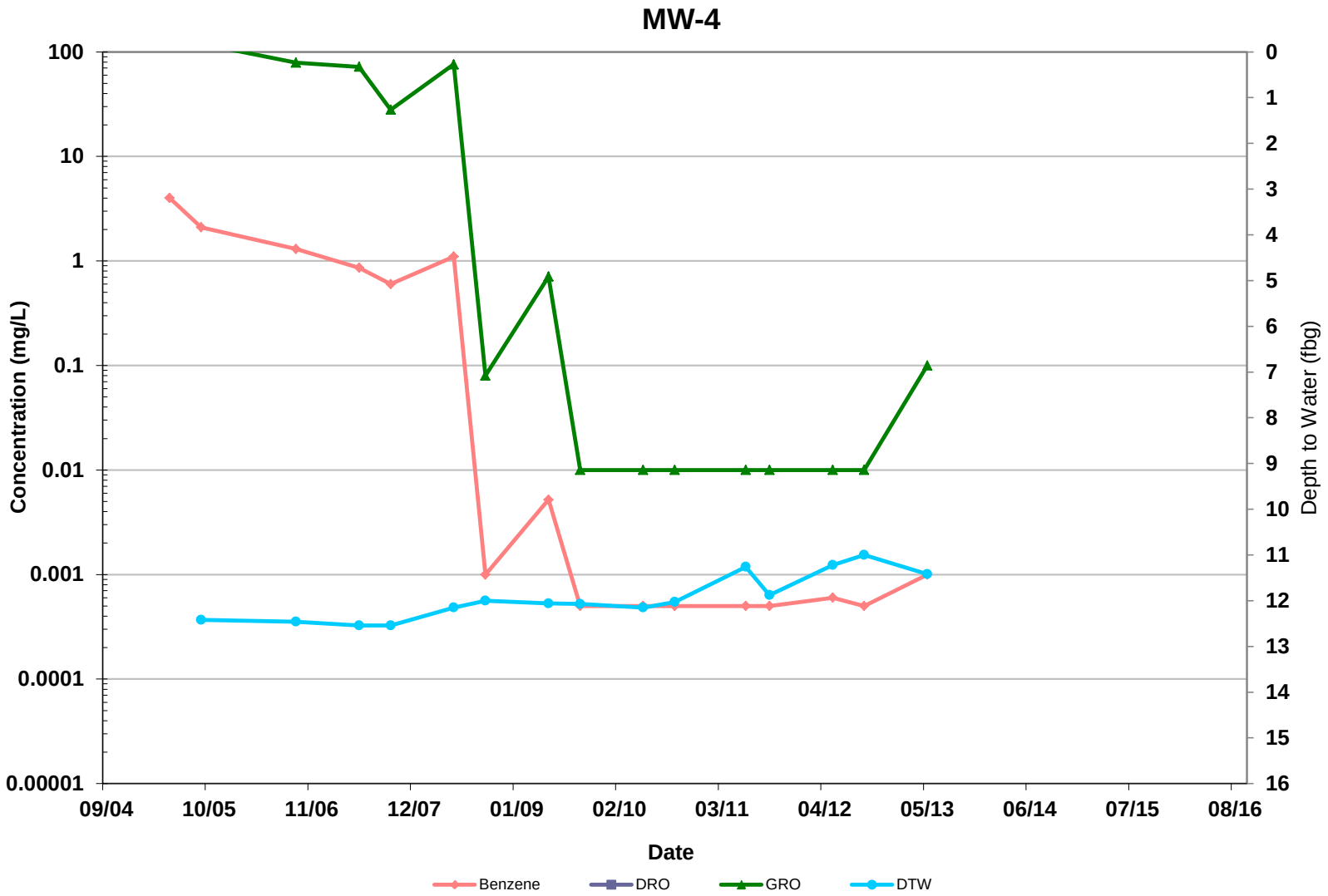
Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



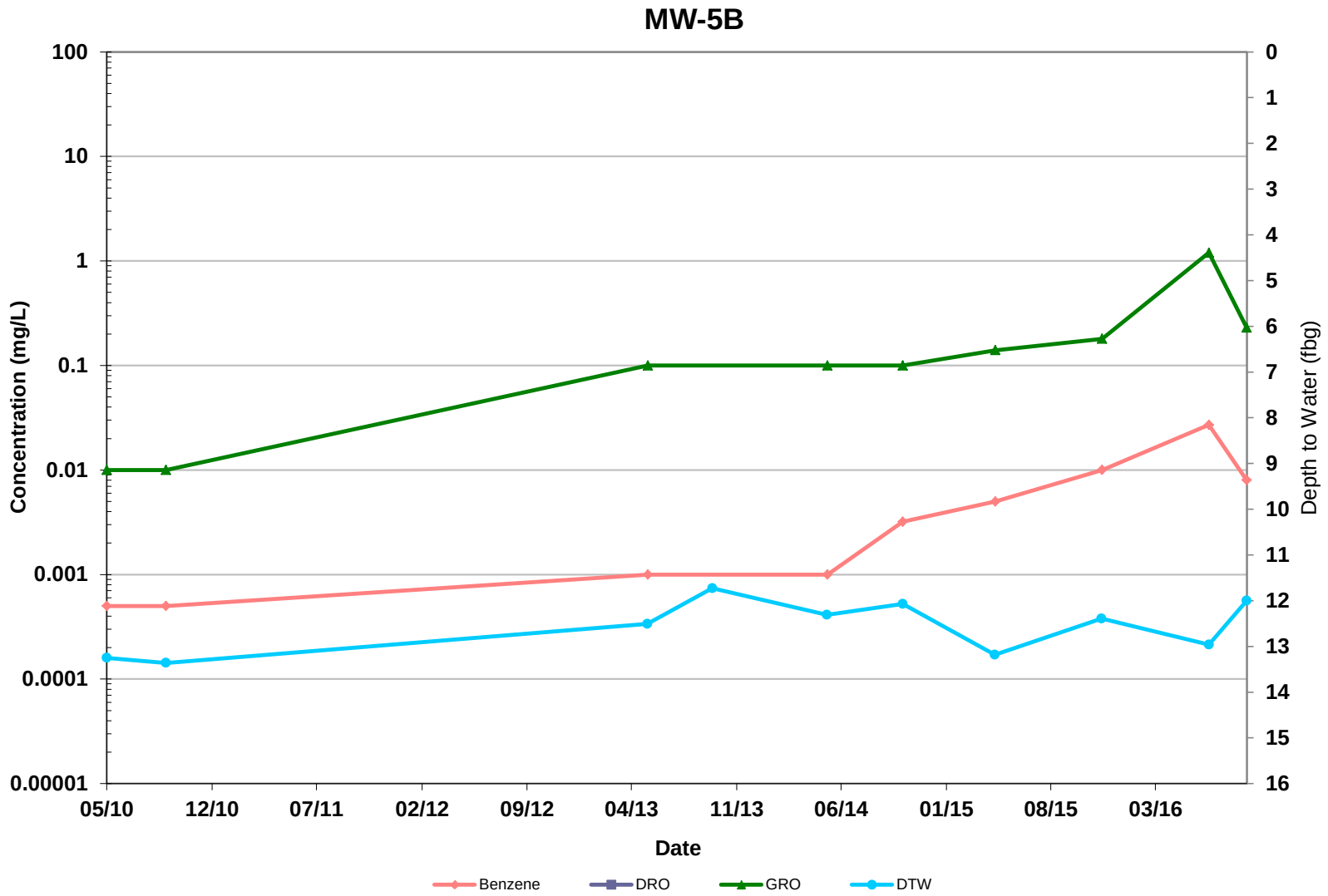
Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



