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Fourth Quarter 2013 and First Quarter 2014 Semi-Annual Groundwater Monitoring Report
Former BP Station #11109,
4280 Foothill Blvd
Oakland, California
ACEH Case #RO0000426

ENVIRONMENT

"I declare that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct."

Date:
April 30, 2014

Submitted by:

ARCADIS U.S., Inc

Hollis E. Phillips, PG
Project Manager

Contact:
Hollis E. Phillips

Phone:
415.432.6903

Email:
Hollis.phillips@arcadis-us.com

Our ref:
GP09BPNA.C106.N0000

Imagine the result

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Ms. Dilan Roe, P.E.
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject:
Fourth Quarter 2013 and First Quarter 2014 Semi-Annual Groundwater Monitoring Report
Former BP Station #11109,
4280 Foothill Blvd, Oakland, California
ACEH Case #RO0000426

ENVIRONMENT

Date:
April 30, 2014

Contact:
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Our ref:
GP09BPNA.C106.N0000

Dear Ms. Roe:

ARCADIS U.S., Inc. (ARCADIS) has prepared this *Fourth Quarter 2013 and First Quarter 2014 Semi-Annual Groundwater Monitoring Report* to document the results of groundwater monitoring and sampling and remediation progress at the Former BP Service Station #11109 located at 4280 Foothill Boulevard in Oakland, Alameda County, California (the Site; Figure 1).

1. Summary

A summary of the work performed at the Site during this reporting period and the proposed work for the next reporting period is provided below.

Work Performed – This Semi-Annual Reporting Period (October 1, 2013 to March 31, 2014)

- Submitted the Second and Third Quarter 2013 Semi-Annual Groundwater Monitoring Report on October 30, 2013.

- Conducted First Quarter 2014 semi-annual groundwater monitoring event on March 13, 2014. The LNAPL absorbent socks in monitoring wells MW-5, MW-10, and MW-12 were replaced on March 18, 2014.

Work Proposed – Next Semi-Annual Reporting Period (April 1, 2013 to September 30, 2013)

- Submit the *Fourth Quarter 2013 and First Quarter 2014 Semi-Annual Groundwater Monitoring Report* contained herein.

- Prepare for semi-annual groundwater monitoring/sampling activities to be conducted in Third Quarter 2014.

2. Groundwater Monitoring/Sampling Activities and Results

First Quarter 2014 groundwater monitoring was conducted on March 13, 2014 by Broadbent & Associates, Inc. (BAI) personnel. Groundwater monitoring was conducted concurrently at the adjacent Chevron #9-0076 (ACEH Case #RO0000427) to further characterize hydrogeology in the vicinity of the Site. Prior to groundwater sampling, depth-to-water measurements were collected in wells MW-2 through MW-12 with an oil/water interface probe. A sheen was observed in monitoring wells MW-5 and MW-11. Light non-aqueous phase liquid (LNAPL) was present in MW-10 and MW-12. Monitoring well MW-2 was noted as dry during gauging activities, however, further investigation has confirmed that this well has been damaged; no other irregularities were noted during water level gauging. Depth-to-water (DTW) measurements on-site ranged from 9.71 ft below top of casing (bTOC) at MW-11 to 15.59 ft bTOC at MW-4. Resulting groundwater surface elevations on-site ranged from 26.66 feet above mean sea level (ft msl) at MW-8 to 34.10 ft msl at MW-9. Groundwater elevations at the adjacent Chevron site calculated using provided field forms and surveyed top of casing (TOC) values from GeoTracker varied from 8.82 ft msl (C-9) to 29.28 ft msl (C-10). Field methods used during groundwater monitoring are provided as Appendix A and field data sheets are included as Appendix B. Groundwater elevations are summarized in Table 1, and a groundwater elevation contour map is presented on Figure 2.

Groundwater samples were collected on March 13, 2014 from wells MW-3, MW-4, MW-6, and MW-7 using HydraSleeve™ groundwater samplers, which collect a representative sample from a specific depth interval within the monitoring well screen. Samples were not collected from wells MW-5, MW-10, MW-11, and MW-12 due to the presence of LNAPL/sheen. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to TestAmerica Laboratories, Inc. (Pleasanton, California) for analysis of Gasoline-Range Organics (GRO, C6-C12) by EPA Method 8260B (MW-4, MW-7); for Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), Ethyl Tertiary Butyl Ether (ETBE), Tert-Amyl Methyl Ether (TAME), Di-Isopropyl Ether (DIPE), 1,2-Dibromomethane (EDB), 1,2-Dichloroethane (1,2-DCA), Tert-Butyl Alcohol (TBA) and Ethanol by EPA Method 8260 (MW-7); and Methyl Tertiary Butyl Ether (MTBE) by EPA Method 8260B (MW-3, MW-4, MW-6, MW-7). No significant irregularities were encountered during analysis of the samples. The laboratory analytical report, including chain-of-custody documentation, is provided in Appendix C.

Groundwater monitoring data (GEO_WELL) and laboratory analytical results (EDF) were uploaded to the GeoTracker AB2886 database. Upload confirmation receipts are provided in Appendix D.

3. LNAPL Removal Activities

LNAPL absorbent socks were first placed in monitoring wells MW-5, MW-10, and MW-12 on May 7, 2013 to remove residual LNAPL at each location, as discussed in the *Results of DPE Pilot Test and SPH Removal* summary letter. Following semiannual gauging and sampling activities, the absorbent socks were replaced as needed. The socks appeared to have absorbed LNAPL within the wells since deployment on September 20, 2013. Free product was observed in all three wells, sheen in MW-5 and a thickness of 0.01 in MW-10 and MW-12. Upon removal, the absorbent socks at MW-5, MW-10, and MW-12 were observed to be about ninety percent saturated with LNAPL and were replaced. Field notes from absorbent sock replacement activities are provided in Appendix B.

4. Discussion/Conclusions

Groundwater levels were between historic minimum and maximum elevations for all wells monitored on-site. Monitoring well MW-2 has historically been reported as dry. However, further investigation has confirmed that this well is in fact damaged.

The groundwater elevations observed at monitoring wells C-4 and C-10 at the adjacent Chevron station were not consistent with other site monitoring locations, and therefore were omitted from the contours provided on Figure 2. Groundwater elevations calculated for the Site and the adjacent Chevron facility yielded an average groundwater gradient of approximately 0.045 ft/ft towards the southwest. The current groundwater elevation contour map is provided on Figure 2.

Groundwater monitoring laboratory analytical results are summarized in Table 1 and are consistent with historical concentrations observed. A groundwater analytical summary map is provided as Figure 3.

- GRO was detected in monitoring wells MW-7 with a concentration of 100 µg/L.
- MTBE was detected in three monitoring wells (MW-3, MW-4, and MW-7) ranging from 1.3 µg/L (MW-7) to 19 µg/L (MW-4)
- ETBE, TAME, DIPE, EDB, TBA 1,2-DCA, benzene, toluene, ethylbenzene, total xylenes, and ethanol were below laboratory reporting limits for all wells sampled

5. Recommendations

ARCADIS recommends continued groundwater monitoring and sampling on a semi-annual basis in accordance with the approved schedule.

6. Limitations

The findings presented in this report are based upon observations of field personnel, points investigated, results of laboratory tests performed by TestAmerica Laboratories, Inc. (Pleasanton, California), and our understanding of Alameda County Environmental Health (ACEH) requirements. Our services were performed in accordance with the generally accepted standard of practice at the time this report was written. No other warranty, expressed or implied was made. This report has been prepared for the exclusive use of ARCADIS-US, Inc. and Atlantic Richfield Company. It is possible that variations in soil or groundwater conditions could exist beyond points explored in this investigation. Also, changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

If you have any questions or comments regarding the contents of this report, please contact Hollis Phillips by telephone (415.432.6903) or by e-mail (Hollis.Phillips@arcadis-us.com).

Sincerely,

ARCADIS

Hollis E. Phillips, P.G. (No. 6887)
Project Manager

cc: Ms. Dilan Roe, Alameda County Environmental Health (Submitted via ACEH ftp Site)
Mr. Ed Ralston, ConocoPhillips, 76 Broadway, Sacramento, California 95818
Electronic copy uploaded to GeoTracker

ATTACHMENTS:

Figure 1:	Site Location Map
Figure 2:	Groundwater Elevation Contour Map – March 13, 2014
Figure 3:	Analytical Summary Map – March 13, 2014
Table 1:	Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
Table 2:	Historical Groundwater Flow Direction and Gradient
Appendix A:	Field Methods
Appendix B:	Field Data Sheets
Appendix C:	Laboratory Report and Chain-of-Custody Documentation
Appendix D:	GeoTracker Upload Confirmation Receipts

LIST OF COMMONLY USED ACCRONYMS/ABBREVIATIONS:

ACEH:	Alameda County Environmental Health	ft/ft:	feet per foot
BAI:	Broadbent & Associates, Inc.	gal:	Gallons
BTEX:	Benzene, Toluene, Ethylbenzene, Total Xylenes	GRO:	Gasoline-Range Organics
1,2-DCA:	1,2-Dichloroethane	LNAPL:	Light Non-Aqueous Phase Liquid
DIPE:	Di-Isopropyl Ether	MTBE:	Methyl Tertiary Butyl Ether
DO:	Dissolved Oxygen	TAME:	Tert-Amyl Methyl Ether
DRO:	Diesel-Range Organics	TBA:	Tertiary Butyl Ether
EDB:	1,2-Dibromomethane	TOC:	Top of Casing
EPA:	Environmental Protection Agency	µg/L:	Micrograms per liter
ETBE:	Ethyl Tertiary Butyl Ether		

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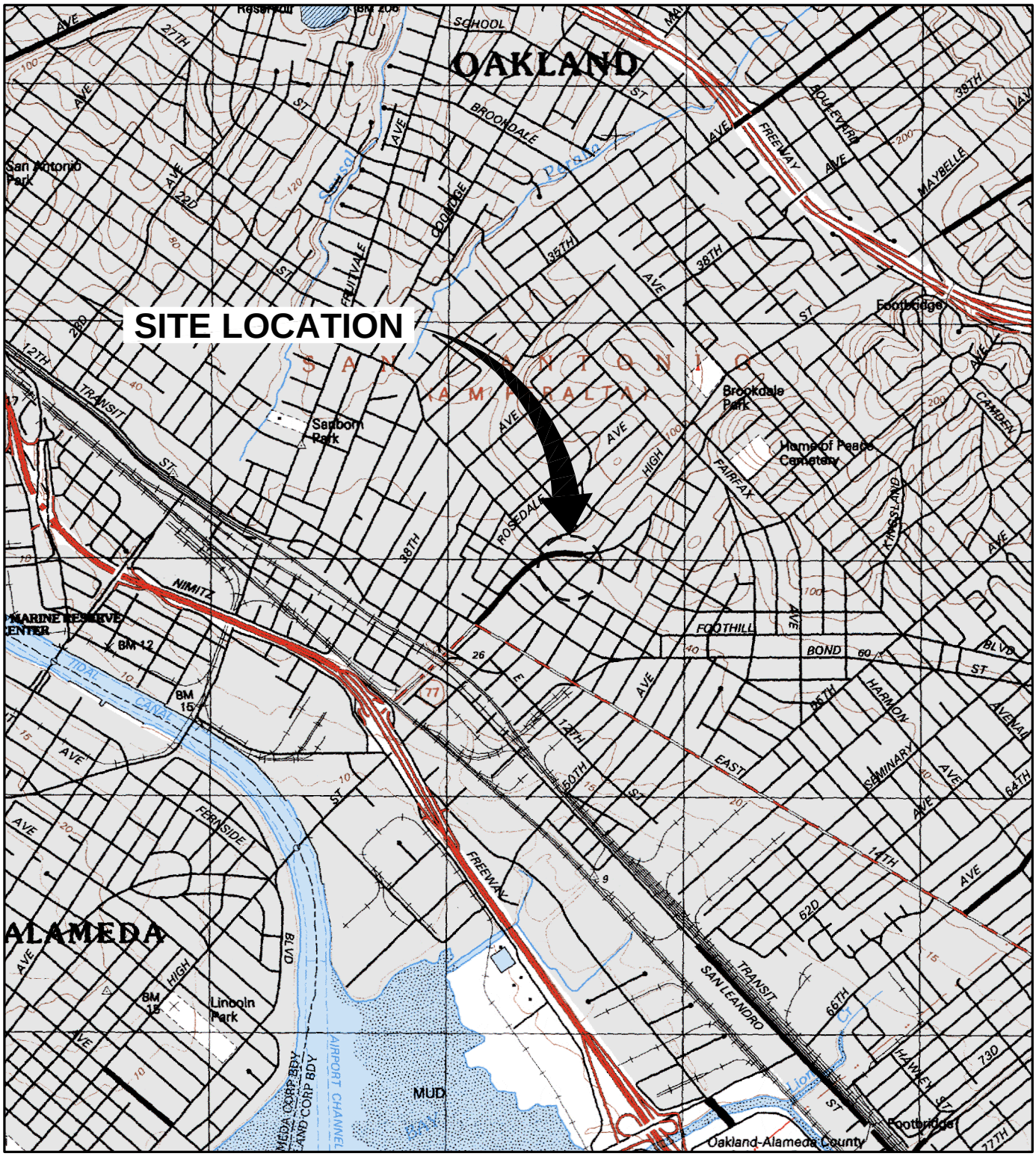
Figures



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD.,OAKLAND WEST, CA., 1993, AND SAN LEANDRO, 1993, REVISED 1996.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

FORMER BP STATION #11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

SITE LOCATION MAP

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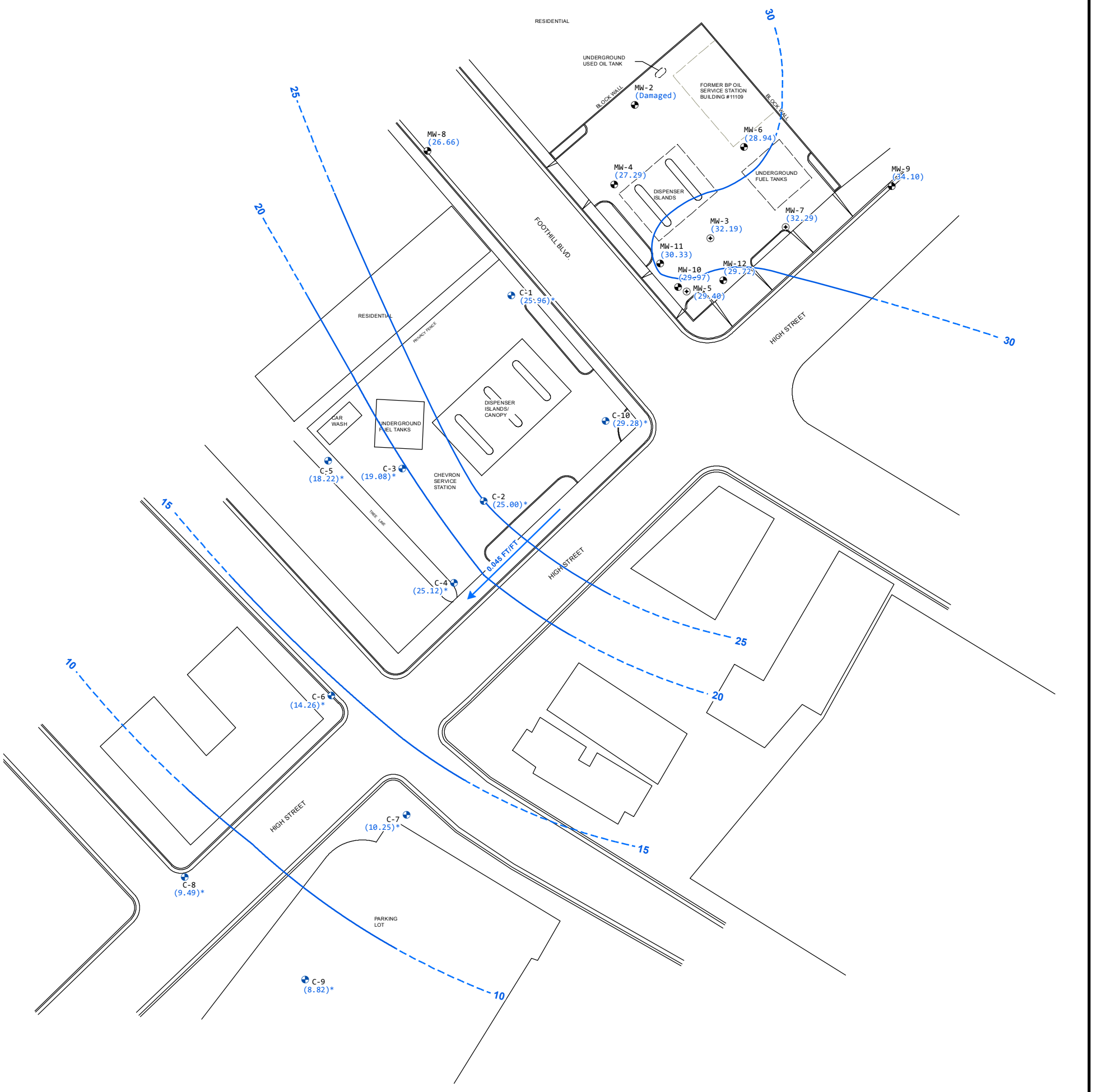
FIGURE
1

CITY: PETALUMA, CA DIV/GROUP: ENV DB: J. HARRIS LD:--- PIC:--- PM: H. PHILLIPS TM: B. McKENNA LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\Petaluma\ACTIVE\GP09BPNAC106\E0000\GP09BPNAC106-1.dwg LAYOUT: 1SAVED: 11/20/2009 8:30 AM ACADVER: 17.1S (LMS TECH) PAGESETUP: SETUP:1PLOTSTYLETABLE: ARCADIS.CTB PLOTTED: 11/20/2009 8:40 AM BY: HARRIS, JESSICA
XREFS: IMAGES: PROJECTNAME: ---
GP09BX01.tif
GP09BX03.tiff



LEGEND:

- GROUNDWATER MONITORING WELL
- GROUNDWATER MONITORING WELL-CHEVRON
- RECOVERY POINT
- (27.07) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- 12 GROUNDWATER ELEVATION CONTOUR LINE (DASHED WHERE INFERRED)
- 0.03 GROUNDWATER FLOW DIRECTION (FOOT PER FOOT)
- * NOT USED FOR CONTOURING
- NG NOT GAUGED

NOTE:
GROUNDWATER ELEVATIONS AT ADJACENT CHEVRON SITE CALCULATED BASED ON FIELD DEPTH TO WATER DATA PROVIDED BY CHEVRON AND TOP OF CASING MEASUREMENTS AVAILABLE ON GEOTRACKER

0 50 100
SCALE IN FEET

NOTES:

1. BASE MAP PROVIDED BY BROADBENT & ASSOCIATES, INC. DATED 10/26/2009, REFERENCE 06-88-646, AT A SCALE OF 1"=40'.

FORMER BP STATION #11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA
GROUNDWATER MONITORING REPORT FIRST QUARTER 2014

GROUNDWATER ELEVATION CONTOUR MAP - MARCH 13, 2014

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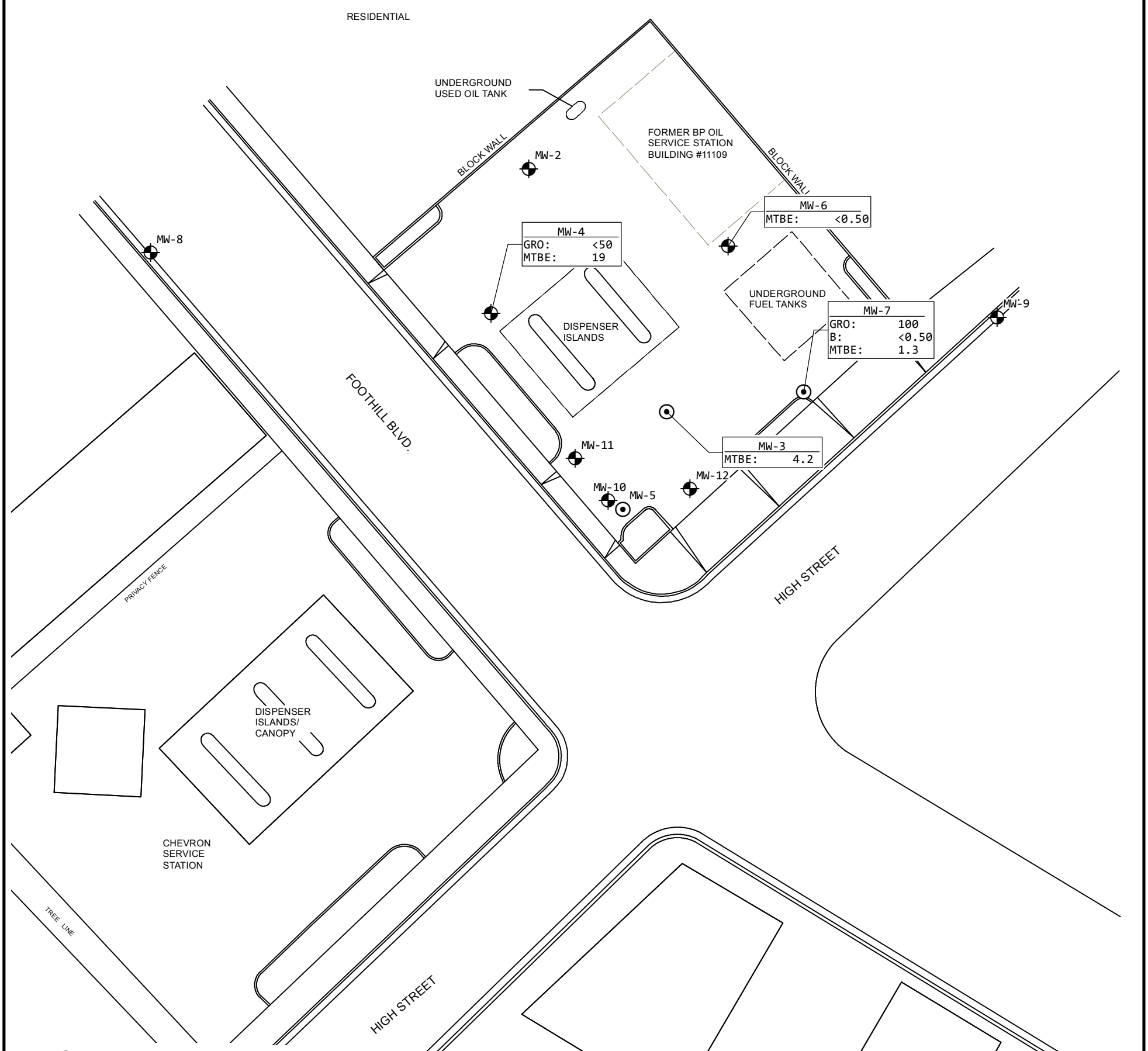
FIGURE
2

CITY: SAN FRANCISCO DIV/GROUP: ENV/IM DB: MSMILLER LD: PIC: PM: TM:
PROJECT: PATH: Z:\GISPROJECTS_ENV\BP_FOXGLOVE\CA\CA11109\GIS\MXD\CA11109_FIGURE_4_GWANALYTICAL_20120725.MXD DATE: 10/29/2013 11:53:06 AM



LEGEND:

- MONITORING WELL
- RECOVERY WELL

MW-7	
GRO:	100
B:	<0.50
MTBE:	1.3

MW-7 — SAMPLE LOCATION ID
GRO, B, MTBE — CONCENTRATION IN MICROGRAMS PER LITER (µg/L)
GRO, B, MTBE — ANALYTE

GRO	GASOLINE RANGE ORGANICS
B	BENZENE
MTBE	METHYL TERTIARY-BUTYL ETHER
<	NOT DETECTED AT OR ABOVE STATED LABORATORY REPORTING LIMIT
NS	NOT SAMPLED
NA	NOT ANALYZED

NOTE:
SAMPLES WERE NOT COLLECTED FROM MONITORING WELLS CONTAINING MEASURABLE FREE PRODUCT.

0 40 80
SCALE IN FEET

NOTES:
1. BASE MAP PROVIDED BY BROADBENT & ASSOCIATES, INC. DATED 10/26/2009, REFERENCE 06-88-646, AT A SCALE OF 1"=40'.

FORMER BP STATION #11109
4280 FOOTHILL BOULEVARD
OAKLAND, CALIFORNIA

GROUNDWATER MONITORING REPORT
FIRST QUARTER 2013

ANALYTICAL SUMMARY MAP
MARCH 13, 2014

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FIGURE
3

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Tables

Table 1
Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-1	1/31/1990	38.19	15.41	--	22.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-1	9/16/2010	--	--	--	--	--	5,500	400	250	320	410	11	<20	<2.5	<2.5	<2.5	<500	<2.5	<2.5	
MW-2	2/5/1990	41.22	21.90	--	19.32	--	1,300	14	<0.1	9	13	--	--	--	--	--	--	--	--	
MW-2	2/14/1991	41.22	21.16	--	20.06	<10,000	<50	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	--	
MW-2	5/13/1991	41.22	21.32	--	19.90	<50	<50	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	--	
MW-2	7/24/1991	41.22	22.92	--	18.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	10/3/1991	41.22	24.90	--	16.32	<50	<50	<0.3	0.8	<0.3	<0.3	--	--	--	--	--	--	--	--	
MW-2	10/15/1991	41.22	24.10	--	17.12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	12/16/1991	41.22	23.95	--	17.27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	1/6/1992	41.22	23.30	--	17.92	<50	<50	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	--	
MW-2	1/22/1992	41.22	23.14	--	18.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	1/28/1992	41.22	22.99	--	18.23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	2/5/1992	41.22	22.63	--	18.59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	2/12/1992	41.22	22.04	--	19.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	2/17/1992	41.22	20.84	--	20.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	4/3/1992	41.22	18.29	--	22.93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	4/8/1992	41.22	18.86	--	22.36	63	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-2	4/14/1992	41.22	19.45	--	21.77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	4/29/1992	41.22	20.35	--	20.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	5/7/1992	41.22	20.84	--	20.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	7/3/1992	41.22	22.34	--	18.88	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-2	10/8/1992	41.22	23.73	--	17.49	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-2	12/31/1992	41.22	21.12	--	20.10	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-2	4/21/1993	41.22	17.68	--	23.54	<50	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	a
MW-2	7/7/1993	41.22	20.30	--	20.92	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-2	9/21/1993	41.22	21.93	--	19.29	--	<50	0.9	0.7	0.7	2.6	21.54	--	--	--	--	--	--	--	
MW-2	12/17/1993	41.22	21.48	--	19.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	12/23/1993	--	--	--	--	--	<50	<0.5	<0.5	<0.5	0.7	--	--	--	--	--	--	--	--	
MW-2	4/7/1994	41.22	20.25	--	20.97	--	<50	<0.5	<0.5	<0.5	<0.5	12.2	--	--	--	--	--	--	--	
MW-2	7/6/1994	41.22	20.59	--	20.63	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-2	10/7/1994	41.22	22.04	--	19.18	--	<50	<0.5	<0.5	<0.5	<0.5	15.2	--	--	--	--	--	--	--	
MW-2	1/27/1995	41.22	26.12	--	15.10	440	<50	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--	--	--	--	
MW-2	3/30/1995	41.22	12.34	--	28.88	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	
MW-2	6/20/1995	41.22	16.42	--	24.80	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	
MW-2	10/3/1995	41.22	20.06	--	21.16	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	--	--	--	
MW-2	12/6/1995	41.22	21.31	--	19.91	--	<50	<0.50	<0.50	<0.50	<1.0	46	--	--	--	--	--	--	--	
MW-2	3/21/1996	41.22	12.28	--	28.94	--	<50	<0.5	<1.0	<1.0	<1.0	<1.0	--	--	--	--	--	--	--	
MW-2	6/21/1996	41.22	13.28	--	27.94	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-2	9/6/1996	41.22	13.94	--	27.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	9/9/1996	--	--	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-2	12/19/1996	41.22	12.19	--	29.03	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-2	3/17/1997	41.22	11.59	--	29.63	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	8/12/1997	41.22	13.21	--	28.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Table 1
Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-2	12/10/1997	41.22	12.34	--	28.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	3/12/1998	41.22	11.04	--	30.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	6/23/1998	41.22	11.77	--	29.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	3/31/1999	41.22	12.38	--	28.84	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	8/25/1999	41.22	17.72	--	23.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	3/9/2000	41.22	11.94	--	29.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	3/8/2001	41.22	10.31	--	30.91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	3/8/2002	41.22	14.35	--	26.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	3/18/2002	41.22	13.11	--	28.11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	3/11/2003	41.22	13.24	--	27.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	12/9/2003	41.22	18.58	--	22.64	--	350	<0.50	<0.50	0.56	2.8	24	<20	<0.50	<0.50	<0.50	<100	--	--	b
MW-2	3/9/2004	41.22	12.52	--	28.70	--	74	<0.50	<0.50	0.83	4.7	27	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-2	9/17/2004	41.22	18.05	--	23.17	--	59	<0.50	<0.50	<0.50	<0.50	21	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-2	3/7/2005	41.22	2.32	--	38.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	c
MW-2	9/5/2006	41.22	10.46	--	30.76	--	79	<0.50	5.1	<0.50	0.73	<0.50	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	c
MW-2	3/5/2007	41.22	12.25	--	28.97	--	--	--	--	--	--	--	--	--	--	--	--	--	--	c
MW-2	3/6/2008	41.22	12.33	--	28.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	d
MW-2	9/5/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	3/20/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-2	9/20/2013	41.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	j
MW-2	3/13/2014	41.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	j
MW-3	2/5/1990	40.74	17.45	--	23.29	--	1,400	15	<2.5	11	8	--	--	--	--	--	--	--	--	
MW-3	2/14/1991	40.74	18.52	--	22.22	--	320	8	<0.3	8	1	--	--	--	--	--	--	--	--	
MW-3	5/13/1991	40.74	19.32	--	21.42	--	640	13	<0.3	18	1	--	--	--	--	--	--	--	--	
MW-3	7/24/1991	40.74	20.69	--	20.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	10/3/1991	40.74	19.47	--	21.27	--	940	21	<0.3	23	2.1	--	--	--	--	--	--	--	--	
MW-3	10/15/1991	40.74	20.46	--	20.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	12/4/1991	40.74	18.29	--	22.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	12/16/1991	40.74	18.34	--	22.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	1/6/1992	40.74	18.50	--	22.24	--	580	6.1	1	6.1	7.1	--	--	--	--	--	--	--	--	
MW-3	1/22/1992	40.74	17.86	--	22.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	1/28/1992	40.74	15.84	--	24.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	2/5/1992	40.74	17.53	--	23.21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	2/12/1992	40.74	17.15	--	23.59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	2/17/1992	40.74	16.18	--	24.56	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	4/3/1992	40.74	14.80	--	25.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	4/8/1992	40.74	17.06	--	23.68	--	1,100	30	4.6	32	11	--	--	--	--	--	--	--	--	
MW-3	4/14/1992	40.74	15.22	--	25.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	4/29/1992	40.74	15.90	--	24.84	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	5/7/1992	40.74	16.35	--	24.39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	7/3/1992	40.74	17.74	--	23.00	--	1,200	38	<2.5	24	<2.5	--	--	--	--	--	--	--	--	
MW-3	10/8/1992	40.74	19.06	--	21.68	--	1,400	31	<0.5	25	13	--	--	--	--	--	--	--	--	
MW-3	12/31/1992	40.74	16.61	--	24.13	--	820	12	4.1	13	5.9	--	--	--	--	--	--	--	--	