Chevron-Branded Service Station 99014
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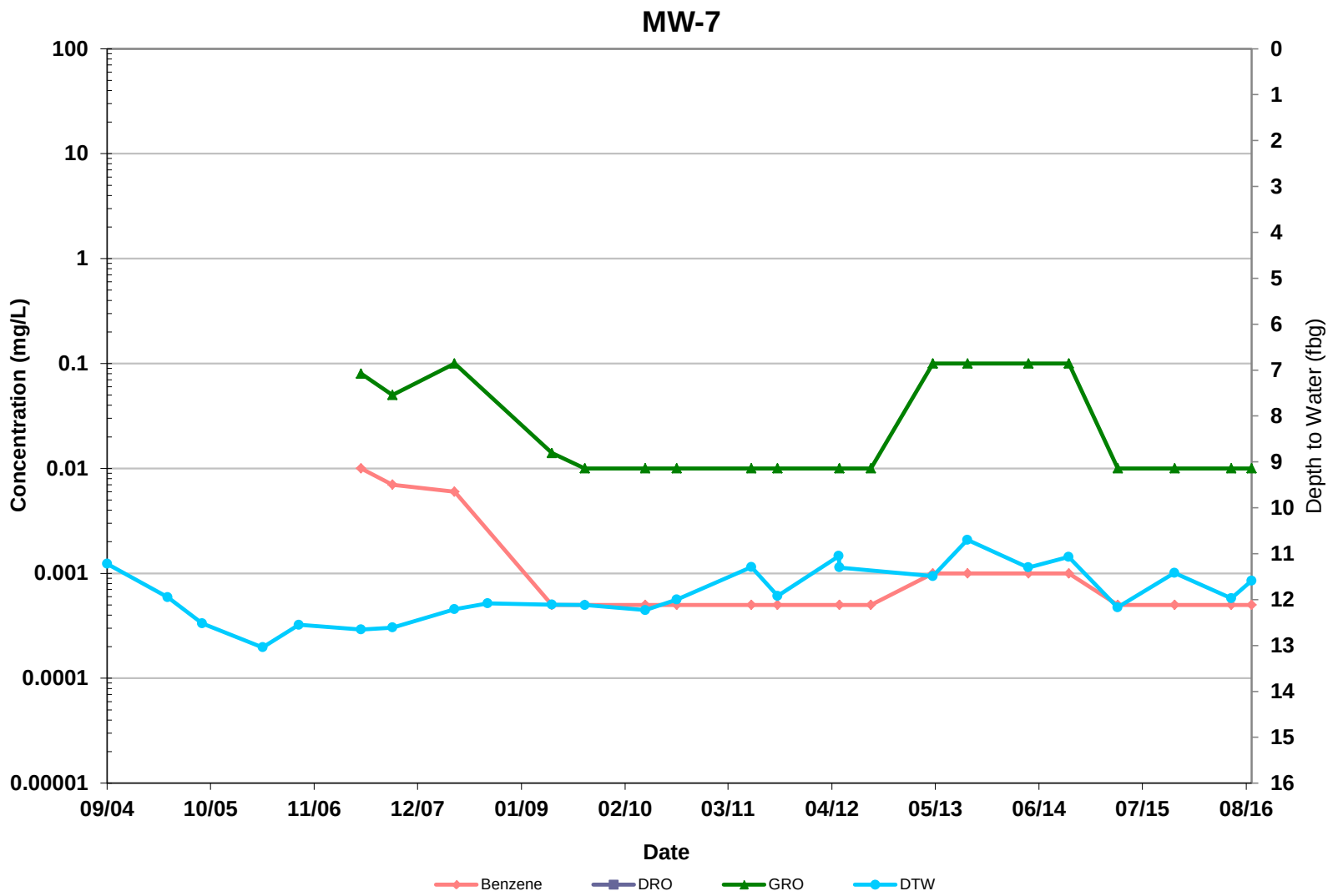