Table 1
Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-3	12/31/1992	40.74	16.61	--	24.13	--	960	11	3.6	10	3.8	--	--	--	--	--	--	--	--	e
MW-3	4/21/1993	40.74	14.24	--	26.50	--	420	5.6	<0.5	3.9	1.4	--	--	--	--	--	--	--	--	
MW-3	4/21/1993	40.74	14.24	--	26.50	--	390	5	<0.5	3.7	1.5	--	--	--	--	--	--	--	--	e
MW-3	7/7/1993	40.13	15.19	--	24.94	--	54	0.6	0.6	<0.5	<0.5	12.68	--	--	--	--	--	--	--	f
MW-3	9/21/1993	40.13	16.58	--	23.55	--	540	7.9	0.9	4.7	2.4	--	--	--	--	--	--	--	--	
MW-3	12/17/1993	40.13	15.82	--	24.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	12/23/1993	--	--	--	--	--	500	9.8	1.5	3.3	2.1	--	--	--	--	--	--	--	--	
MW-3	12/23/1993	--	--	--	--	--	480	9.2	<0.5	5.4	5.3	--	--	--	--	--	--	--	--	e
MW-3	4/7/1994	40.13	28.50	--	11.63	--	460	20	7.4	8.9	11	18.2	--	--	--	--	--	--	--	
MW-3	4/7/1994	40.13	28.50	--	11.63	--	460	20	7.7	9	11	--	--	--	--	--	--	--	--	e
MW-3	7/6/1994	--	--	--	--	--	300	10	0.6	1.7	6.4	5.54	--	--	--	--	--	--	--	
MW-3	10/7/1994	40.13	27.65	--	12.48	--	620	28	<0.5	2.2	12	31.4	--	--	--	--	--	--	--	
MW-3	1/27/1995	40.13	27.65	--	12.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	3/30/1995	40.13	26.05	--	14.08	--	300	10	6	3.4	18	--	--	--	--	--	--	--	--	
MW-3	6/20/1995	40.13	19.49	--	20.64	--	170	7.2	3.4	0.85	15	--	--	--	--	--	--	--	--	
MW-3	10/3/1995	40.13	24.93	--	15.20	--	170	2.1	<0.50	0.81	8	6.7	--	--	--	--	--	--	--	
MW-3	12/6/1995	40.13	25.14	--	14.99	--	1,700	6.7	3.1	2.8	210	64	--	--	--	--	--	--	--	
MW-3	12/6/1995	40.13	25.14	--	14.99	--	1,400	6.1	3	1.7	190	53	--	--	--	--	--	--	--	e
MW-3	3/21/1996	40.13	9.48	--	30.65	--	<50	0.5	<1.0	<1.0	1	<10	--	--	--	--	--	--	--	
MW-3	6/21/1996	40.13	11.60	--	28.53	--	<50	13	<1.0	<1.0	<1.0	12	--	--	--	--	--	--	--	
MW-3	9/6/1996	40.13	12.23	--	27.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	9/9/1996	--	--	--	--	--	<250	6.5	<5.0	<5.0	<5.0	<50	--	--	--	--	--	--	--	
MW-3	12/19/1996	40.13	10.46	--	29.67	--	<50	4.1	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-3	3/17/1997	40.13	9.86	--	30.27	--	50	<5.0	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-3	8/12/1997	40.13	12.11	--	28.02	--	<50	0.79	<1.0	<1.0	<1.0	10	--	--	--	--	--	--	--	
MW-3	12/10/1997	40.13	10.90	--	29.23	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-3	3/12/1998	40.13	10.20	--	29.93	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-3	3/12/1998	40.13	10.20	--	29.93	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	e
MW-3	6/23/1998	40.13	10.17	--	29.96	--	50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-3	3/31/1999	40.13	11.45	--	28.68	--	60	<1.0	<1.0	<1.0	<1.0	6.2	--	--	--	--	--	--	--	
MW-3	8/25/1999	40.13	12.52	--	27.61	--	<50	<1.0	<1.0	<1.0	<1.0	7.7	--	--	--	--	--	--	--	
MW-3	3/9/2000	40.13	12.39	--	27.74	--	<50	<0.5	0.54	<0.5	1.7	6.3	--	--	--	--	--	--	--	
MW-3	3/8/2001	40.13	10.41	--	29.72	--	<50	<0.5	<0.5	<0.5	0.59	7.7	--	--	--	--	--	--	--	
MW-3	3/8/2002	40.13	9.83	--	30.30	--	62	<0.5	<0.5	<0.5	<1.0	11.6	--	--	--	--	--	--	--	
MW-3	3/18/2002	40.13	9.20	--	30.93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	3/11/2003	40.13	10.54	--	29.59	--	<50	<0.50	<0.50	<0.50	<0.50	6.7	--	--	--	--	--	--	--	
MW-3	12/9/2003	40.13	12.88	--	27.25	--	<50	<0.50	<0.50	<0.50	<0.50	6.4	<20	<0.50	<0.50	<0.50	<100	--	--	
MW-3	3/9/2004	40.13	9.49	--	30.64	--	<50	<0.50	<0.50	<0.50	0.63	6.9	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-3	9/17/2004	40.13	12.76	--	27.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	3/7/2005	40.13	7.30	--	32.83	--	<50	<0.50	<0.50	<0.50	0.52	5.1	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-3	9/6/2005	42.92	10.81	--	32.11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	3/6/2006	42.92	8.85	--	34.07	--	<50	<0.50	<0.50	<0.50	<0.50	6.9	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-3	9/5/2006	42.92	9.86	--	33.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	3/5/2007	42.92	8.33	--	34.59	--	<50	<0.50	<0.50	<0.50	<0.50	5.4	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-3	9/7/2007	42.92	11.10	--	31.82	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Table 1
Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-3	3/6/2008	42.92	8.92	--	34.00	--	<50	<0.50	<0.50	<0.50	<0.50	4.2	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-3	9/3/2008	42.92	12.19	--	30.73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	3/4/2009	42.92	8.28	--	34.64	--	<50	<0.50	<0.50	<0.50	<0.50	4.9	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-3	9/30/2009	42.92	11.60	--	31.32	--	<50	<0.50	<0.50	<0.50	<0.50	6.8	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-3	10/28/2009	42.92	10.40	--	32.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	3/23/2010	42.92	8.27	--	34.65	--	<50	<0.50	<0.50	<0.50	<1.0	3.2	<4.0	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-3	6/10/2010	42.92	9.40	--	33.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-3	9/16/2010	42.92	11.14	--	31.78	--	<50	<0.50	<0.50	<0.50	<1.0	5.9	<4.0	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-3	2/23/2011	42.92	8.71	--	34.21	--	--	--	--	--	--	0.58	--	--	--	--	--	--	--	
MW-3	9/28/2011	42.92	11.14	--	31.78	--	--	--	--	--	--	3.2	--	--	--	--	--	--	--	
MW-3	3/8/2012	42.92	11.01	--	31.91	--	--	--	--	--	--	<0.50(*)	--	--	--	--	--	--	--	
MW-3	9/5/2012	42.92	11.42	--	31.50	--	--	--	--	--	--	6.5	--	--	--	--	--	--	--	
MW-3	3/20/2013	42.92	10.30	--	32.62	--	--	--	--	--	--	2.6	--	--	--	--	--	--	--	
MW-3	9/20/2013	42.92	11.90	--	31.02	--	--	--	--	--	--	4.1	--	--	--	--	--	--	--	
MW-3	3/13/2014	42.92	10.73	--	32.19							4.2								
MW-4	2/5/1990	40.11	20.75	--	19.36	--	620	<0.5	9	<0.5	10	--	--	--	--	--	--	--	--	
MW-4	2/14/1991	40.11	21.73	--	18.38	--	180	<0.3	<0.3	0.4	2	--	--	--	--	--	--	--	--	
MW-4	5/13/1991	40.11	18.55	--	21.56	--	72	0.7	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	--	
MW-4	7/24/1991	40.11	21.31	--	18.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	10/3/1991	40.11	22.57	--	17.54	--	57	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	--	--	--	
MW-4	10/15/1991	40.11	22.88	--	17.23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	12/4/1991	40.11	22.54	--	17.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	12/16/1991	40.11	22.59	--	17.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	1/6/1992	40.11	22.00	--	18.11	--	480	0.8	3.2	1.9	7.7	--	--	--	--	--	--	--	--	
MW-4	1/22/1992	40.11	21.58	--	18.53	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	1/28/1992	40.11	21.42	--	18.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	2/5/1992	40.11	21.10	--	19.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	2/12/1992	40.11	20.74	--	19.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	2/17/1992	40.11	19.78	--	20.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	4/3/1992	40.11	16.80	--	23.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	4/8/1992	40.11	17.13	--	22.98	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-4	4/14/1992	40.11	17.74	--	22.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	4/29/1992	40.11	18.56	--	21.55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	5/7/1992	40.11	19.10	--	21.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	7/3/1992	40.11	20.71	--	19.40	--	<50	0.6	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-4	10/8/1992	40.11	22.43	--	17.68	--	270	<0.5	2.1	2.5	3.2	--	--	--	--	--	--	--	--	
MW-4	12/31/1992	40.11	19.58	--	20.53	--	150	<0.5	<0.5	<0.5	1.3	--	--	--	--	--	--	--	--	
MW-4	4/21/1993	40.11	17.79	--	22.32	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-4	7/7/1993	40.11	18.44	--	21.67	--	160	1.2	5.4	3.8	19	5.51	--	--	--	--	--	--	--	
MW-4	9/21/1993	40.11	20.14	--	19.97	--	71	<0.5	1.9	<0.5	2.1	--	--	--	--	--	--	--	--	
MW-4	12/17/1993	40.11	19.80	--	20.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	12/23/1993	--	--	--	--	--	<50	3.1	1.6	0.8	3.8	5.7	--	--	--	--	--	--	--	
MW-4	4/7/1994	40.11	19.12	--	20.99	--	<50	<0.5	<0.5	<0.5	<0.5	11.7	--	--	--	--	--	--	--	
MW-4	7/6/1994	40.11	19.90	--	20.21	--	62	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-4	10/7/1994	40.11	20.07	--	20.04	--	<50	<0.5	<0.5	<0.5	<0.5	7.38	--	--	--	--	--	--	--	

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Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-4	1/27/1995	40.11	13.72	--	26.39	--	<50	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--	--	--	--	
MW-4	3/30/1995	40.11	11.46	--	28.65	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	
MW-4	6/20/1995	40.11	14.78	--	25.33	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	
MW-4	10/3/1995	40.11	19.62	--	20.49	--	<50	<0.50	<0.50	<0.50	<1.0	5	--	--	--	--	--	--	--	
MW-4	12/6/1995	40.11	19.91	--	20.20	--	<50	<0.50	<0.50	<0.50	<1.0	47	--	--	--	--	--	--	--	
MW-4	3/21/1996	40.11	11.12	--	28.99	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-4	6/21/1996	40.11	12.21	--	27.90	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-4	9/6/1996	40.11	12.89	--	27.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	9/9/1996	--	--	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-4	12/19/1996	40.11	11.01	--	29.10	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-4	3/17/1997	40.11	10.42	--	29.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	8/12/1997	40.11	12.77	--	27.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	12/10/1997	40.11	11.22	--	28.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	3/12/1998	40.11	10.81	--	29.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	6/23/1998	40.11	10.61	--	29.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	3/31/1999	40.11	11.46	--	28.65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	8/25/1999	40.11	16.16	--	23.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	3/9/2000	40.11	12.23	--	27.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	3/8/2001	40.11	11.04	--	29.07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	3/8/2002	40.11	12.73	--	27.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	3/18/2002	40.11	11.62	--	28.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	3/11/2003	40.11	13.44	--	26.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	12/9/2003	40.11	15.03	--	25.08	--	<250	<2.5	<2.5	<2.5	<2.5	130	<100	<2.5	<2.5	2.7	<500	--	--	
MW-4	3/9/2004	40.11	11.04	--	29.07	--	<50	<0.50	<0.50	<0.50	<0.50	35	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-4	9/17/2004	40.11	16.75	--	23.36	--	<250	<2.5	<2.5	<2.5	<2.5	140	<100	<2.5	<2.5	2.6	<500	<2.5	<2.5	
MW-4	3/7/2005	40.11	11.02	--	29.09	--	67	<0.50	<0.50	<0.50	<0.50	42	<20	<0.50	<0.50	0.56	<100	<0.50	<0.50	
MW-4	9/6/2005	42.88	14.64	--	28.24	--	81	<0.50	<0.50	<0.50	<1.5	180	<10	<0.50	<0.50	2.8	<150	<0.50	<0.50	
MW-4	3/6/2006	42.88	12.42	--	30.46	--	<100	<1.0	<1.0	<1.0	<1.0	110	<40	<1.0	<1.0	1.4	<600	<1.0	<1.0	
MW-4	9/5/2006	42.88	13.81	--	29.07	--	130	<1.0	<1.0	<1.0	<1.0	190	<40	<1.0	<1.0	1.7	<600	<1.0	<1.0	
MW-4	3/5/2007	42.88	10.63	--	32.25	--	<50	<0.50	<0.50	<0.50	<0.50	13	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-4	9/7/2007	42.88	14.77	--	28.11	--	90	<0.50	<0.50	<0.50	<0.50	130	<20	<0.50	<0.50	1.7	<300	<0.50	<0.50	
MW-4	3/6/2008	42.88	11.30	--	31.58	--	<50	<0.50	<0.50	<0.50	<0.50	170	14	<0.50	<0.50	2.1	<300	<0.50	<0.50	
MW-4	9/3/2008	42.88	16.11	--	26.77	--	<50	<5.0	<5.0	<5.0	<5.0	150	<100	<5.0	<5.0	<5.0	<3,000	<5.0	<5.0	
MW-4	3/4/2009	42.88	10.78	--	32.10	--	140	<5.0	<5.0	<5.0	<5.0	110	<100	<5.0	<5.0	<5.0	<3,000	<5.0	<5.0	
MW-4	9/30/2009	42.88	16.48	--	26.40	--	240	<2.0	<2.0	<2.0	<2.0	140	<40	<2.0	<2.0	<2.0	<1,200	<2.0	<2.0	
MW-4	10/28/2009	42.88	15.07	--	27.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	3/23/2010	42.88	10.82	--	32.06	--	<50	<0.50	<0.50	<0.50	<1.0	84	18	<0.50	<0.50	0.88	<100	<0.50	<0.50	
MW-4	6/10/2010	42.88	12.67	--	30.21	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-4	9/16/2010	42.88	15.72	--	27.16	--	120	<0.50	<0.50	<0.50	<1.0	72	8.0	<0.50	<0.50	0.82	<100	<0.50	<0.50	
MW-4	2/23/2011	42.88	11.43	--	31.45	--	<50	--	--	--	--	55	--	--	--	--	--	--	--	
MW-4	9/28/2011	42.88	15.34	--	27.54	--	150	--	--	--	--	62	--	--	--	--	--	--	--	
MW-4	3/8/2012	42.88	15.03	--	27.85	--	120	--	--	--	--	42	--	--	--	--	--	--	--	
MW-4	9/5/2012	42.88	15.90	--	26.98	--	56	<0.50	<0.50	<0.50	<1.0	47	18	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-4	3/20/2013	42.88	13.80	--	29.08	--	<50	--	--	--	--	17	--	--	--	--	--	--	--	
MW-4	9/20/2013	42.88	15.69	--	27.19	--	830	--	--	--	--	21	--	--	--	--	--	--	--	
MW-4	3/13/2014	42.88	15.59	--	27.29	--	<50	--	--	--	--	19	--	--	--	--	--	--	--	

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CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-5	10/3/1991	39.55	18.08	--	21.47	--	79,000	13,000	7,400	1,400	6,200	--	--	--	--	--	--	--	--	
MW-5	10/15/1991	39.55	18.55	--	21.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-5	12/4/1991	39.55	18.44	--	20.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	12/16/1991	39.55	18.66	--	20.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	1/6/1992	39.55	19.12	--	20.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	1/22/1992	39.55	14.59	--	24.96	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-5	1/28/1992	39.55	15.25	--	24.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-5	2/5/1992	39.55	15.58	--	23.97	--	--	--	--	--	--	--	--	--	--	--	--	--	--	b
MW-5	2/12/1992	39.55	15.54	--	24.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	2/17/1992	39.55	13.98	--	25.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	b
MW-5	4/3/1992	39.55	13.63	--	25.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	4/8/1992	39.55	13.17	--	26.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	4/14/1992	39.55	13.45	--	26.09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	4/29/1992	39.55	13.75	--	25.73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	5/7/1992	39.55	16.15	--	23.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	7/3/1992	39.55	17.67	--	21.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	9/1/1992	39.55	17.83	--	21.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	10/8/1992	39.55	17.86	--	20.77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	12/31/1992	39.55	15.20	--	24.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	b
MW-5	4/21/1993	39.55	12.64	--	26.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	7/7/1993	39.14	12.68	--	25.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g,f
MW-5	9/21/1993	39.14	14.35	--	24.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	b
MW-5	12/17/1993	39.14	12.61	--	26.12	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	4/7/1994	39.14	30.00	--	9.14	--	66,000	3,000	1,700	250	6,800	2,002	--	--	--	--	--	--	--	
MW-5	7/6/1994	--	--	--	--	--	29,000	1,900	330	63	2,700	1,141	--	--	--	--	--	--	--	
MW-5	10/7/1994	39.14	28.70	--	10.44	--	250,000	2,600	660	830	5,200	37.7	--	--	--	--	--	--	--	
MW-5	10/7/1994	39.14	28.70	--	10.44	--	45,000	2,900	540	260	2,600	--	--	--	--	--	--	--	--	e
MW-5	1/27/1995	39.14	28.70	--	10.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-5	3/30/1995	39.14	28.95	--	10.19	--	50,000	7,900	2,600	520	6,400	--	--	--	--	--	--	--	--	
MW-5	3/30/1995	39.14	28.95	--	10.19	--	43,000	7,900	2,500	440	6,200	--	--	--	--	--	--	--	--	e
MW-5	6/20/1995	39.14	22.54	--	16.60	--	34,000	5,100	1,900	300	3,700	--	--	--	--	--	--	--	--	
MW-5	6/20/1995	39.14	22.54	--	16.60	--	26,000	3,500	290	<25	3,300	--	--	--	--	--	--	--	--	e
MW-5	10/3/1995	39.14	18.84	--	20.30	--	12,000	68	42	11	1,600	330	--	--	--	--	--	--	--	
MW-5	10/3/1995	39.14	18.84	--	20.30	--	12,000	46	39	10	1,600	320	--	--	--	--	--	--	--	e
MW-5	12/6/1995	39.14	19.07	--	20.07	--	16,000	1,200	93	51	700	600	--	--	--	--	--	--	--	
MW-5	3/21/1996	39.14	7.43	--	31.71	--	1,500	89	28	6	250	<10	--	--	--	--	--	--	--	
MW-5	3/21/1996	39.14	7.43	--	31.71	--	1,900	92	30	7	270	<10	--	--	--	--	--	--	--	e
MW-5	6/21/1996	39.14	9.87	--	29.27	--	3,500	740	150	19	400	<100	--	--	--	--	--	--	--	
MW-5	6/21/1996	39.14	9.87	--	29.27	--	2,700	680	140	20	400	<50	--	--	--	--	--	--	--	e
MW-5	9/6/1996	39.14	10.52	--	28.62	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-5	9/9/1996	--	--	--	--	--	82,000	3,100	1,700	850	9,100	<2,500	--	--	--	--	--	--	--	
MW-5	9/9/1996	--	--	--	--	--	90,000	2,900	1,600	670	6,900	<2,500	--	--	--	--	--	--	--	e
MW-5	12/19/1996	39.14	8.62	--	30.52	--	41,000	790	820	120	2,040	<500	--	--	--	--	--	--	--	
MW-5	12/19/1996	39.14	8.62	--	30.52	--	26,000	490	430	63	1,140	<500	--	--	--	--	--	--	--	e

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Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-5	3/17/1997	39.14	8.22	--	30.92	--	5,500	1.9	2.4	<1.0	<1.0	29	--	--	--	--	--	--	--	
MW-5	3/17/1997	39.14	8.22	--	30.92	--	6,600	2.5	2.7	<1.0	<1.0	28	--	--	--	--	--	--	--	e
MW-5	8/12/1997	39.14	12.18	--	26.74	--	33,000	6,400	2,400	680	4,400	<1,000	--	--	--	--	--	--	--	g
MW-5	8/12/1997	39.14	12.18	--	26.74	--	36,000	6,100	2,500	720	4,500	<500	--	--	--	--	--	--	--	e
MW-5	12/10/1997	39.14	10.78	--	28.30	--	31,000	3,000	2,500	560	5,100	500	--	--	--	--	--	--	--	g
MW-5	12/10/1997	39.14	10.78	--	28.30	--	37,000	2,900	2,500	440	4,800	--	--	--	--	--	--	--	--	e
MW-5	3/12/1998	39.14	10.11	--	28.81	--	100,000	1,600	870	250	2,600	<250	--	--	--	--	--	--	--	g
MW-5	6/23/1998	39.14	10.20	--	28.92	--	27,000	2,500	840	370	2,900	<250	--	--	--	--	--	--	--	
MW-5	6/23/1998	39.14	10.20	--	28.92	--	27,000	2,600	840	400	2,950	<500	--	--	--	--	--	--	--	e
MW-5	8/25/1999	39.14	14.69	--	24.07	--	180,000	2,700	400	830	2,800	26	--	--	--	--	--	--	--	g
MW-5	3/9/2000	39.14	14.83	--	23.71	--	53,000	12,000	2,600	1,900	9,100	<5.0	--	--	--	--	--	--	--	g
MW-5	3/8/2002	39.14	11.45	--	26.19	--	33,000	8,240	1,080	1,010	2,900	34.3	--	--	--	--	--	--	--	g
MW-5	3/18/2002	39.14	8.03	--	31.11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-5	3/11/2003	39.14	9.60	--	29.09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	12/9/2003	39.14	11.44	--	27.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	3/9/2004	39.14	7.91	--	31.23	--	31,000	3,900	1,100	780	3,600	<50	<2,000	<50	<50	<50	<10,000	96	<50	
MW-5	9/17/2004	39.14	12.13	--	27.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	3/7/2005	39.14	8.62	--	30.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	9/6/2005	39.14	11.16	--	27.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	3/6/2006	39.14	8.60	--	30.54	--	32,000	7,500	810	1,200	2,300	<50	<2,000	60	<50	<50	<30,000	<50	<50	g,b
MW-5	9/5/2006	39.14	6.16	--	32.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	3/5/2007	39.14	8.34	--	30.80	--	90,000	10,000	4,200	1,900	7,900	<50	<2,000	57	<50	<50	<30,000	<50	<50	b
MW-5	9/7/2007	39.14	15.15	--	23.99	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	1/14/2008	39.14	10.30	--	28.84	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	2/27/2008	39.14	13.22	--	25.92	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	3/6/2008	39.14	12.90	--	26.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	9/3/2008	39.14	12.90	--	26.24	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	3/4/2009	39.14	8.45	--	30.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	4/8/2009	39.14	9.05	--	30.09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	5/11/2009	39.14	9.10	--	30.04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	6/16/2009	39.14	9.15	--	29.99	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	7/22/2009	39.14	9.33	--	29.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	8/6/2009	39.14	10.05	--	29.09	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	9/30/2009	39.14	10.55	--	28.59	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	10/28/2009	39.14	10.48	--	28.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-5	3/23/2010	39.14	7.10	--	32.04	--	67,000	1,400	380	620	1,800	<5.0	<40	<5.0	<5.0	<5.0	<1,000	<5.0	<5.0	
MW-5	6/10/2010	39.14	8.26	--	30.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	9/16/2010	39.14	9.14	--	30.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	2/23/2011	39.14	8.33	--	30.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	9/28/2011	39.14	10.46	--	28.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	3/8/2012	39.14	10.27	--	28.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	9/5/2012	39.14	11.80	--	27.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-5	3/20/2013	39.14	9.73	9.71	29.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g, k
MW-5	9/20/2013	39.14	10.26	--	28.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	b, i
MW-5	3/13/2014	39.14	9.74	--	29.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	b

Table 1
Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-6	10/3/1991	41.59	20.73	--	20.86	--	<50	0.7	0.8	<0.3	1.3	--	--	--	--	--	--	--	--	
MW-6	10/15/1991	41.59	21.20	--	20.39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	12/4/1991	41.59	21.26	--	20.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	12/16/1991	41.59	21.12	--	20.47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	1/6/1992	41.59	20.29	--	21.30	--	<50	<0.5	<0.5	<0.5	1.6	--	--	--	--	--	--	--	--	
MW-6	1/22/1992	41.59	20.12	--	21.47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	1/28/1992	41.59	20.20	--	21.39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	2/5/1992	41.59	20.09	--	21.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	2/12/1992	41.59	19.15	--	22.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	2/17/1992	41.59	18.02	--	23.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	4/3/1992	41.59	16.62	--	24.97	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	4/8/1992	41.59	17.06	--	24.53	--	<50	0.6	<0.5	0.8	<0.5	--	--	--	--	--	--	--	--	
MW-6	4/14/1992	41.59	17.23	--	24.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	4/29/1992	41.59	18.12	--	23.47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	5/7/1992	41.59	18.52	--	23.07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	7/3/1992	41.59	19.71	--	21.88	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-6	10/8/1992	41.59	21.22	--	20.37	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-6	10/8/1992	41.59	21.22	--	20.37	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	e
MW-6	12/31/1992	41.59	21.33	--	20.26	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-6	4/21/1993	41.59	16.45	--	25.14	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-6	7/7/1993	41.59	18.68	--	22.91	--	<50	<0.5	<0.5	<0.5	<0.5	28.96	--	--	--	--	--	--	--	
MW-6	9/21/1993	41.59	19.64	--	21.95	--	<50	<0.5	<0.5	<0.5	1.6	--	--	--	--	--	--	--	--	
MW-6	12/17/1993	41.59	21.08	--	20.51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	12/23/1993	--	--	--	--	--	<50	<0.5	0.5	<0.5	0.6	13.95	--	--	--	--	--	--	--	
MW-6	4/7/1994	41.59	21.27	--	20.32	--	<50	<0.5	<0.5	<0.5	<0.5	35.1	--	--	--	--	--	--	--	
MW-6	7/6/1994	41.59	19.81	--	21.78	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-6	7/6/1994	41.59	19.81	--	21.78	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	e
MW-6	10/7/1994	41.59	21.25	--	20.34	--	<50	<0.5	<0.5	<0.5	<0.5	24.3	--	--	--	--	--	--	--	
MW-6	1/27/1995	41.59	12.39	--	29.20	--	<50	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--	--	--	--	
MW-6	3/30/1995	41.59	11.34	--	30.25	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	
MW-6	6/20/1995	41.59	15.12	--	26.47	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	
MW-6	10/3/1995	41.59	20.68	--	20.91	--	<50	<0.50	<0.50	<0.50	<1.0	66	--	--	--	--	--	--	--	
MW-6	12/6/1995	41.59	23.77	--	17.82	--	<50	<0.50	<0.50	<0.50	<1.0	45	--	--	--	--	--	--	--	
MW-6	3/21/1996	41.59	11.55	--	30.04	--	<50	<0.5	<1.0	<1.0	<1.0	41	--	--	--	--	--	--	--	
MW-6	6/21/1996	41.59	12.60	--	28.99	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-6	9/6/1996	41.59	13.25	--	28.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	9/9/1996	--	--	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	22	--	--	--	--	--	--	--	
MW-6	12/19/1996	41.59	11.45	--	30.14	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-6	3/17/1997	41.59	10.80	--	30.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	8/12/1997	41.59	13.11	--	28.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	12/10/1997	41.59	13.84	--	27.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/12/1998	41.59	11.17	--	30.42	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	6/23/1998	41.59	13.27	--	28.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/31/1999	41.59	12.91	--	28.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Table 1
Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-6	8/25/1999	41.59	15.93	--	25.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/9/2000	41.59	11.49	--	30.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/8/2001	41.59	10.81	--	30.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/8/2002	41.59	14.28	--	27.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/18/2002	41.59	13.10	--	28.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/11/2003	41.59	13.63	--	27.96	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	12/9/2003	41.59	14.26	--	27.33	--	<50	<0.50	<0.50	<0.50	<0.50	12	<20	<0.50	<0.50	<0.50	<100	--	--	
MW-6	3/9/2004	41.59	11.87	--	29.72	--	<50	<0.50	<0.50	<0.50	<0.50	10	<20	<0.50	<0.50	<0.50	<100	0.58	<0.50	
MW-6	9/17/2004	41.59	16.45	--	25.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/7/2005	41.59	13.65	--	27.94	--	<50	<0.50	<0.50	<0.50	<0.50	5.8	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-6	9/6/2005	44.37	14.23	--	30.14	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/6/2006	44.37	12.89	--	31.48	--	<50	<0.50	<0.50	<0.50	<0.50	8.1	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-6	9/5/2006	44.37	14.10	--	30.27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/5/2007	44.37	11.43	--	32.94	--	<50	<0.50	<0.50	<0.50	<0.50	5.6	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-6	9/7/2007	44.37	16.00	--	28.37	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/6/2008	44.37	11.84	--	32.53	--	<50	<0.50	<0.50	<0.50	<0.50	1.9	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-6	9/3/2008	44.37	16.24	--	28.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/4/2009	44.37	11.68	--	32.69	--	<50	<0.50	<0.50	<0.50	<0.50	2.8	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-6	9/30/2009	44.37	16.83	--	27.54	--	<50	<0.50	<0.50	<0.50	<0.50	4.4	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-6	10/28/2009	44.37	15.63	--	28.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	3/23/2010	44.37	11.48	--	32.89	--	<50	<0.50	<0.50	<0.50	<1.0	1.0	<4.0	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-6	6/10/2010	44.37	12.54	--	31.83	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-6	9/16/2010	44.37	15.95	--	28.42	--	<50	<0.50	<0.50	<0.50	<1.0	0.80	<4.0	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-6	2/23/2011	44.37	12.34	--	32.03	--	--	--	--	--	--	<0.50	--	--	--	--	--	--	--	
MW-6	9/28/2011	44.37	15.81	--	28.56	--	--	--	--	--	--	3.4	--	--	--	--	--	--	--	
MW-6	3/8/2012	44.37	15.51	--	28.86	--	--	--	--	--	--	0.58	--	--	--	--	--	--	--	
MW-6	9/5/2012	44.37	15.88	--	28.49	--	--	--	--	--	--	2.1	--	--	--	--	--	--	--	
MW-6	3/20/2013	44.37	14.36	--	30.01	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<4.0	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-6	9/20/2013	44.37	16.02	--	28.35	--	--	--	--	--	--	2.4	--	--	--	--	--	--	--	
MW-6	3/13/2014	44.37	15.43	--	28.94	--	--	--	--	--	--	<0.50	--	--	--	--	--	--	--	
MW-7	10/3/1991	40.64	14.93	--	25.71	--	360	62	13	3.4	20	--	--	--	--	--	--	--	--	
MW-7	10/15/1991	40.64	15.16	--	25.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	12/4/1991	40.64	15.41	--	25.23	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	12/16/1991	40.64	15.21	--	25.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	1/6/1992	40.64	14.56	--	26.08	--	1,100	170	<0.5	24	23	--	--	--	--	--	--	--	--	
MW-7	1/22/1992	40.64	14.63	--	26.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	1/28/1992	40.64	14.73	--	25.91	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	2/5/1992	40.64	14.58	--	26.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	2/12/1992	40.64	13.94	--	26.70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	2/17/1992	40.64	13.10	--	27.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	4/3/1992	40.64	12.66	--	27.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	4/8/1992	40.64	12.77	--	27.87	--	750	150	<0.5	23	9.9	--	--	--	--	--	--	--	--	
MW-7	4/14/1992	40.64	13.02	--	27.62	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	4/29/1992	40.64	13.59	--	27.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

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4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-7	5/7/1992	40.64	13.95	--	26.69	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	7/3/1992	40.64	14.73	--	25.91	--	660	210	<2.5	33	8	--	--	--	--	--	--	--	--	
MW-7	10/8/1992	40.64	15.75	--	24.89	--	320	49	1.4	13	6.2	--	--	--	--	--	--	--	--	
MW-7	12/31/1992	40.64	13.57	--	27.07	--	900	100	<2.5	28	4.3	--	--	--	--	--	--	--	--	
MW-7	4/21/1993	40.64	14.56	--	26.08	--	510	83	1.2	10	5.8	--	--	--	--	--	--	--	--	
MW-7	7/7/1993	40.32	13.40	--	26.92	--	1,100	160	2	27	4	10.84	--	--	--	--	--	--	--	f
MW-7	7/7/1993	40.32	13.40	--	26.92	--	1,100	170	1.9	29	2.84	9.84	--	--	--	--	--	--	--	e
MW-7	9/21/1993	40.32	14.40	--	25.92	--	690	150	3.1	26	5.7	--	--	--	--	--	--	--	--	
MW-7	9/21/1993	40.32	14.40	--	25.92	--	640	140	1.7	23	2.4	--	--	--	--	--	--	--	--	e
MW-7	12/17/1993	40.32	13.65	--	26.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	12/23/1993	--	--	--	--	--	250	64	1.2	9	1.8	7.81	--	--	--	--	--	--	--	
MW-7	4/7/1994	40.32	30.62	--	9.70	--	140	32	1.4	<0.5	<0.5	6.32	--	--	--	--	--	--	--	
MW-7	7/6/1994	40.32	16.88	--	23.44	--	410	94	1.3	10	3.5	<5.0	--	--	--	--	--	--	--	
MW-7	10/7/1994	40.32	25.59	--	14.73	--	<50	9.2	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	
MW-7	1/27/1995	40.32	9.82	--	30.50	--	810	570	3	60	17	--	--	--	--	--	--	--	--	
MW-7	1/27/1995	40.32	9.82	--	30.50	--	930	620	4	77	21	--	--	--	--	--	--	--	--	e
MW-7	3/30/1995	40.32	9.15	--	31.17	--	180	65	0.53	2	<1.0	--	--	--	--	--	--	--	--	
MW-7	6/20/1995	40.32	11.38	--	28.94	--	2,800	980	<5.0	<5.0	43	--	--	--	--	--	--	--	--	
MW-7	10/3/1995	40.32	29.95	--	10.37	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	--	--	--	
MW-7	12/6/1995	40.32	29.85	--	10.47	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	--	--	--	
MW-7	3/21/1996	40.32	9.76	--	30.56	--	1,000	390	2	40	13	<10	--	--	--	--	--	--	--	
MW-7	6/21/1996	40.32	11.01	--	29.31	--	<250	40	<5.0	<5.0	<5.0	<50	--	--	--	--	--	--	--	
MW-7	9/6/1996	40.32	11.68	--	28.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	9/9/1996	--	--	--	--	--	<250	13	<5.0	<5.0	<5.0	<50	--	--	--	--	--	--	--	
MW-7	12/19/1996	40.32	10.78	--	29.54	--	70	1.2	<1.0	1	<1.0	<10	--	--	--	--	--	--	--	
MW-7	3/17/1997	40.32	9.96	--	30.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	8/12/1997	40.32	11.44	--	28.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	12/10/1997	40.32	10.42	--	29.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	3/12/1998	40.32	9.51	--	30.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	6/23/1998	40.32	9.98	--	30.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	3/31/1999	40.32	10.38	--	29.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	8/25/1999	40.32	12.38	--	27.94	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	3/9/2000	40.32	8.48	--	31.84	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	3/8/2001	40.32	8.37	--	31.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	3/18/2002	40.32	9.94	--	30.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	3/11/2003	40.32	11.26	--	29.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	12/9/2003	40.32	12.76	--	27.56	--	270	26	<0.50	<0.50	<0.50	8.7	<20	<0.50	<0.50	<0.50	<100	--	--	
MW-7	3/9/2004	40.32	10.91	--	29.41	--	320	49	0.73	1.8	0.59	6.9	<20	<0.50	<0.50	<0.50	<100	1.2	<0.50	
MW-7	9/17/2004	40.32	13.20	--	27.12	--	330	17	<0.50	<0.50	<0.50	7.0	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-7	3/7/2005	40.32	8.18	--	32.14	--	340	41	0.79	0.79	0.73	7.2	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-7	9/6/2005	43.10	11.80	--	31.30	--	1,100	130	1.2	1.8	<1.5	16	30	0.60	<0.50	<0.50	<150	<0.50	<0.50	
MW-7	3/6/2006	43.10	8.39	--	34.71	--	440	31	0.78	0.74	0.81	8.3	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-7	9/5/2006	43.10	11.45	--	31.65	--	2,000	260	3.1	5.9	<2.5	12	<100	<2.5	<2.5	<2.5	<1,500	<2.5	<2.5	
MW-7	3/5/2007	43.10	9.31	--	33.79	--	2,200	110	2.2	4.0	1.8	7.6	<40	<1.0	<1.0	<1.0	<600	<1.0	<1.0	
MW-7	9/7/2007	43.10	12.18	--	30.92	--	220	8.4	<0.50	<0.50	<0.50	1.2	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	