Chevron-Branded Service Station 99014
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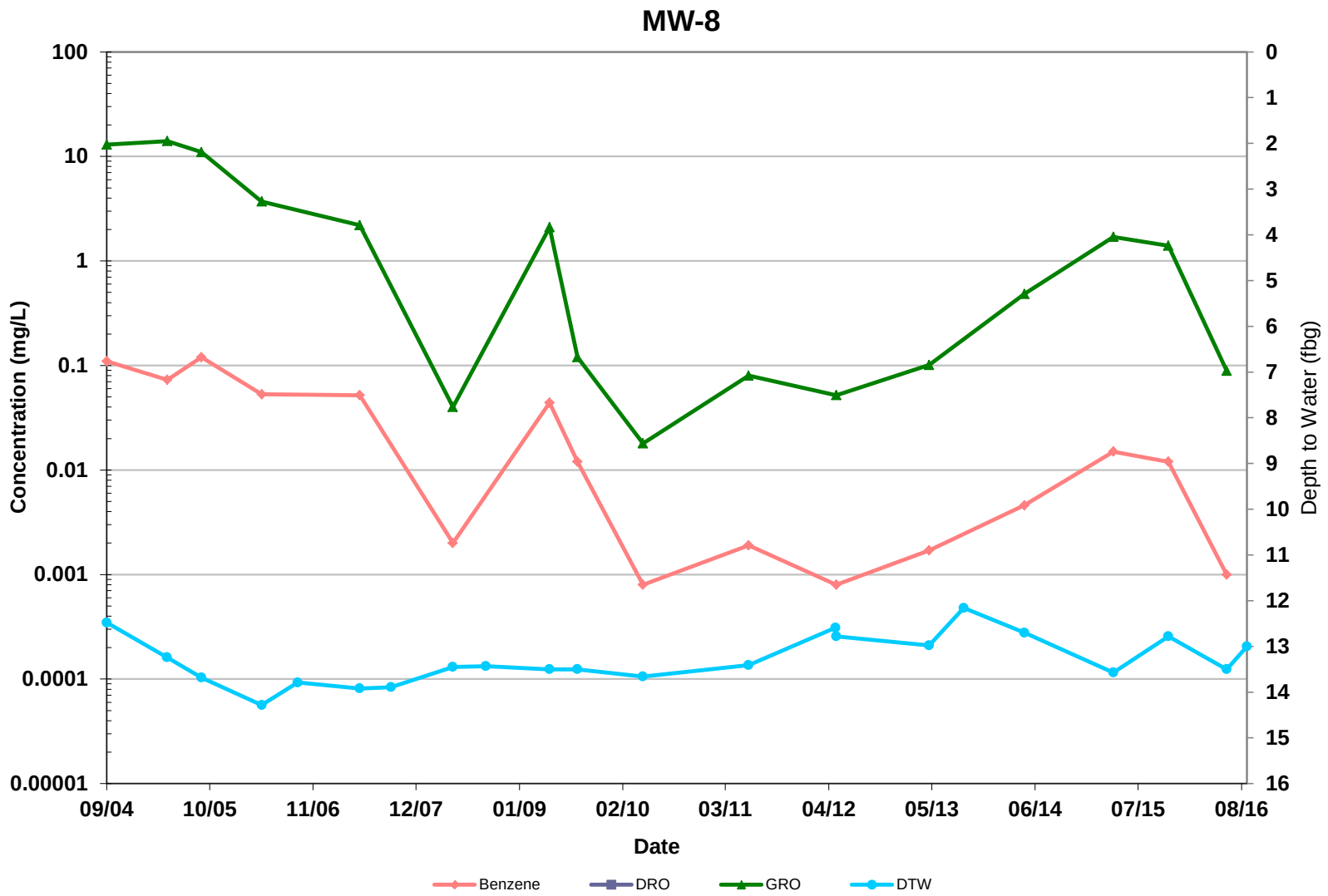
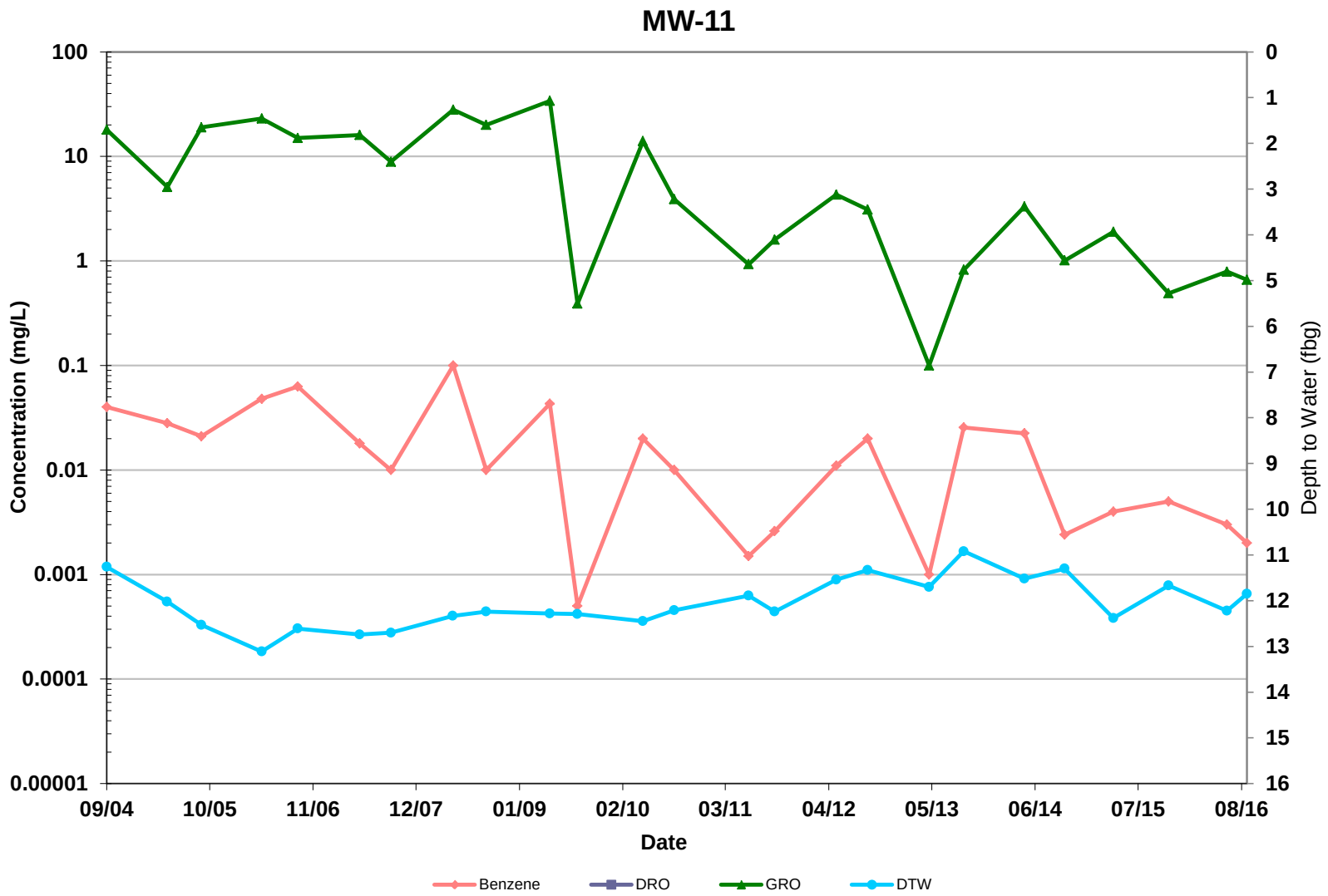
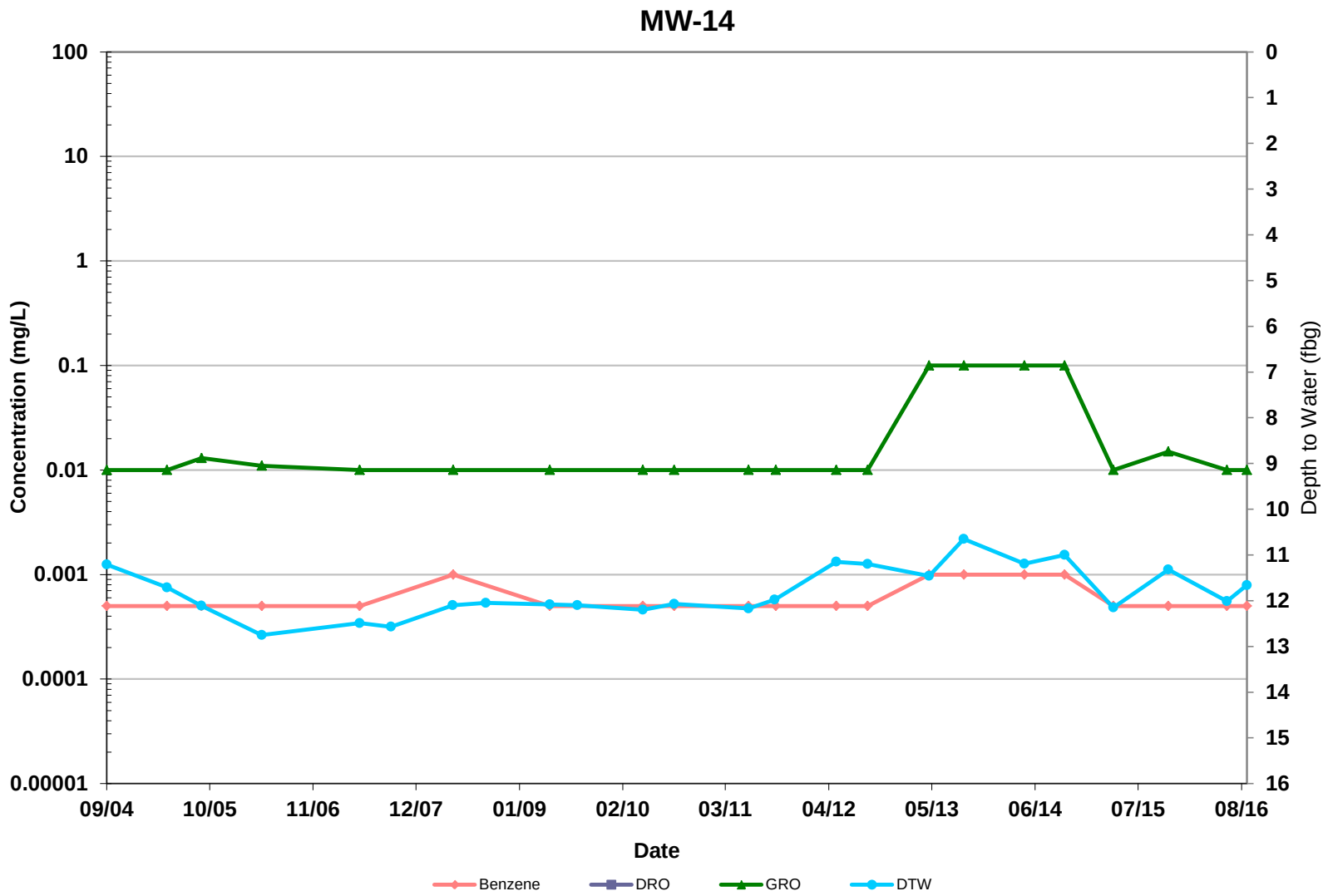
Anchorage, Alaska