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CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-7	3/6/2008	43.10	10.05	--	33.05	--	1,800	54	1.2	1.1	<1.0	<1.0	<20	<1.0	<1.0	<1.0	<600	<1.0	<1.0	
MW-7	9/3/2008	43.10	13.17	--	29.93	--	540	13	0.69	<0.50	<0.50	5.5	17	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-7	3/4/2009	43.10	8.25	--	34.85	--	720	15	0.59	0.53	<0.50	3.4	12	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-7	9/30/2009	43.10	12.70	--	30.40	--	1,200	44	1.0	0.74	0.79	3.3	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-7	10/28/2009	43.10	11.17	--	31.93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	3/23/2010	43.10	9.28	--	33.82	--	610	11	<0.50	<0.50	<1.0	<0.50	12	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-7	6/10/2010	43.10	10.24	--	32.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-7	9/16/2010	43.10	12.16	--	30.94	--	4,700	130	<5.0	7.4	<10	<5.0	<40	<5.0	<5.0	<5.0	<1,000	<5.0	<5.0	
MW-7	2/23/2011	43.10	9.62	--	33.48	--	2,200	26	1.1	1.4	1.6	4.0	<4.0	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-7	9/28/2011	43.10	11.80	--	31.30	--	3,800	380	4.8	28	4.3	9.5	13	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-7	3/8/2012	43.10	11.69	--	31.41	--	550	1.4	<0.50	<0.50	<1.0	2.3	<4.0	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-7	9/5/2012	43.10	11.60	--	31.50	--	830	16	1.3	0.66	1.4	3.0	<4.0	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-7	3/20/2013	43.10	10.88	--	32.22	--	--	--	--	3.4	--	--	--	--	--	--	--	--	--	
MW-7	9/20/2013	43.10	11.50	--	31.60	--	580	<0.50	<0.50	<0.50	<1.0	2.3	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-7	3/13/2014	43.10	10.81	--	32.29	--	100	<0.50	<0.50	<0.50	<1.0	1.3	<10	<0.50	<0.50	<0.50	<250	<0.50	<0.50	
MW-8	10/3/1991	38.18	22.37	--	15.81	--	<50	<0.3	0.6	<0.3	0.9	--	--	--	--	--	--	--	--	
MW-8	10/15/1991	38.18	22.70	--	15.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	12/4/1991	38.18	22.44	--	15.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	12/16/1991	38.18	22.47	--	15.71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	1/6/1992	38.18	21.94	--	16.24	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-8	1/22/1992	38.18	21.44	--	16.74	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	1/28/1992	38.18	21.20	--	16.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	2/5/1992	38.18	20.88	--	17.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	2/12/1992	38.18	20.54	--	17.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	2/17/1992	38.18	19.99	--	18.19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	4/3/1992	38.18	16.75	--	21.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	4/8/1992	38.18	16.57	--	21.61	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-8	4/29/1992	38.18	18.61	--	19.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	5/7/1992	38.18	18.41	--	19.77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	7/3/1992	38.18	20.35	--	17.83	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-8	10/8/1992	38.18	21.74	--	16.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	12/31/1992	38.18	19.09	--	19.09	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-8	4/21/1993	38.18	18.92	--	19.26	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-8	7/7/1993	38.18	17.76	--	20.42	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	
MW-8	9/21/1993	38.18	19.71	--	18.47	--	<50	2.9	2.2	2.2	7.1	--	--	--	--	--	--	--	--	
MW-8	12/17/1993	38.18	21.33	--	16.85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	12/23/1993	--	--	--	--	--	<50	<0.5	<0.5	<0.5	0.6	<5.0	--	--	--	--	--	--	--	
MW-8	4/7/1994	38.18	21.51	--	16.67	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	
MW-8	7/6/1994	38.18	17.41	--	20.77	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	
MW-8	10/7/1994	38.18	19.20	--	18.98	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	
MW-8	1/27/1995	38.18	12.25	--	25.93	--	<50	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--	--	--	--	
MW-8	3/30/1995	38.18	10.35	--	27.83	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	
MW-8	6/20/1995	38.18	13.37	--	24.81	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	
MW-8	12/6/1995	38.18	18.42	--	19.76	--	<50	<0.50	<0.50	<0.50	<1.0	47	--	--	--	--	--	--	--	

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CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-8	6/21/1996	38.18	13.03	--	25.15	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-8	9/6/1996	38.18	13.70	--	24.48	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	9/9/1996	--	--	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-8	12/19/1996	38.18	11.93	--	26.25	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-8	3/17/1997	38.18	11.29	--	26.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	8/12/1997	38.18	13.73	--	24.45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	12/10/1997	38.18	11.88	--	26.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/12/1998	38.18	11.89	--	26.29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	6/23/1998	38.18	11.33	--	26.85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/31/1999	38.18	12.68	--	25.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	8/25/1999	38.18	14.93	--	23.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/9/2000	38.18	9.14	--	29.04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/8/2001	38.18	8.41	--	29.77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/8/2002	38.18	11.18	--	27.00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/18/2002	38.18	10.72	--	27.46	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/11/2003	38.18	10.46	--	27.72	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/9/2004	38.18	9.79	--	28.39	--	<50	<0.50	<0.50	<0.50	<0.50	0.50	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-8	9/17/2004	38.18	15.35	--	22.83	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/7/2005	38.18	7.94	--	30.24	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-8	9/6/2005	40.95	13.06	--	27.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/6/2006	40.95	9.26	--	31.69	--	<50	<0.50	<0.50	<0.50	<0.50	0.59	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-8	9/5/2006	40.95	12.61	--	28.34	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/5/2007	40.95	9.12	--	31.83	--	<50	<0.50	<0.50	<0.50	0.53	<0.50	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-8	9/7/2007	40.95	13.56	--	27.39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/6/2008	40.95	9.80	--	31.15	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-8	9/3/2008	40.95	14.20	--	26.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/4/2009	40.95	9.51	--	31.44	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-8	9/30/2009	40.95	14.92	--	26.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	10/28/2009	40.95	13.56	--	27.39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	6/10/2010	40.95	11.06	--	29.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	9/16/2010	40.95	14.41	--	26.54	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<4.0	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-8	9/28/2011	40.95	13.87	--	27.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/8/2012	40.95	13.27	--	27.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	9/5/2012	40.95	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/20/2013	40.95	11.90	--	29.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	9/20/2013	40.95	13.88	--	27.07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-8	3/13/2014	40.95	14.29	--	26.66	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	10/3/1991	41.25	14.12	--	27.13	--	<50	<0.3	0.4	<0.3	<0.3	--	--	--	--	--	--	--	--	
MW-9	10/15/1991	41.25	14.27	--	26.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	12/4/1991	41.25	13.84	--	27.41	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	12/16/1991	41.25	14.18	--	27.07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	1/6/1992	41.25	13.42	--	27.83	--	<50	<0.5	<0.5	<0.5	0.9	--	--	--	--	--	--	--	--	
MW-9	1/22/1992	41.25	13.75	--	27.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	1/28/1992	41.25	14.76	--	26.49	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

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4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-9	2/5/1992	41.25	13.38	--	27.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	2/12/1992	41.25	11.86	--	29.39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	2/17/1992	41.25	10.78	--	30.47	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	4/3/1992	41.25	11.63	--	29.62	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	4/8/1992	41.25	12.25	--	29.00	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-9	4/14/1992	41.25	12.32	--	28.93	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	4/29/1992	41.25	13.07	--	28.18	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	5/7/1992	41.25	14.43	--	26.82	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	7/3/1992	41.25	13.85	--	27.40	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-9	10/8/1992	41.25	14.89	--	26.36	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-9	12/31/1992	41.25	11.90	--	29.35	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-9	4/21/1993	41.25	13.68	--	27.57	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-9	7/7/1993	41.25	13.12	--	28.13	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	
MW-9	9/21/1993	41.25	14.00	--	27.25	--	<50	<0.5	<0.5	<0.5	0.9	--	--	--	--	--	--	--	--	
MW-9	12/17/1993	41.25	12.98	--	28.27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	12/23/1993	--	--	--	--	--	<50	<0.5	<0.5	<0.5	0.9	<5.0	--	--	--	--	--	--	--	
MW-9	4/7/1994	41.25	13.24	--	28.01	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	
MW-9	7/6/1994	41.25	13.77	--	27.48	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	
MW-9	10/7/1994	41.25	14.60	--	26.65	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	--	--	--	
MW-9	1/27/1995	41.25	8.47	--	32.78	--	<50	<0.5	<0.5	<0.5	<1.0	--	--	--	--	--	--	--	--	
MW-9	3/30/1995	41.25	8.19	--	33.06	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	
MW-9	6/20/1995	41.25	11.25	--	30.00	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	
MW-9	10/3/1995	41.25	14.68	--	26.57	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	--	--	--	
MW-9	12/6/1995	41.25	16.07	--	25.18	--	<50	<0.50	<0.50	<0.50	<1.0	46	--	--	--	--	--	--	--	
MW-9	3/21/1996	41.25	9.60	--	31.65	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-9	6/21/1996	41.25	10.86	--	30.39	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-9	9/6/1996	41.25	11.52	--	29.73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	9/9/1996	--	--	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	21	--	--	--	--	--	--	--	
MW-9	12/19/1996	41.25	10.43	--	30.82	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	
MW-9	3/17/1997	41.25	9.87	--	31.38	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	8/12/1997	41.25	11.44	--	29.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	12/10/1997	41.25	10.44	--	30.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/12/1998	41.25	9.50	--	31.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	6/23/1998	41.25	10.06	--	31.19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/31/1999	41.25	9.06	--	32.19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	8/25/1999	41.25	12.00	--	29.25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/9/2000	41.25	10.57	--	30.68	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/8/2001	41.25	9.73	--	31.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/8/2002	41.25	11.89	--	29.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/18/2002	41.25	9.68	--	31.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/11/2003	41.25	9.21	--	32.04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/9/2004	41.25	10.99	--	30.26	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-9	9/17/2004	41.25	13.35	--	27.90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/7/2005	41.25	8.94	--	32.31	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-9	9/6/2005	44.06	11.99	--	32.07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

Table 1
Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-9	3/6/2006	44.06	8.26	--	35.80	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-9	9/5/2006	44.06	11.63	--	32.43	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/5/2007	44.06	9.33	--	34.73	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<20	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-9	9/7/2007	44.06	12.28	--	31.78	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/6/2008	44.06	10.11	--	33.95	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-9	9/3/2008	44.06	13.49	--	30.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/4/2009	44.06	8.15	--	35.91	--	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<10	<0.50	<0.50	<0.50	<300	<0.50	<0.50	
MW-9	9/30/2009	44.06	12.98	--	31.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	10/28/2009	44.06	11.98	--	32.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/23/2010	44.06	10.59	--	33.47	--	<50	<0.50	<0.50	<0.50	<1.0	<0.50	<4.0	<0.50	<0.50	<0.50	<100	<0.50	<0.50	
MW-9	6/10/2010	44.06	10.25	--	33.81	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	2/23/2011	44.06	9.71	--	34.35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	9/28/2011	44.06	11.66	--	32.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/8/2012	44.06	11.56	--	32.50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	9/5/2012	44.06	11.18	--	32.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/20/2013	44.06	10.00	--	34.06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	9/20/2013	44.06	10.91	--	33.15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-9	3/13/2014	44.06	9.96	--	34.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-10	6/16/2009	39.78	8.60	--	31.19	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-10	7/22/2009	39.78	9.68	--	30.11	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-10	8/6/2009	39.78	9.48	--	30.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-10	9/30/2009	39.78	9.69	--	30.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-10	10/28/2009	39.78	8.53	--	31.25	--	62,000	8,300	5,300	3,100	12,000	<50	<400	<50	<50	<50	<10,000	<50	<50	
MW-10	3/23/2010	39.78	7.70	--	32.08	--	59,000	6,500	4,800	2,300	9,700	<100	<800	<100	<100	<100	<20,000	<100	<100	b
MW-10	6/10/2010	39.78	8.93	--	30.86	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-10	9/16/2010	39.78	9.69	--	30.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-10	2/23/2011	39.78	7.99	--	31.79	--	61,000	7,000	5,300	2,800	12,000	<100	<800	<100	<100	<100	<50,000	<100	<100	
MW-10	9/28/2011	39.78	10.36	--	29.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-10	3/8/2012	39.78	10.51	--	29.51	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-10	9/5/2012	39.78	10.25	--	29.54	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-10	3/20/2013	39.78	9.48	9.47	30.31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g, k
MW-10	9/20/2013	39.78	10.50	--	29.28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	b, i
MW-10	3/13/2014	39.78	9.81	9.80	29.98	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g, k
MW-11	9/30/2009	40.04	10.55	--	29.49	--	30,000	850	1,400	1,000	3,700	27	<200	<10	<10	<10	<6,000	<10	<10	
MW-11	10/28/2009	40.04	8.00	--	32.04	--	27,000	1,100	2,300	1,500	5,800	<50	<400	<50	<50	<50	<10,000	<50	<50	
MW-11	3/23/2010	40.04	7.25	--	32.79	--	21,000	530	830	790	2,200	<25	<200	<25	<25	<25	<5,000	<25	<25	
MW-11	6/10/2010	40.04	9.65	--	30.39	--	--	--	--	--	--	--	--	--	--	--	--	--	--	b
MW-11	9/16/2010	40.04	9.42	--	30.62	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-11	2/23/2011	40.04	7.60	--	32.44	--	10,000	380	260	330	540	7.2	<40	<5.0	<5.0	<5.0	<2,500	<5.0	<5.0	
MW-11	9/28/2011	40.04	9.88	--	30.16	--	5,900	230	92	260	370	6.4	26	<2.5	<2.5	<2.5	<1,300	<2.5	<2.5	
MW-11	3/8/2012	40.04	9.71	--	30.33	--	5,000	280	170	250	380	<5.0	<40	<5.0	<5.0	<5.0	<2,500	<5.0	<5.0	
MW-11	9/5/2012	40.04	10.60	--	29.44	--	22,000	1,000	1,600	1,200	4,500	6.2	<40	<5.0	<5.0	<5.0	<2,500	<5.0	<5.0	
MW-11	3/20/2013	40.04	9.54	--	30.50	--	16,000	250	620	680	2,200	<10	<80	<10	<10	<10	<5,000	<10	<10	i

Table 1
Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Well ID	Date	TOC (ft msl)	DTW (ft)	DTP	GW Elev (ft msl)	DRO (µg/L)	GRO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	TBA (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	Ethanol (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)	Notes
MW-11	9/20/2013	40.04	10.55	--	29.49	--	10,000	120	130	320	720	<10	<200	<10	<10	<10	<5000	<10	<10	
MW-11	3/13/2014	40.04	9.71	--	30.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-12	9/30/2009	40.32	11.02	--	29.32	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
MW-12	10/28/2009	40.32	10.40	--	29.92	--	43,000	5,800	800	2,900	6,800	<50	<400	<50	<50	<50	<10,000	<50	<50	
MW-12	3/23/2010	40.32	11.46	--	28.86	--	39,000	4,800	1,000	3,100	6,400	<25	<200	<25	<25	<25	<5,000	<25	<25	b
MW-12	6/10/2010	40.32	11.35	--	29.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	b
MW-12	9/16/2010	40.32	11.54	--	28.80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-12	2/23/2011	40.32	10.80	--	29.60	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-12	9/28/2011	40.32	11.48	--	28.99	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-12	3/8/2012	40.32	11.92	--	28.64	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-12	9/5/2012	40.32	11.63	--	29.76	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g
MW-12	3/20/2013	40.32	10.13	10.09	30.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g, k
MW-12	9/20/2013	40.32	10.92	--	29.40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	b, i
MW-12	3/13/2014	40.32	10.60	10.59	29.73	--	--	--	--	--	--	--	--	--	--	--	--	--	--	g, k
QC-2	10/8/1992	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	h
QC-2	12/31/1992	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	h
QC-2	7/7/1993	--	--	--	--	--	<50	<0.5	<0.5	<0.5	0.6	--	--	--	--	--	--	--	--	h
QC-2	9/21/1993	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	h
QC-2	12/23/1993	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	h
QC-2	4/7/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	h
QC-2	7/6/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	h
QC-2	10/7/1994	--	--	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--	h
QC-2	1/27/1995	--	--	--	--	--	<50	<0.5	0.5	<0.5	<1.0	--	--	--	--	--	--	--	--	h
QC-2	3/30/1995	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	h
QC-2	6/20/1995	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	--	--	--	h
QC-2	10/3/1995	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	--	--	--	h
QC-2	12/6/1995	--	--	--	--	--	<50	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	--	--	--	h
QC-2	3/21/1996	--	--	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	h
QC-2	6/21/1996	--	--	--	--	--	<50	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	--	--	--	h

Notes:

1,2-DCA = 1,2-Dichloroethane
DIPE = Di-isopropyl ether
DO= Dissolved oxygen
DRO = Diesel range organics, range C10-C28
DTW = Depth to water in ft bgs
EDB = 1,2-Dibromomethane
ETBE = Ethyl tert butyl ether
GRO = Gasoline range organics, range C4-C12
GWE = Groundwater measured in ft
MTBE = Methyl tert butyl ether
TAME = Ter-amyl methyl ether
TBA = Ter-butyl alcohol
TOC = Top of casing measured in ft
µg/L= Micrograms per liter
ft bgs = Feet below ground surface
msl = mean sea level

--- = Not analyzed/applicable/measured/ available
< = Not detected at or above reported detection limit
(a) Sample exceeded EPA recommened holding time
(b) Sheen in well
(c) Well not sampled due to damage during site construction
(d) Insufficient water to sample
(e) Blind duplicate
(f) TOC lowered
(g) Free product in well
(h) Trip Blank
(i) Hydrocarbon odor observed at wellhead
(j) Well is dry
(k) GWE adjusted assuming specific gravity of 0.85 for free product

1. Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g was changed to GRO. The resulting data may be impacted by the potential of non-TPH-g analytes within the requested fuel range resulting in a higher concentration being reported.
2. Beginning in the second quarter 2004, the carbon range for GRO was changed from C6-C10 to C4-C12.
3. GRO analysis was completed by EPA method 8260B (C4-C12) for samples collected from the time period April 2006 through February 4, 2008. The analysis for GRO was changed to EPA method 8015B (C6-C12) for samples collected from the time period February 5, 2008 through the present.
4. The data within this table collected prior to April 2006 was provided to ARCADIS U.S., Inc. by Atlantic Richfield Company and their previous consultants. ARCADIS U.S., Inc. has not verified the accuracy of this information.

Table 2
Historical Groundwater Flow Direction and Gradient
CA-11109
4280 Foothill Blvd., Oakland, CA 94601

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
3/6/2006	Southwest	0.05
9/5/2006	Southwest	0.05
2/21/2007	Southwest	0.02
9/7/2007	Southwest	0.03
3/6/2008	Southwest	0.01
9/3/2008	Southwest	0.006
3/4/2009	Southwest	0.02
9/30/2009	Northwest	0.07
10/28/2009	Northwest	0.04
3/23/2010	Northwest	0.03
6/10/2010	Northwest	0.02
9/16/2010	Northwest	0.07
2/23/2011	Northwest	0.04
9/28/2011	Northwest	0.02
3/8/2012	Northwest	0.06
9/5/2012	West-Northwest	0.04
3/20/2013	Southwest	0.03
9/20/2013	Southwest	0.03
3/13/2014	Southwest	0.05

Notes:

N/A = Not Available
ft/ft = Feet per foot
Note: All data collected following April 2006 was collected by Broadbent & Associates, Inc. The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants.

ARCADIS

Appendix A

Field Methods

QUALITY ASSURANCE/QUALITY CONTROL
FIELD METHODS

Field methods discussed herein were implemented to provide for accuracy and reliability of field activities, data collection, sample collection, and handling. Discussion of these methods is provided below.

1.0 Equipment Calibration

Equipment calibration was performed per equipment manufacturer specifications before use.

2.0 Depth to Groundwater and Light Non-Aqueous Phase Liquid Measurement

Depth to groundwater was measured in wells identified for gauging in the scope of work using a decontaminated water level indicator. The depth to water measurement was taken from a cut notch or permanent mark at the top of the well casing to which the well head elevation was originally surveyed.

Once depth to water was measured, an oil/water interface meter or a new disposable bailer was utilized to evaluate the presence and, if present, to measure the "apparent" thickness of light non-aqueous phase liquid (LNAPL) in the well. If LNAPL was present in the well, groundwater purging and sampling were not performed, unless sampling procedures in the scope of work specified collection of samples in the presence of LNAPL. Otherwise, time allowing, LNAPL was bailed from the well using either a new disposable bailer, or the disposal bailer previously used for initial LNAPL assessment. Bailing of LNAPL continued until the thickness of LNAPL (or volume) stabilized in each bailer pulled from the well, or LNAPL was no longer present. After LNAPL thickness either stabilized or was eliminated, periodic depth to water and depth to LNAPL measurements were collected as product came back into the well to evaluate product recovery rate and to aid in further assessment of LNAPL in the subsurface. LNAPL thickness measurements were recorded as "apparent." If a bailer was used for LNAPL thickness measurement, the field sampler noted the bailer entry diameter and chamber diameter to enable correction of thickness measurements. Recovered LNAPL was stored on-site in a labeled steel drum(s) or other appropriate container(s) prior to disposal.

3.0 Well Purging and Groundwater Sample Collection

Well purging and groundwater sampling were performed in wells specified in the scope of work after measuring depth to groundwater and evaluating the presence of LNAPL. Purging and sampling were performed using one of the methods detailed below. The method used was noted in the field records. Purge water was stored on-site in labeled steel drum(s) or other appropriate container(s) prior to disposal or on-site treatment (in cases where treatment using an on-site system is authorized).

3.1 Purging a Predetermined Well Volume

Purging a predetermined well volume is performed per ASTM International (ASTM) D4448-01. This purging method has the objective of removing a predetermined volume of stagnant water from the well prior to sampling. The volume of stagnant water

is defined as either the volume of water contained within the well casing, or the volume within the well casing and sand/gravel in the annulus if natural flow through these is deemed insufficient to keep them flushed out.

This purging method involves removal of a minimum of three stagnant water volumes from the well using a decontaminated pump with new disposable plastic discharge or suction tubing, dedicated well tubing, or using a new disposable or decontaminated reusable bailer. If a new disposable bailer was used for assessment of LNAPL, that bailer may be used for purging. The withdrawal rate used is one that minimizes drawdown while satisfying time constraints.

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity[1]. Parameters are considered stable when two (2) consecutive readings recorded three (3) minutes apart fall within ranges provided below in Table 1. In the event that the parameters have not stabilized and five (5) well casing volumes have been removed, purging activities will cease and be considered complete. Once the well is purged, a groundwater sample(s) is collected from the well using a new disposable bailer. If a new disposable bailer was used for purging, that bailer may be used to collect the sample(s). A sample is not collected if the well is inadvertently purged dry.

Table 1. Criteria for Defining Stabilization of Water-Quality Indicator Parameters

Parameter	Stabilization Criterion
Temperature	± 0.2ºC (± 0.36ºF)
pH	± 0.1 standard units
Conductivity	± 3%
Dissolved oxygen	± 10%
Oxidation reduction potential	± 10 mV
Turbidity[1]	± 10% or 1.0 NTU (whichever is greater)

3.2 Low-Flow Purging and Sampling

“Low-Flow”, “Minimal Drawdown”, or "Low-Stress” purging is performed per ASTM D6771-02. It is a method of groundwater removal from within a well’s screened interval that is intended to minimize drawdown and mixing of the water column in the well casing. This is accomplished by pumping the well using a decontaminated pump with new disposable plastic discharge or suction tubing or dedicated well tubing at a low flow rate while evaluating the groundwater elevation during pumping.

[1] As stated in ASTM D6771-02, turbidity is not a chemical parameter and not indicative of when formation-quality water is being purged; however, turbidity may be helpful in evaluating stress on the formation during purging. Turbidity measurements are taken at the same time that stabilization parameter measurements are made, or, at a minimum, once when purging is initiated and again just prior to sample collection, after stabilization parameters have stabilized. To avoid artifacts in sample analysis, turbidity should be as low as possible when samples are collected. If turbidity values are persistently high, the withdrawal rate is lowered until turbidity decreases. If high turbidity persists even after lowering the withdrawal rate, the purging is stopped for a period of time until turbidity settles, and the purging process is then restarted. If this fails to solve the problem, the purging/sampling process for the well is ceased, and well maintenance or redevelopment is considered.

The low flow pumping rate is well specific and is generally established at a volume that is less than or equal to the natural recovery rate of the well. A pump with adjustable flow rate control is positioned with the intake at or near the mid-point of the submerged well screen. The pumping rate used during low-flow purging is low enough to minimize mobilization of particulate matter and drawdown (stress) of the water column. Low-flow purging rates will vary based on the individual well characteristics; however, the purge rate should not exceed 1.0 Liter per minute (L/min) or 0.25 gallon per minute (gal/min). Low-flow purging should begin at a rate of approximately 0.1 L/min (0.03 gal/min)[2], or the lowest rate possible, and be adjusted based on an evaluation of drawdown. Water level measurements should be recorded at approximate one (1) to two (2) minute intervals until the low-flow rate has been established, and drawdown is minimized. As a general rule, drawdown should not exceed 25% of the distance between the top of the water column and the pump in-take.

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity[1]. The frequency between measurements will be at an interval of one (1) to three (3) minutes; however, if a flow cell is used, the frequency will be determined based on the time required to evacuate one cell volume. Stabilization is defined as three (3) consecutive readings recorded several minutes apart falling within ranges provided in Table 1. Samples will be collected by filling appropriate containers from the pump discharge tubing at a rate not to exceed the established pumping rate.

3.3 Minimal Purge, Discrete Depth, and Passive Sampling

Per ASTM D4448-01, sampling techniques that do not rely on purging, or require only minimal purging, may be used if a particular zone within a screened interval is to be sampled or if a well is not capable of yielding sufficient groundwater for purging. To properly use these sampling techniques, a water sample is collected within the screened interval with little or no mixing of the water column within the casing. These techniques include minimal purge sampling which uses a dedicated sampling pump capable of pumping rates of less than 0.1 L/min (0.03 gal/min)[2], discrete depth sampling using a bailer that allows groundwater entry at a controlled depth (e.g. differential pressure bailer), or passive (diffusion) sampling. These techniques are based on certain studies referenced in ASTM D4448-01 that indicate that under certain conditions, natural groundwater flow is laminar and horizontal with little or no mixing within the well screen.

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[2] According to ASTM D4448-01, studies have indicated that at flow rates of 0.1 L/min, low-density polyethylene (LDPE) and plasticized polypropylene tubing materials are prone to sorption. Therefore, TFE-fluorocarbon or other appropriate tubing material is used, particularly when tubing lengths of 50 feet or longer are used.

4.0 Decontamination

Reusable groundwater sampling equipment were cleaned using a solution of Alconox or other acceptable detergent, rinsed with tap water, and finally rinsed with distilled water prior to use in each well. Decontamination water was stored on-site in labeled steel drum(s) or other appropriate container(s) prior to disposal.

5.0 Sample Containers, Labeling, and Storage

Samples were collected in laboratory prepared containers with appropriate preservative (if preservative was required). Samples were properly labeled (site name, sample I.D., sampler initials, date, and time of collection) and stored chilled (refrigerator or ice chest with ice) until delivery to a certified laboratory, under chain of custody procedures.

6.0 Chain of Custody Record and Procedure

The field sampler was personally responsible for care and custody of the samples collected until they were properly transferred to another party. To document custody and transfer of samples, a Chain of Custody Record was prepared. The Chain of Custody Record provided identification of the samples corresponding to sample labels and specified analyses to be performed by the laboratory. The original Chain of Custody Record accompanied the shipment, and a copy of the record was stored in the project file. When the samples were transferred, the individuals relinquishing and receiving them signed, dated, and noted the time of transfer on the record.

7.0 Field Records

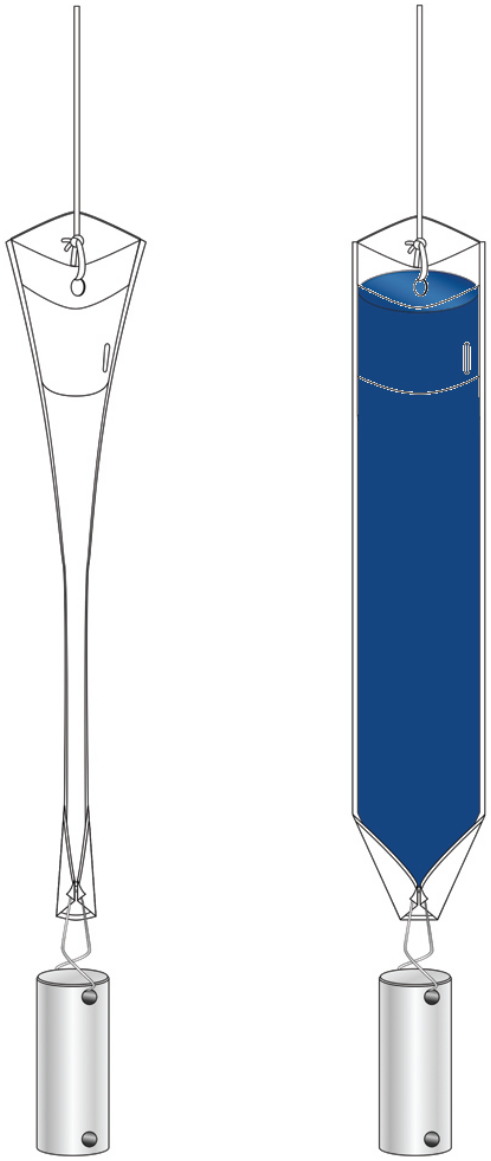
Daily Report and data forms were completed by staff personnel to provide daily record of significant events, observations, and measurements. Field records were signed, dated, and stored in the project file.

HYDRASleeve™

Simple by Design

US Patent No. 6,481,300; No. 6,837,120 others pending

Standard Operating Procedure: Sampling Ground Water with a HydraSleeve



This Guide should be used in addition to field manuals appropriate to sampling device (i.e., HydraSleeve or Super Sleeve).

Find the appropriate field manual on the HydraSleeve website at http://www.hydrasleeve.com.

For more information about the HydraSleeve, or if you have questions, contact: GeoInsight, 2007 Glass Road, Las Cruces, NM 88005, 1-800-996-2225, info@hydrasleeve.com.

Table of Contents

Introduction

The HydraSleeve is classified as a no-purge (passive) grab sampling device, meaning that it is used to collect ground-water samples directly from the screened interval of a well without having to purge the well prior to sample collection. When it is used as described in this Standard Operating Procedure (SOP), the HydraSleeve causes no drawdown in the well (until the sample is withdrawn from the water column) and only minimal disturbance of the water column, because it has a very thin cross section and it displaces very little water (<100 ml) during deployment in the well. The HydraSleeve collects a sample from within the screen only, and it excludes water from any other part of the water column in the well through the use of a self-sealing check valve at the top of the sampler. It is a single-use (disposable) sampler that is not intended for reuse, so there are no decontamination requirements for the sampler itself.

The use of no-purge sampling as a means of collecting representative ground-water samples depends on the natural movement of ground water (under ambient hydraulic head) from the formation adjacent to the well screen through the screen. Robin and Gillham (1987) demonstrated the existence of a dynamic equilibrium between the water in a formation and the water in a well screen installed in that formation, which results in formation-quality water being available in the well screen for sampling at all times. No-purge sampling devices like the HydraSleeve collect this formation-quality water as the sample, under undisturbed (non-pumping) natural flow conditions. Samples collected in this manner generally provide more conservative (i.e., higher concentration) values than samples collected using well-volume purging, and values equivalent to samples collected using low-flow purging and sampling (Parsons, 2005).

Applications of the HydraSleeve

The HydraSleeve can be used to collect representative samples of ground water for all analytes (volatile organic compounds [VOCs], semi-volatile organic compounds [SVOCs], common metals, trace metals, major cations and anions, dissolved gases, total dissolved solids, radionuclides, pesticides, PCBs, explosive compounds, and all other analytical parameters). Designs are available to collect samples from wells from 1” inside diameter and larger. The HydraSleeve can collect samples from wells of any yield, but it is especially well-suited to collecting samples from low-yield wells, where other sampling methods can’t be used reliably because their use results in dewatering of the well screen and alteration of sample chemistry (McAlary and Barker, 1987).