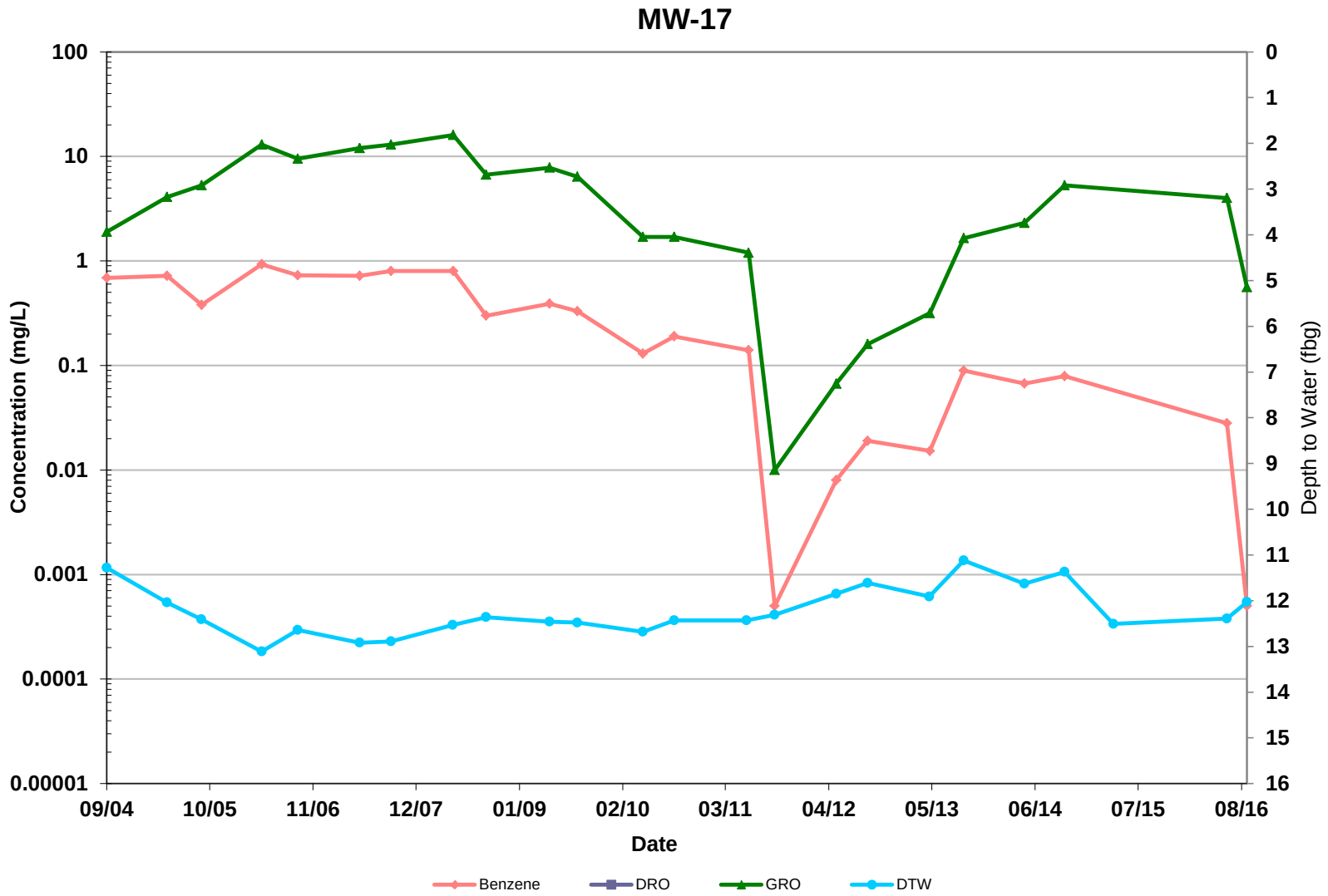
Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



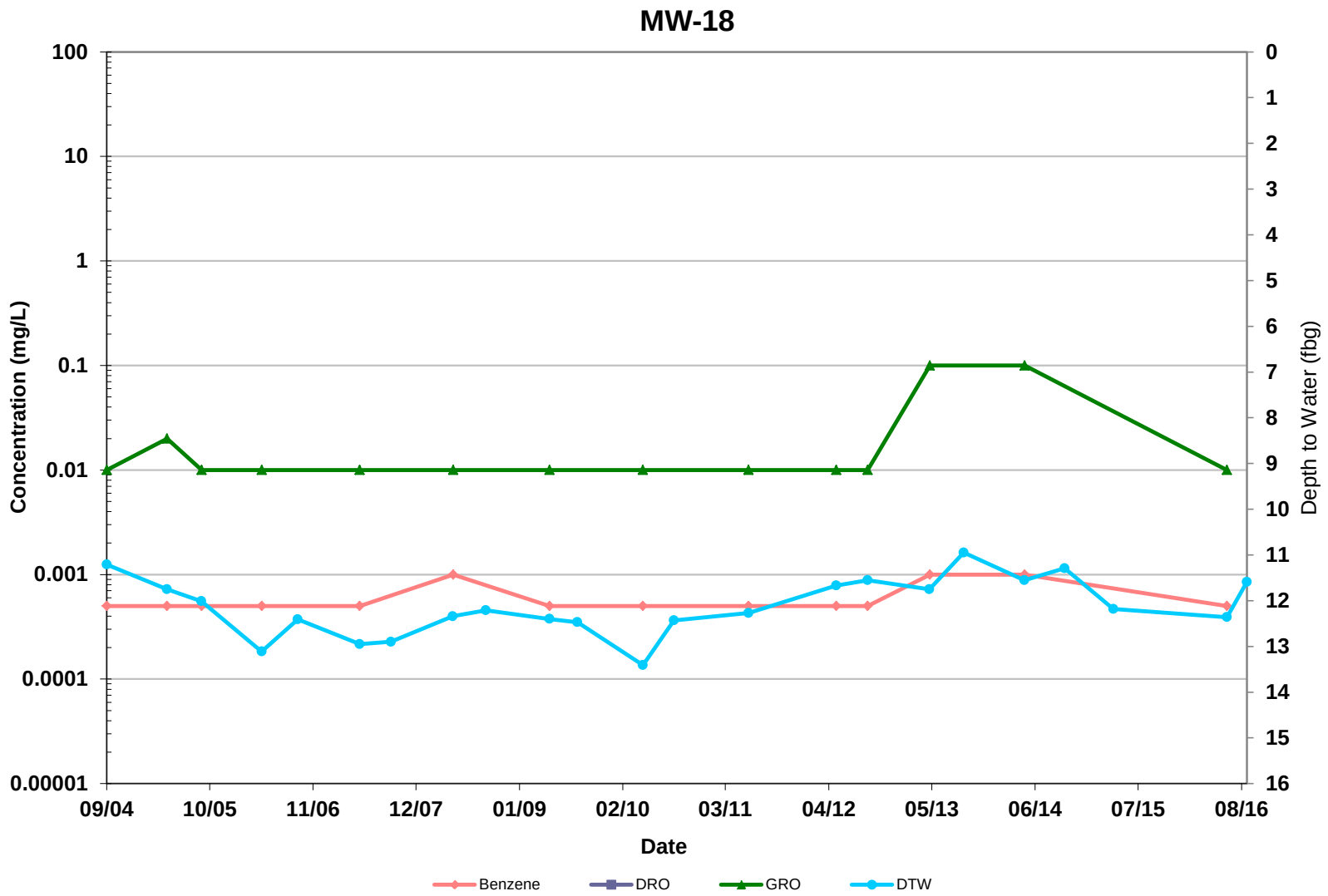
Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



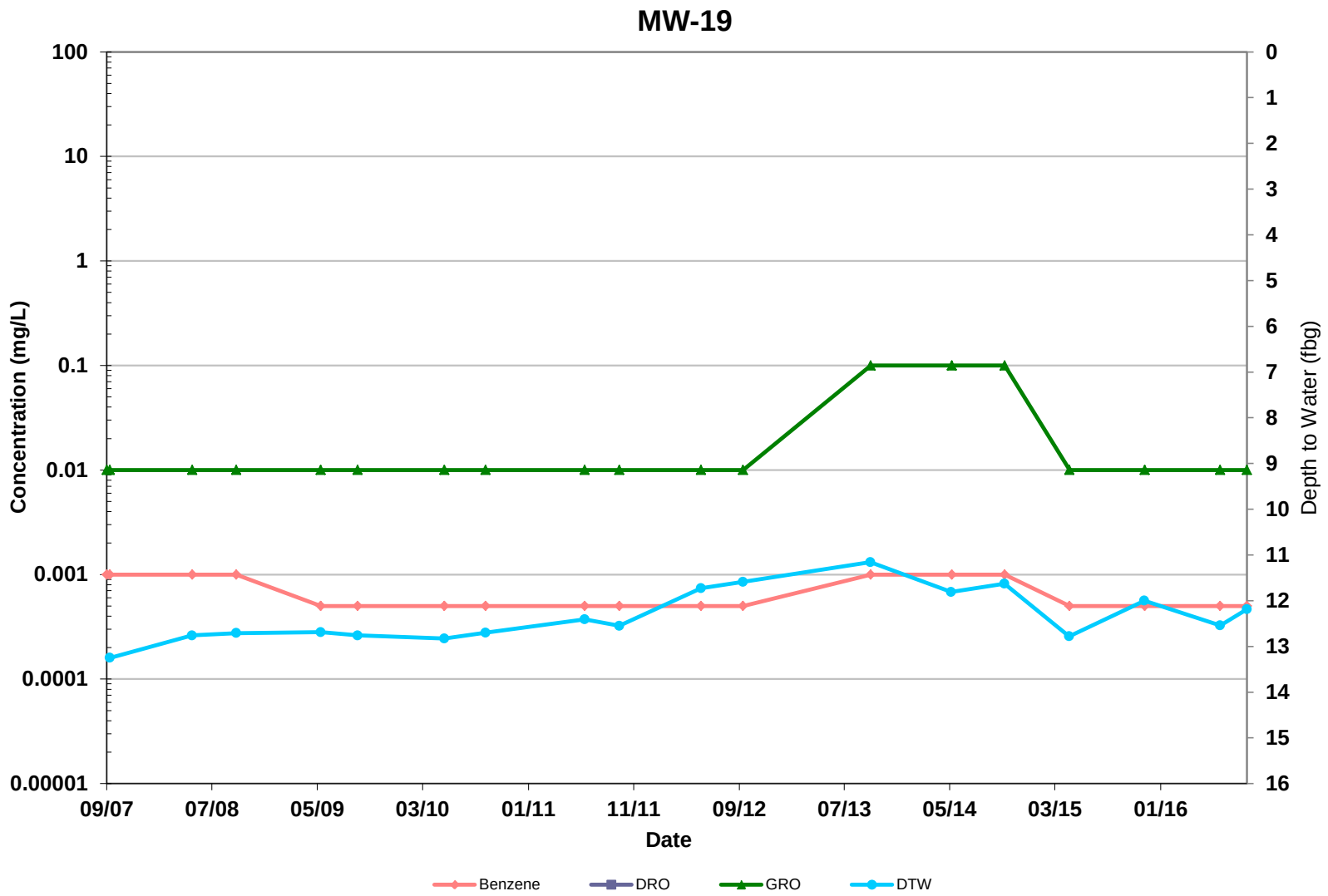
Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



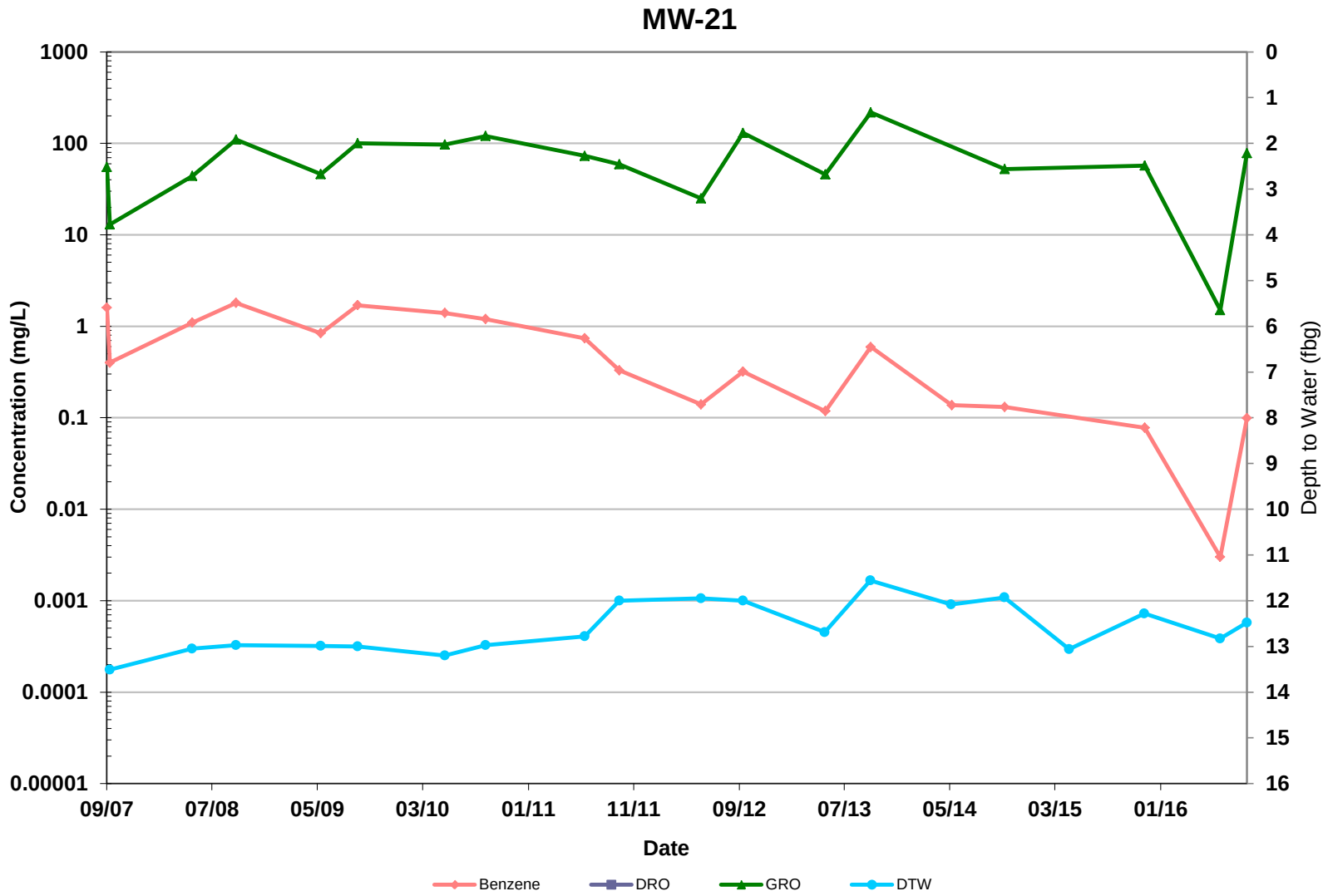
Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



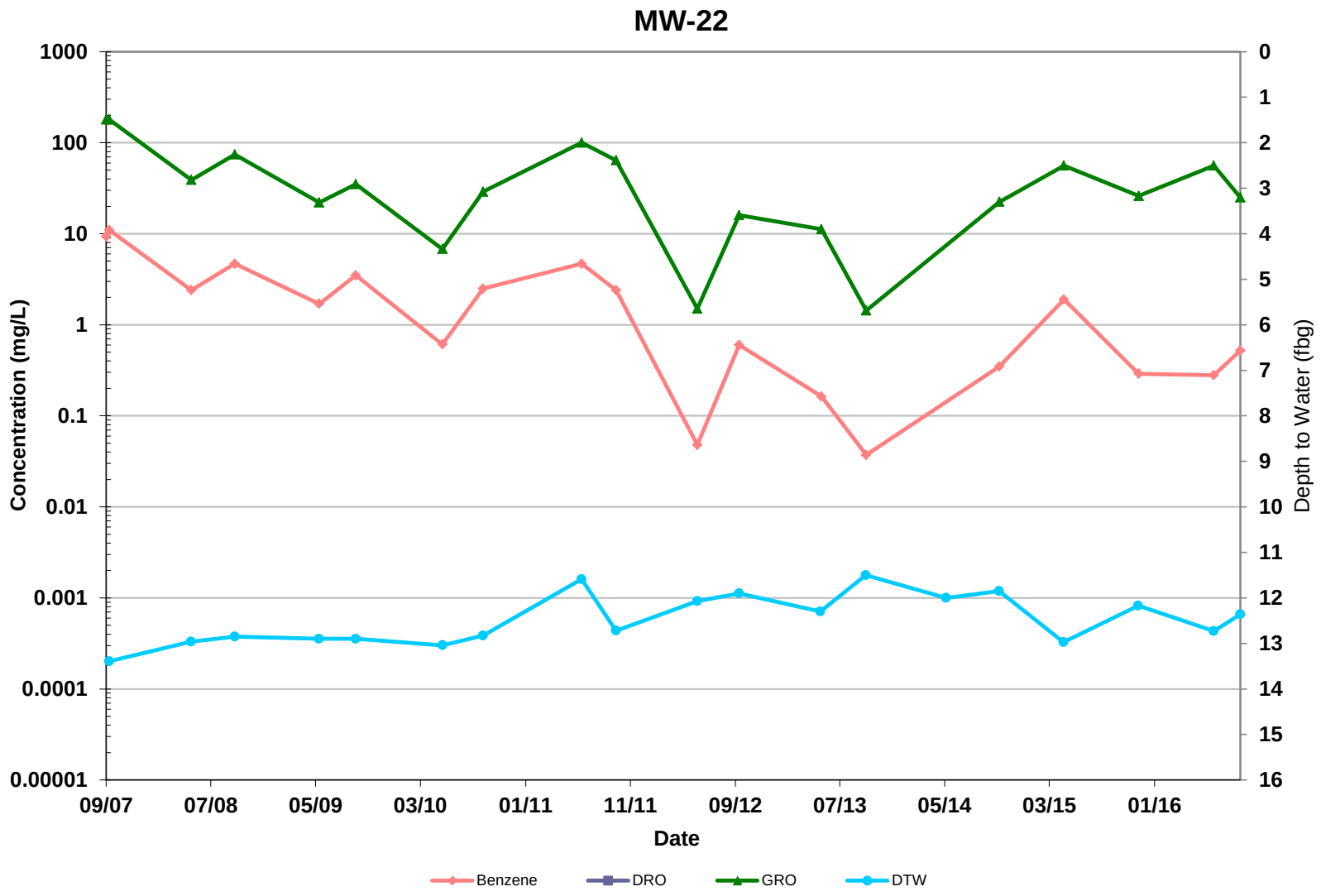
Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