The HydraSleeve can collect samples from wells of any depth, and it can be used for single-event sampling or long-term ground-water monitoring programs. Because of its thin cross section and flexible construction, it can be used in narrow, constricted or damaged wells where rigid sampling devices may not fit. Using multiple HydraSleeves deployed in series along a single suspension line or tether, it is also possible to conduct in-well vertical profiling in wells in which contaminant concentrations are thought to be stratified.

As with all groundwater sampling devices, HydraSleeves should not be used to collect groundwater samples from wells in which separate (non-aqueous) phase hydrocarbons (i.e., gasoline, diesel fuel or jet fuel) are present because of the possibility of incorporating some of the separate-phase hydrocarbon into the sample.

Description of the HydraSleeve

The HydraSleeve (Figure 1) consists of the following basic components:

- A suspension line or tether (A.), attached to the spring clip or directly to the top of the sleeve to deploy the device into and recover the device from the well. Tethers with depth indicators marked in 1-foot intervals are available from the manufacturer.
- A long, flexible, 4-mil thick lay-flat polyethylene sample sleeve (C.) sealed at the bottom (this is the sample chamber), which comes in different sizes, as discussed below with a self-sealing reed-type flexible polyethylene check valve built into the top of the sleeve (B.) to prevent water from entering or exiting the sampler except during sample acquisition.
- A reusable stainless-steel weight with clip (D.), which is attached to the bottom of the sleeve to carry it down the well to its intended depth in the water column. Bottom weights available from the manufacturer are 0.75" OD and are available in three sizes: 5 oz. (2.5" long); 8 oz. (4" long); and 16 oz. (8" long). In lieu of a bottom weight, an optional top weight may be attached to the top of the HydraSleeve to carry it to depth and to compress it at the bottom of the well (not shown in Figure 1);
- A discharge tube that is used to puncture the HydraSleeve after it is recovered from the well so the sample can be decanted into sample bottles (not shown).
- Just above the self-sealing check valve at the top of the sleeve are two holes which provide attachment points for the spring clip and/or suspension line or tether. At the bottom of the sample sleeve are two holes which provide attachment points for the weight clip and weight.

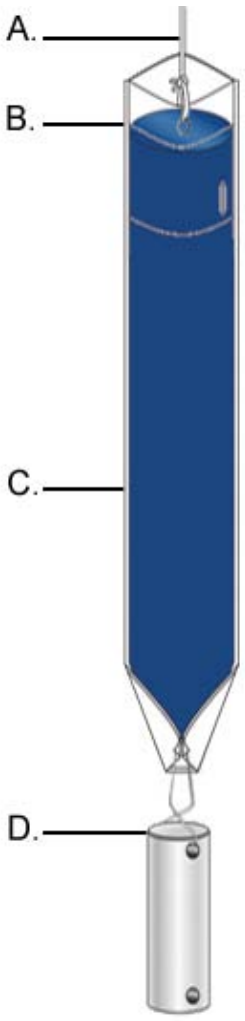


Figure 1. HydraSleeve components.

Note: The sample sleeve and the discharge tube are designed for one-time use and are disposable. The spring clip, weight and weight clip may be reused after thorough cleaning. Suspension cord is generally disposed after one use although, if it is dedicated to the well, it may be reused at the discretion of the sampling personnel.

Selecting the HydraSleeve Size to Meet Site-Specific Sampling Objectives

It is important to understand that each HydraSleeve is able to collect a finite volume of sample because, after the HydraSleeve is deployed, you only get one chance to collect an undisturbed sample. Thus, the volume of sample required to meet your site-specific sampling and analytical requirements will dictate the size of HydraSleeve you need to meet these requirements.

The volume of sample collected by the HydraSleeve varies with the diameter and length of the HydraSleeve. Dimensions and volumes of available HydraSleeve models are detailed in Table 1.

Table 1. Dimensions and volumes of HydraSleeve models.

Diameter	Volume	Length	Lay-Flat Width	Filled Dia.
2-Inch HydraSleeves				
Standard 625-ml HydraSleeve	625 ml	< 30”	2.5”	1.4”
Standard 1-Liter HydraSleeve	1 Liter	38”	3”	1.9”
1-Liter HydraSleeve SS	1 Liter	36”	3”	1.9”
2-Liter HydraSleeve SS	2 Liters	60”	3”	1.9”
4-Inch HydraSleeves				
Standard 1.6-Liter HydraSleeve	1.6 Liters	30”	3.8”	2.3”
Custom 2-Liter HydraSleeve	2 Liters	36”	4”	2.7”

HydraSleeves can be custom-fabricated by the manufacturer in varying diameters and lengths to meet specific volume requirements. HydraSleeves can also be deployed in series (i.e., multiple HydraSleeves attached to one tether) to collect additional sample to meet specific volume requirements, as described below.

If you have questions regarding the availability of sufficient volume of sample to satisfy laboratory requirements for analysis, it is recommended that you contact the laboratory to discuss the minimum volumes needed for each suite of analytes. Laboratories often require only 10% to 25% of the volume they specify to complete analysis for specific suites of analytes, so they can often work with much smaller sample volumes that can easily be supplied by a HydraSleeve.

HydraSleeve Deployment

Information Required Before Deploying a HydraSleeve

Before installing a HydraSleeve in any well, you will need to know the following:

- The inside diameter of the well
- The length of the well screen
- The water level in the well
- The position of the well screen in the well
- The total depth of the well

The inside diameter of the well is used to determine the appropriate HydraSleeve diameter for use in the well. The other information is used to determine the proper placement of the HydraSleeve in the well to collect a representative sample from the screen (see HydraSleeve Placement, below), and to determine the appropriate length of tether to attach to the HydraSleeve to deploy it at the appropriate position in the well.

Most of this information (with the exception of the water level) should be available from the well log; if not, it will have to be collected by some other means. The inside diameter of the well can be measured at the top of the well casing, and the total depth of the well can be measured by sounding the bottom of the well with a weighted tape. The position and length of the well screen may have to be determined using a down-hole camera if a well log is not available. The water level in the well can be measured using any commonly available water-level gauge.

HydraSleeve Placement

The HydraSleeve is designed to collect a sample directly from the well screen, and it fills by pulling it up through the screen a distance equivalent to 1 to 1.5 times its length. This upward motion causes the top check valve to open, which allows the device to fill. To optimize sample recovery, it is recommended that the HydraSleeve be placed in the well so that the bottom weight rests on the bottom of the well and the top of the HydraSleeve is as close to the bottom of the well screen as possible. This should allow the sampler to fill before the top of the device reaches the top of the screen as it is pulled up through the water column, and ensure that only water from the screen is collected as the sample. In short-screen wells, or wells with a short water column, it may be necessary to use a top-weight on the HydraSleeve to compress it in the bottom of the well so that, when it is recovered, it has room to fill before it reaches the top of the screen.

Example

2" ID PVC well, 50' total depth, 10' screen at the bottom of the well, with water level above the screen (the entire screen contains water).

Correct Placement (figure 2): Using a standard HydraSleeve for a 2" well (2.6" flat width/1.5" filled OD x 30" long, 650 ml volume), deploy the sampler so the weight (an 8 oz., 4"-long weight with a 2"-long clip) rests at the bottom of the well. The top of the sleeve is thus set at about 36" above the bottom of the well. When the sampler is recovered, it will be pulled upward approximately 30" to 45" before it is filled; therefore, it is full (and the top check valve closes) at approximately 66" (5 ½ feet) to 81" (6 ¾ feet) above the bottom of the well, which is well before the sampler reaches the top of the screen. In this example, only water from the screen is collected as a sample.

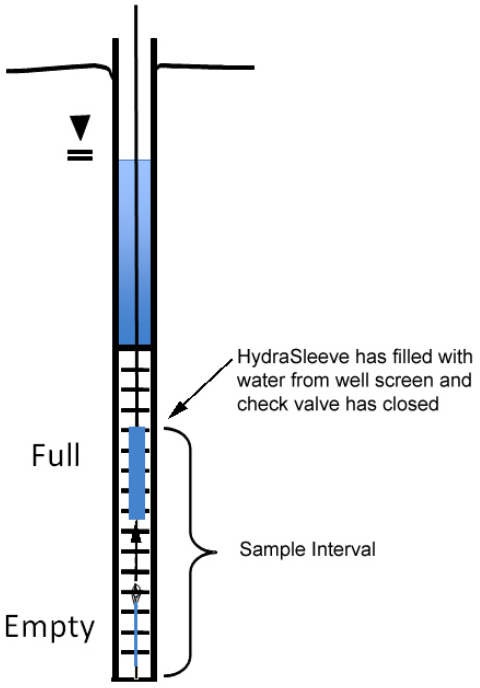


Figure 2. Correct placement of HydraSleeve.

Incorrect Placement (figure 3): If the well screen in this example was only 5' long, and the HydraSleeve was placed as above, it would not fill before the top of the device reached the top of the well screen, so the sample would include water from above the screen, which may not have the same chemistry.

The solution? Deploy the HydraSleeve with a top weight, so that it is collapsed to within 6" to 9" of the bottom of the well. When the HydraSleeve is recovered, it will fill within 39" (3 ¼ feet) to 54" (4 ½ feet) above the bottom of the well, or just before the sampler reaches the top of the screen, so it collects only water from the screen as the sample.

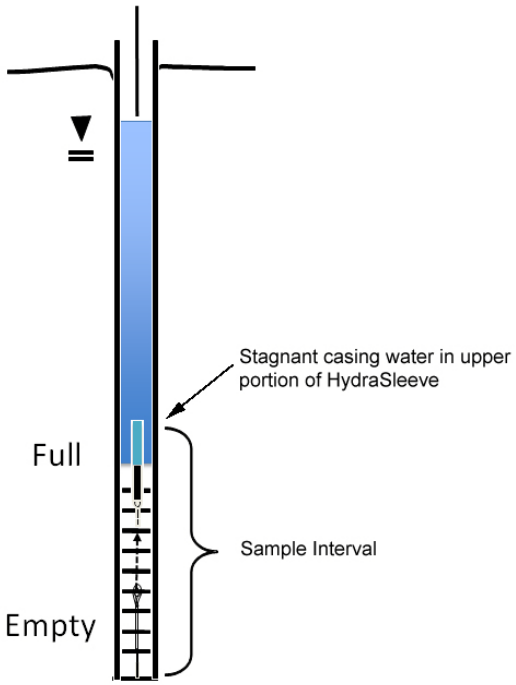


Figure 3. Incorrect placement of HydraSleeve.

This example illustrates one of many types of HydraSleeve placements. More complex placements are discussed in a later section.

Procedures for Sampling with the HydraSleeve

Collecting a ground-water sample with a HydraSleeve is a simple one-person operation.

Note: Before deploying the HydraSleeve in the well, collect the depth-to-water measurement that you will use to determine the preferred position of the HydraSleeve in the well. This measurement may also be used with measurements from other wells to create a ground-water contour map. If necessary, also measure the depth to the bottom of the well to verify actual well depth to confirm your decision on placement of the HydraSleeve in the water column.

Measure the correct amount of tether needed to suspend the HydraSleeve in the well so that the weight will rest on the bottom of the well (or at your preferred position in the well). Make sure to account for the need to leave a few feet of tether at the top of the well to allow recovery of the sleeve

Note: Always wear sterile gloves when handling and discharging the HydraSleeve.

I. Assembling the HydraSleeve

1. Remove the HydraSleeve from its packaging, unfold it, and hold it by its top.

2. Crimp the top of the HydraSleeve by folding the hard polyethylene reinforcing strips at the holes.

3. Attach the spring clip to the holes to ensure that the top will remain open until the sampler is retrieved.

4. Attach the tether to the spring clip by tying a knot in the tether.

Note: Alternatively, attach the tether to one (NOT both) of the holes at the top of the Hydrasleeve by tying a knot in the tether.

5. Fold the flaps with the two holes at the bottom of the HydraSleeve together and slide the weight clip through the holes.

6. Attach a weight to the bottom of the weight clip to ensure that the HydraSleeve will descend to the bottom of the well.

II. Deploying the HydraSleeve

1. Using the tether, carefully lower the HydraSleeve to the bottom of the well, or to your preferred depth in the water column

   During installation, hydrostatic pressure in the water column will keep the self-sealing check valve at the top of the HydraSleeve closed, and ensure that it retains its flat, empty profile for an indefinite period prior to recovery.

Note: Make sure that it is not pulled upward at any time during its descent. If the HydraSleeve is pulled upward at a rate greater than 0.5'/second at any time prior to recovery, the top check valve will open and water will enter the HydraSleeve prematurely.

2. Secure the tether at the top of the well by placing the well cap on the top of the well casing and over the tether.

Note: Alternatively, you can tie the tether to a hook on the bottom of the well cap (you will need to leave a few inches of slack in the line to avoid pulling the sampler up as the cap is removed at the next sampling event).

III. Equilibrating the Well

The equilibration time is the time it takes for conditions in the water column (primarily flow dynamics and contaminant distribution) to restabilize after vertical mixing occurs (caused by installation of a sampling device in the well).

- Situation: The HydraSleeve is deployed for the first time or for only one time in a well

  The HydraSleeve is very thin in cross section and displaces very little water (<100 ml) during deployment so, unlike most other sampling devices, it does not disturb the water column to the point at which long equilibration times are necessary to ensure recovery of a representative sample.

  In most cases, the HydraSleeve can be recovered immediately (with no equilibration time) or within a few hours. In regulatory jurisdictions that impose specific requirements for equilibration times prior to recovery of no-purge sampling devices, these requirements should be followed.

- Situation: The HydraSleeve is being deployed for recovery during a future sampling event

  In periodic (i.e., quarterly or semi-annual) sampling programs, the sampler for the current sampling event can be recovered and a new sampler (for the next sampling event)

deployed immediately thereafter, so the new sampler remains in the well until the next sampling event.

Thus, a long equilibration time is ensured and, at the next sampling event, the sampler can be recovered immediately. This means that separate mobilizations, to deploy and then to recover the sampler, are not required. HydraSleeves can be left in a well for an indefinite period of time without concern.

IV. HydraSleeve Recovery and Sample Collection

1. Hold on to the tether while removing the well cap.

2. Secure the tether at the top of the well while maintaining tension on the tether (but without pulling the tether upwards)

3. Measure the water level in the well.

4. In one smooth motion, pull the tether up between 30” to 45” (36” to 54” for the longer HydraSleeve) at a rate of about 1’ per second (or faster).

   The motion will open the top check valve and allow the HydraSleeve to fill (it should fill in about 1 to 1.5 times the length of the HydraSleeve). This is analogous to coring the water column in the well from the bottom up.

   When the HydraSleeve is full, the top check valve will close. You should begin to feel the weight of the HydraSleeve on the tether and it will begin to displace water. The closed check valve prevents loss of sample and entry of water from zones above the well screen as the HydraSleeve is recovered.

5. Continue pulling the tether upward until the HydraSleeve is at the top of the well.

6. Decant and discard the small volume of water trapped in the Hydrasleeve above the check valve by turning the sleeve over.

V. Sample Collection

Note: Sample collection should be done immediately after the HydraSleeve has been brought to the surface to preserve sample integrity.

1. Remove the discharge tube from its sleeve.

2. Hold the HydraSleeve at the check valve.

3. Puncture the HydraSleeve just below the check valve with the pointed end of the discharge tube

4. Discharge water from the HydraSleeve into your sample containers.

Control the discharge from the HydraSleeve by either raising the bottom of the sleeve, by squeezing it like a tube of toothpaste, or both.

5. Continue filling sample containers until all are full.

Measurement of Field Indicator Parameters

Field indicator parameter measurement is generally done during well purging and sampling to confirm when parameters are stable and sampling can begin. Because no-purge sampling does not require purging, field indicator parameter measurement is not necessary for the purpose of confirming when purging is complete.

If field indicator parameter measurement is required to meet a specific non-purging regulatory requirement, it can be done by taking measurements from water within a HydraSleeve that is not used for collecting a sample to submit for laboratory analysis (i.e., a second HydraSleeve installed in conjunction with the primary sample collection HydraSleeve [see Multiple Sampler Deployment below]).

Alternate Deployment Strategies

Deployment in Wells with Limited Water Columns

For wells in which only a limited water column exists to be sampled, the HydraSleeve can be deployed with an optional top weight instead of a bottom weight, which collapses the HydraSleeve to a very short (approximately 6” to 9”) length, and allows the HydraSleeve to fill in a water column only 36” to 45” in height.

Multiple Sampler Deployment

Multiple sampler deployment in a single well screen can accomplish two purposes:

- It can collect additional sample volume to satisfy site or laboratory-specific sample volume requirements.
- It can accommodate the need for collecting field indicator parameter measurements.
- It can be used to collect samples from multiple intervals in the screen to allow identification of possible contaminant stratification.

It is possible to use up to 3 standard 30" HydraSleeves deployed in series along a single tether to collect samples from a 10' long well screen without collecting water from the interval above the screen.