Chevron-Branded Service Station 99014
3608 Minnesota Dr.,
Anchorage, Alaska



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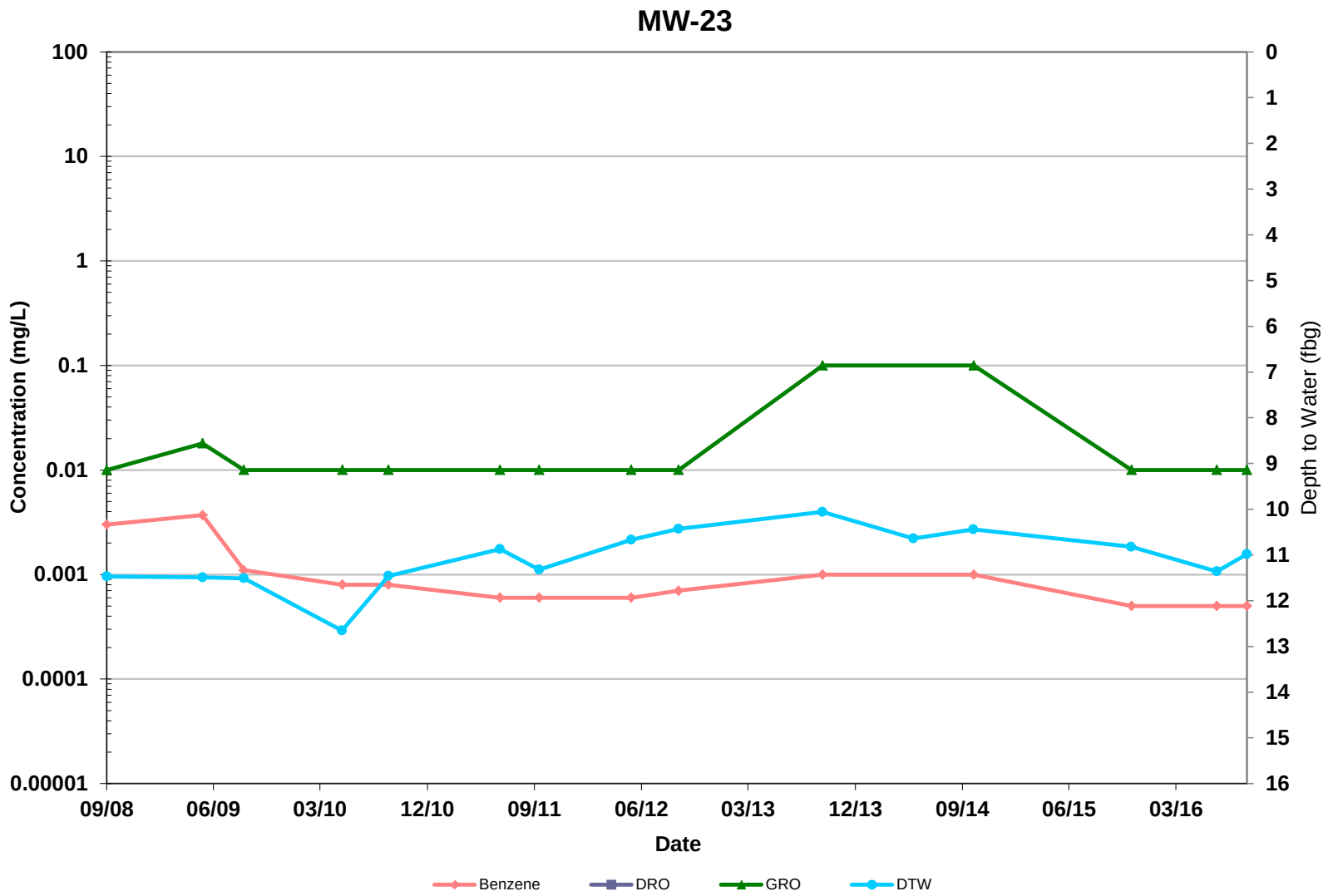
3608 Minnesota Dr.,
Anchorage, Alaska



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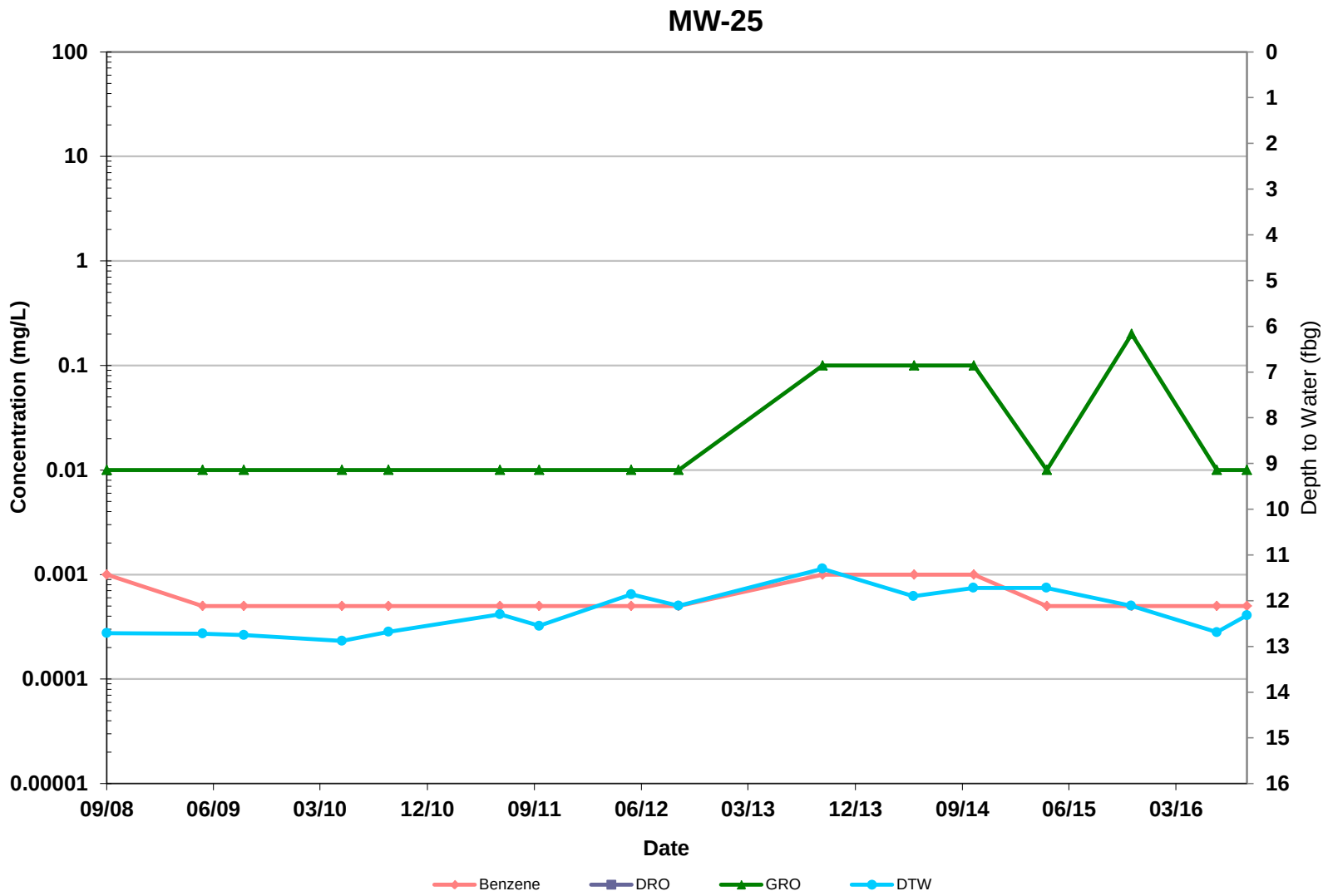
3608 Minnesota Dr.,
Anchorage, Alaska



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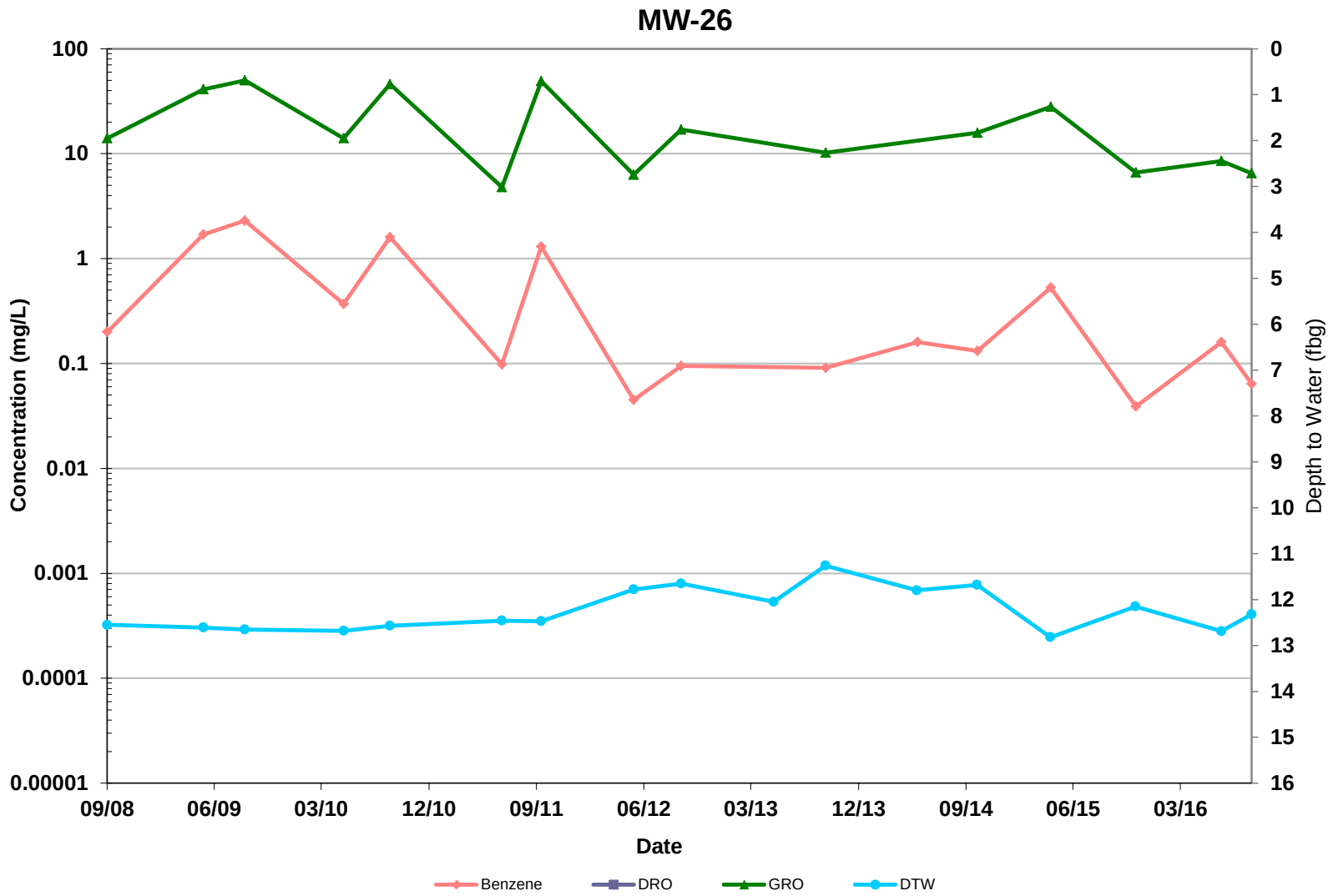

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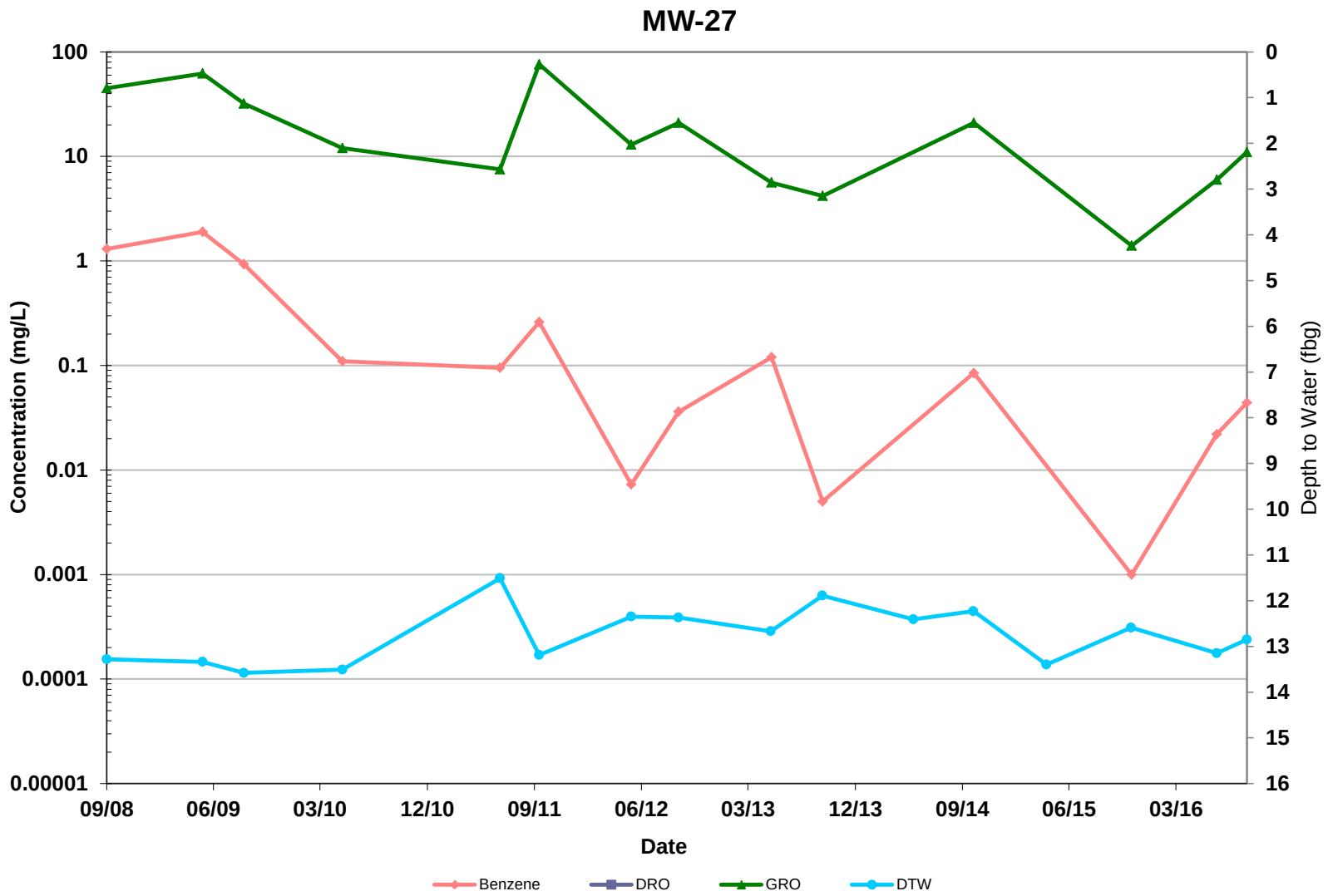

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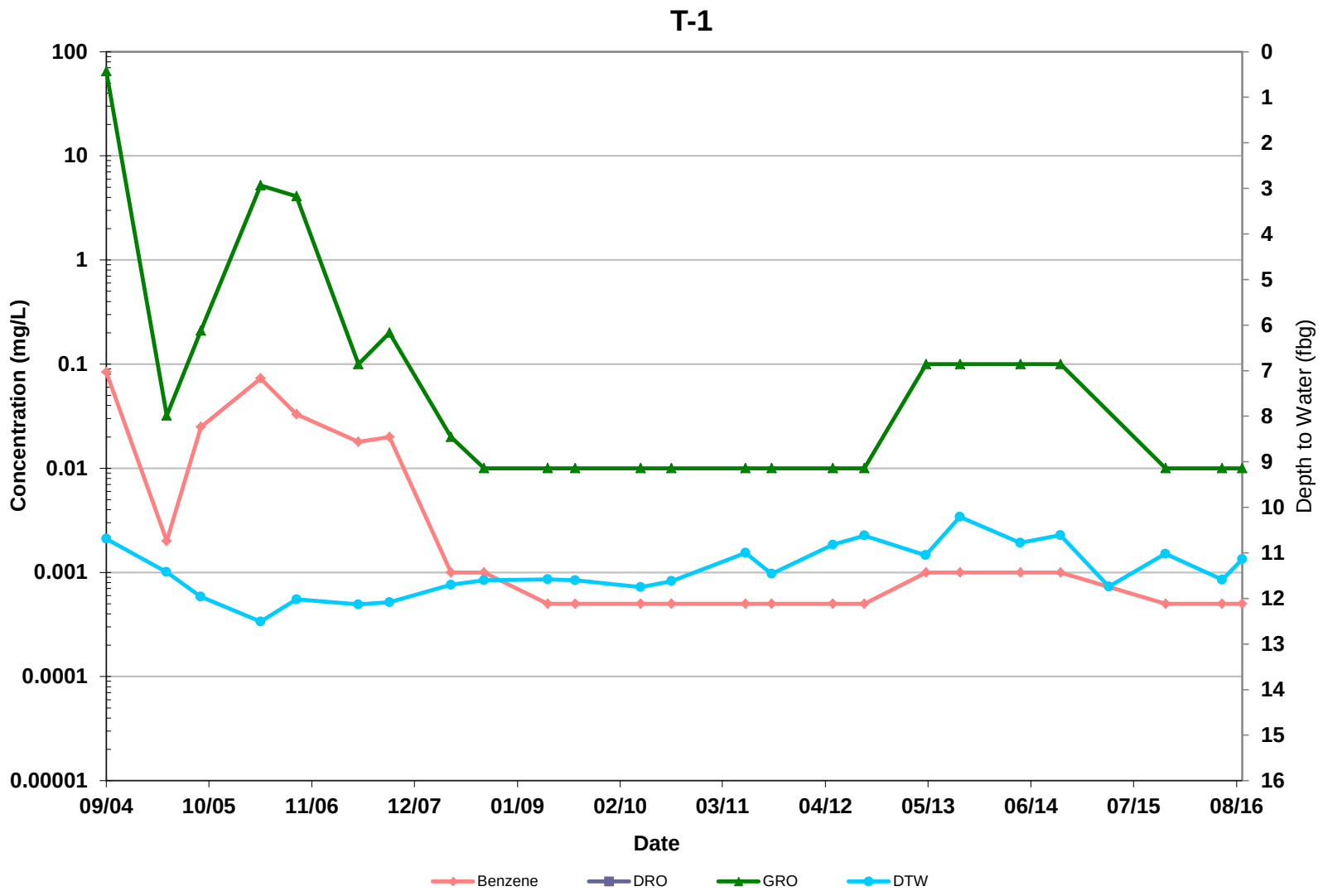

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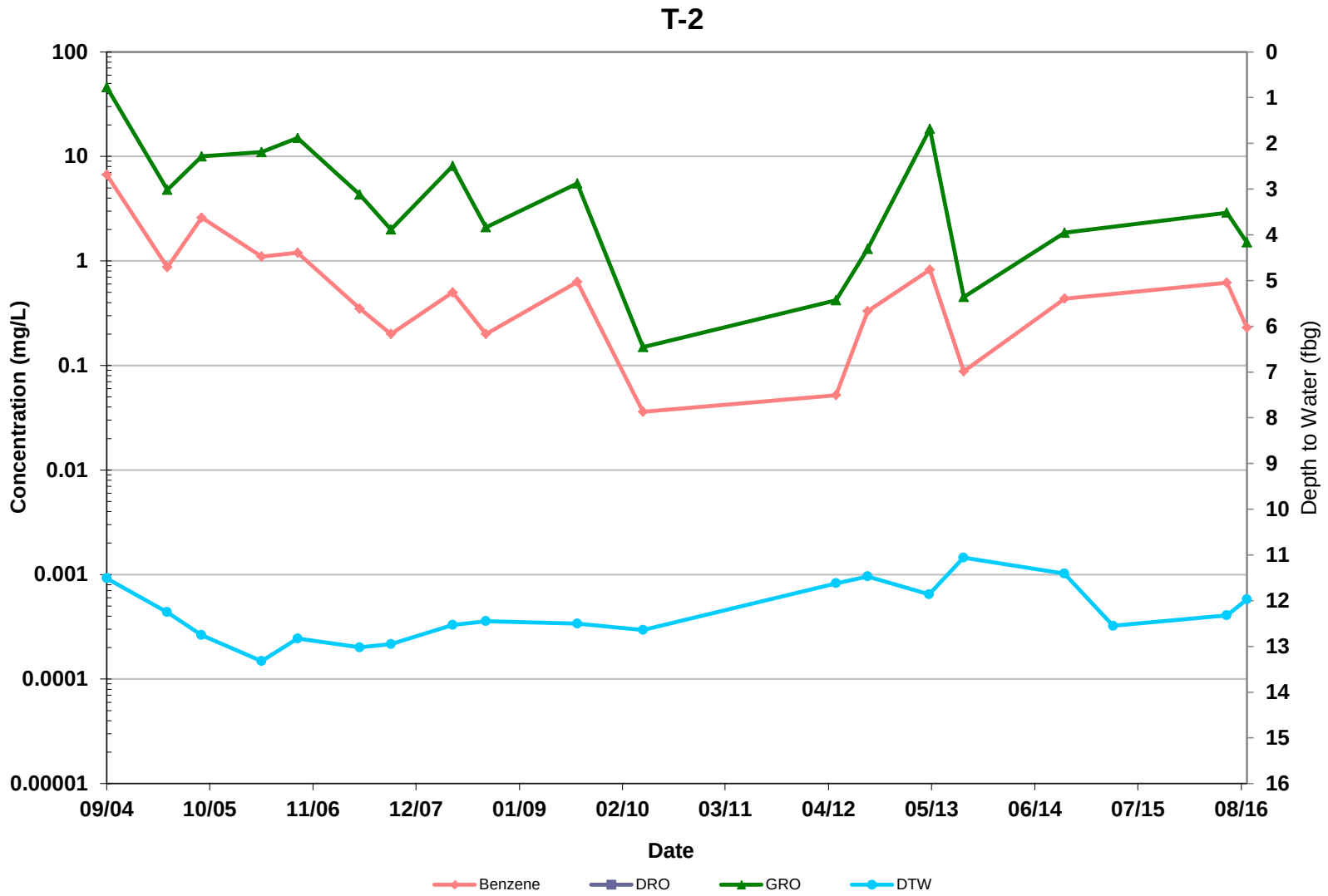

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