The samplers must be attached to the tether at both the top and bottom of the sleeve. Attach the tether at the top with a stainless-steel clip (available from the manufacturer). Attach the tether at the bottom using a cable tie. The samplers must be attached as follows (figure 4):

- The first (attached to the tether as described above, with the weight at the bottom) at the bottom of the screen
- The second attached immediately above the first
- The third (attached the same as the second) immediately above the second

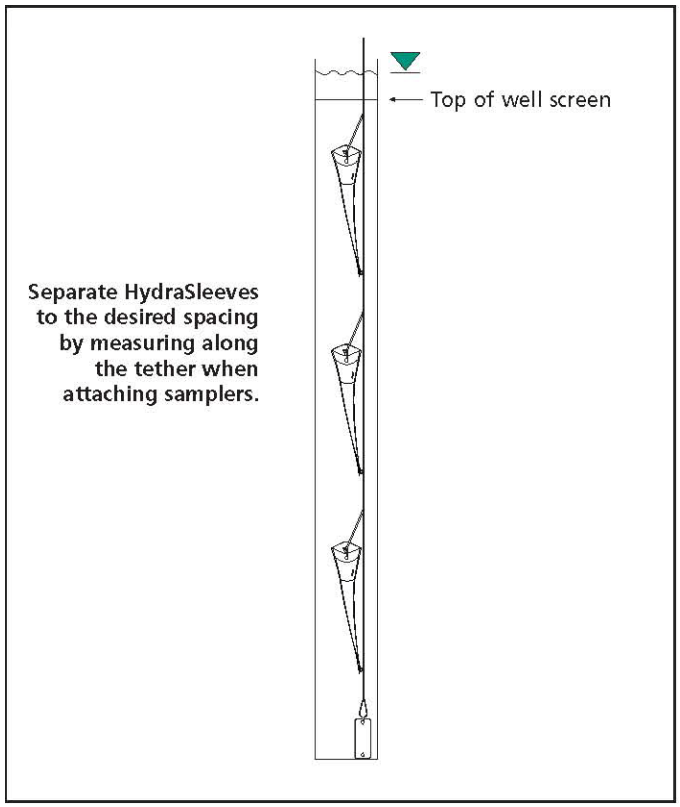


Figure 4. Multiple HydraSleeve deployment.

Alternately, the first sampler can be attached to the tether as described above, a second attached to the bottom of the first using a short length of tether (in place of the weight), and the third attached to the bottom of the second in the same manner, with the weight attached to the bottom of the third sampler (figure 5).

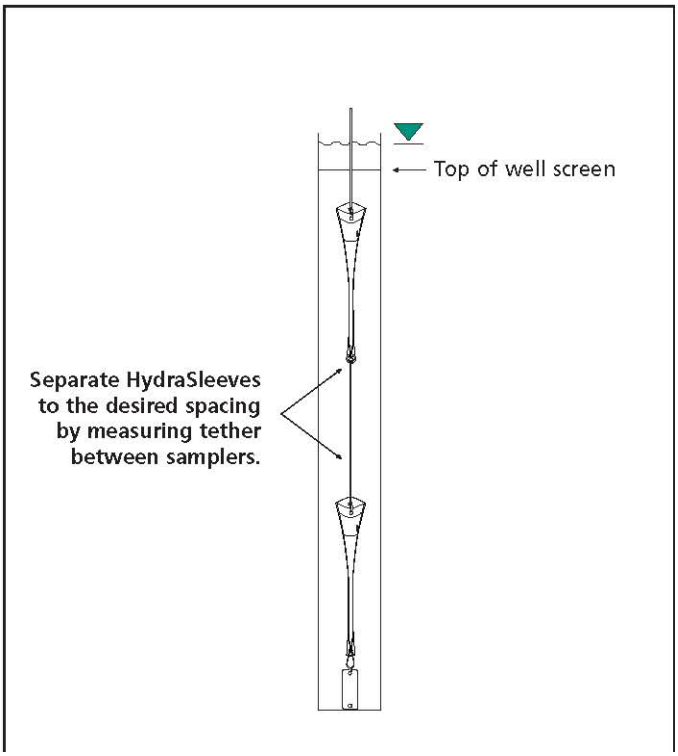


Figure 5. Alternative method for deploying multiple HydraSleeves.

In either case, when attaching multiple HydraSleeves in series, more weight may be required to hold the samplers in place in the well than would be required with a single sampler. Recovery of multiple samplers and collection of samples is done in the same manner as for single sampler deployments.

Post-Sampling Activities

The recovered HydraSleeve and the sample discharge tubing should be disposed as per the solid waste management plan for the site. To prepare for the next sampling event, a new HydraSleeve can be deployed in the well (as described previously) and left in the well until the next sampling event, at which time it can be recovered.

The weight and weight clip can be reused on this sampler after they have been thoroughly cleaned as per the site equipment decontamination plan. The tether may be dedicated to the well and reused or discarded at the discretion of sampling personnel.

References

McAlary, T. A. and J. F. Barker, 1987, Volatilization Losses of Organics During Ground-Water Sampling From Low-Permeability Materials, Ground-Water Monitoring Review, Vol. 7, No. 4, pp. 63-68

Parsons, 2005, Results Report for the Demonstration of No-Purge Ground-Water Sampling Devices at Former McClellan Air Force Base, California; Contract F44650-99-D-0005, Delivery Order DKO1, U.S. Army Corps of Engineers (Omaha District), U.S. Air Force Center for Environmental Excellence, and U.S. Air Force Real Property Agency

Robin, M. J. L. and R. W. Gillham, 1987, Field Evaluation of Well Purging Procedures, Ground-Water Monitoring Review, Vol. 7, No. 4, pp. 85-93

Appendix B

Field Data Sheets

BROADBENT

GROUNDWATER MONITORING SITE SHEET

Page ____ of ____

Project: Arcadis 11109 Project No.: 09-88-646 Date: 3/13/14

Field Representative: JR Elevation: ____

Formation recharge rate is historically: High Low *(circle one)*

W. L. Indicator ID #: ____ Oil/Water Interface ID #: ____ *(List #s of all equip used.)*

WELL ID RECORD					WELL GAUGING RECORD					LAB ANALYSES						
Well ID	Well Sampling Order	As-Built Well Diameter (inches)	As-Built Well Screen Interval (ft)	Previous Depth to Water (ft)	Time (24:00)	Depth to LNAPL (ft)	Apparent LNAPL Thickness (ft)*	Depth to Water (ft)	Well Total Depth (ft)							
MW-2					0914			dry	[redacted]	2.38						
MW-3					0931			10.73	31.41							
MW-4					0919			15.59	26.72							
MW-5					0946	[redacted]		[redacted]	32.07	* sheen						
MW-6					0904			15.43	34.48							
MW-7					0927			10.81	33.33							
MW-8					0939			14.29	29.97							
MW-9					0859			9.96	29.44							
MW-10					0959	9.80	0.01	9.81	29.90							
MW-11					0950	—	—	9.71	30.06							
MW-12					1007	10.51	0.01	10.60	30.16							
	* all wells were ~~tagged~~ gauged prior to sampling															
	* all wells were ~~tagged~~ gauged to bottom except MW-5, MW-10, MW-11, MW-12															

* Device used to measure LNAPL thickness: Bailer Oil/Water Interface Meter *(circle one)*

If bailer used, note bailer dimensions (inches): Entry Diameter ____ Chamber Diameter ____

Signature: ____

Revision: 1/24/2012

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: Arcadis 11109 Project No.: 09-88-646 Date: 3/13/14

Field Representative: JR

Well ID: MW-3 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump ___ Flow Cell
___ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump Other/ID#: N/A

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments: _____
Good Improvement Needed *(circle one)*

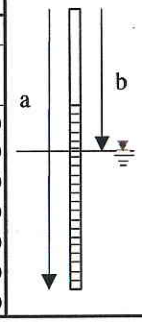
PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow Other: Hydrasleeve *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ____" | (____)

Total Well Depth (a): _____(ft)
Initial Depth to Water (b): _____(ft)
Water Column Height (WCH) = (a - b): _____(ft)
Water Column Volume (WCV) = WCH x Unit Volume: _____(gal)
Three Casing Volumes = WCV x 3: _____(gal)
Five Casing Volumes = WCV x 5: _____(gal)
Pump Depth (if pump used): _____(ft)



LOW-FLOW

Previous Low-Flow Purge Rate: _____(lpm)
Total Well Depth (a): _____(ft)
Initial Depth to Water (b): _____(ft)
Pump In-take Depth = b + (a-b)/2: _____(ft)
Maximum Allowable Drawdown = (a-b)/8: _____(ft)
Low-Flow Purge Rate: _____(Lpm)*
Comments: _____

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1100	—	22.68	6.76	0.772	8.67	-57	8.0	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD ___ Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
X Other: N/A

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 10.73 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
___ Disp. Pump Tubing Other: Hydrasleeve
Sample ID: MW-3 (3/13/14) Sample Collection Time: 1100 (24:00)
Containers (#): 3 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: _____ ___ Other: _____
___ Other: _____ ___ Other: _____

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: Arcadis 11109 Project No.: 09-88-646 Date: 2/13/14

Field Representative: JR

Well ID: MW-4 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump ___ Flow Cell
___ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump (Other/ID#: N/A)

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments: _____
Good Improvement Needed *(circle one)*

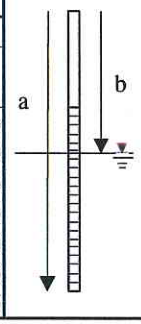
PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow (Other: Hydrasleeve) *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ____" | (____)

Total Well Depth (a): _____(ft)
Initial Depth to Water (b): _____(ft)
Water Column Height (WCH) = (a - b): _____(ft)
Water Column Volume (WCV) = WCH x Unit Volume: _____(gal)
Three Casing Volumes = WCV x 3: _____(gal)
Five Casing Volumes = WCV x 5: _____(gal)
Pump Depth (if pump used): _____(ft)



LOW-FLOW

Previous Low-Flow Purge Rate: _____(lpm)
Total Well Depth (a): _____(ft)
Initial Depth to Water (b): _____(ft)
Pump In-take Depth = b + (a-b)/2: _____(ft)
Maximum Allowable Drawdown = (a-b)/8: _____(ft)
Low-Flow Purge Rate: _____(Lpm)*
Comments: _____

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1040	—	19.86	7.21	0.676	4.19	-83	0.0	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD ___ Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
X Other: N/A

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 15.59 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
___ Disp. Pump Tubing (Other: Hydrasleeve)
Sample ID: MW-4(2/13/14) Sample Collection Time: 1040 (24:00)
Containers (#): 3 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: _____ ___ Other: _____
___ Other: _____ ___ Other: _____

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: Arcadis 11109 Project No.: 05-88-646 Date: 3/13/14

Field Representative: JR

Well ID: MW-6 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump ___ Flow Cell
___ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump Other/ID#: N/A

WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments: _____
(Good) Improvement Needed *(circle one)*

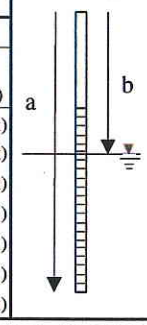
PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow (Other: Hydrasleeve) *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ____" | (____)

Total Well Depth (a): _____(ft)
Initial Depth to Water (b): _____(ft)
Water Column Height (WCH) = (a - b): _____(ft)
Water Column Volume (WCV) = WCH x Unit Volume: _____(gal)
Three Casing Volumes = WCV x 3: _____(gal)
Five Casing Volumes = WCV x 5: _____(gal)
Pump Depth (if pump used): _____(ft)



LOW-FLOW

Previous Low-Flow Purge Rate: _____(lpm)
Total Well Depth (a): _____(ft)
Initial Depth to Water (b): _____(ft)
Pump In-take Depth = b + (a-b)/2: _____(ft)
Maximum Allowable Drawdown = (a-b)/8: _____(ft)
Low-Flow Purge Rate: _____(Lpm)*
Comments: _____

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. ~~gal or L~~	Temperature °C	pH	Conductivity µS or ~~mS~~	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1020	—	20.20	6.36	0.553	6.45	-198	0	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD ___ Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
X Other: N/A

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 15.43 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
___ Disp. Pump Tubing Other: Hydrasleeve
Sample ID: MW-6(3/13/14) Sample Collection Time: 1020 (24:00)
Containers (#): 3 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: _____ ___ Other: _____
___ Other: _____ ___ Other: _____

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 3/15/2013

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page _____ of _____

Project: Arcadis 11109 Project No.: 09-88-646 Date: 3/13/14

Field Representative: JR

Well ID: MW-7 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT ___ Disp. Bailer ___ 120V Pump ___ Flow Cell
___ Disp. Tubing ___ 12V Pump ___ Peristaltic Pump (Other/ID#: N/A)

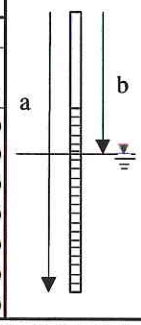
WELL HEAD INTEGRITY (cap, lock, vault, etc.) Comments: _____
Good Improvement Needed *(circle one)*

PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow (Other: Hydrasleeve) *(circle one)*

PREDETERMINED WELL VOLUME

Casing Diameter | Unit Volume (gal/ft) *(circle one)*

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ____" | (____)



Total Well Depth (a): _____(ft)
Initial Depth to Water (b): _____(ft)
Water Column Height (WCH) = (a - b): _____(ft)
Water Column Volume (WCV) = WCH x Unit Volume: _____(gal)
Three Casing Volumes = WCV x 3: _____(gal)
Five Casing Volumes = WCV x 5: _____(gal)
Pump Depth (if pump used): _____(ft)

LOW-FLOW

Previous Low-Flow Purge Rate: _____(lpm)
Total Well Depth (a): _____(ft)
Initial Depth to Water (b): _____(ft)
Pump In-take Depth = b + (a-b)/2: _____(ft)
Maximum Allowable Drawdown = (a-b)/8: _____(ft)
Low-Flow Purge Rate: _____(Lpm)*
Comments: _____

**Low-flow purge rate should be within range of instruments used but should not exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.*

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Vol. gal or L	Temperature °C	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1110	0	22.11	6.72	0.555	2.90	-52	0.0	
Previous Stabilized Parameters								

PURGE COMPLETION RECORD ___ Low Flow & Parameters Stable ___ 3 Casing Volumes & Parameters Stable ___ 5 Casing Volumes
X Other: N/A

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 10.81 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
___ Disp. Pump Tubing (Other: Hydrasleeve)
Sample ID: MW-7 (3/13/14) Sample Collection Time: 1110 (24:00)
Containers (#): 3 VOA (3 preserved or ___ unpreserved) ___ Liter Amber
___ Other: _____ ___ Other: _____
___ Other: _____ ___ Other: _____

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 3/15/2013

San Francisco
1220 Quarry Lane

Pleasanton, CA 94566
phone 925.484.1919 fax 925.600.3002

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager: Kristene Tidwell**	**Site Contact:** James Ramos	**Date:**	COC No:
Broadbent and Associates	**Tel/Fax: 707-455-7290 / 707-455-7295**	**Lab Contact:**	**Carrier:**	_____ of _____ COCs
875 Cotting Lane	**Analysis Turnaround Time**			Job No.
Vacaville, California 94591	Calendar (C) or Work Days (W) _____			
707-455-7290 Phone	TAT if different from Below ____STD_____			SDG No.
707-455-7295 FAX	☐ 2 weeks			
Project Name: Arcadis 11109	☐ 1 week			
Site: 4280 Foothill, Oakland, California	☐ 2 days			
Global ID#: T0600100217	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	GRO by 8260	BTEX/5 FO + EDB By 8260B	1, 2 DCA By 8260B	Ethanol By 8260B	MTBE By 8260B	Sample Specific Notes:
MW-3 (3/13/14)	3/13/14	1100	Grab	AQ	3						x	
MW-4 (3/13/14)		1040	Grab	AQ	3		x				x	
JR ~~MW-5 (3/13/14)~~			Grab	AQ	3		x	x	x	x		
MW-6 (3/13/14)		1020	Grab	AQ	3						x	
MW-7 (3/13/14)		1110	Grab	AQ	3		x	x	x	x		
JR ~~MW-10 (3/13/14)~~			Grab	AQ	3		x	x	x	x		
JR ~~MW-11 (3/13/14)~~		~~1120~~	Grab	AQ	3		x	x	x	x		
JR ~~MW-12 (3/13/14)~~			Grab	AQ	3		x	x	x	x		
TB-11109-03132014	—	—	—	AQ	2							ON HOLD

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* *Poison B* ☐ *Unknown* ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*

Special Instructions/QC Requirements & Comments:

3.6°C

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Broadbent	3/13/14 1210			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

BROADBENT

Passive LNAPL Recovery Field Data Sheets

Site Name: Arcadis 111099 **Project No.:** 09-88-646
Site Location: 4280 Foothill Blvd, Oakland, CA

Date: 3/18/14 **Technician:** Alex Martinez
Onsite Time: 1145 **Weather Conditions:** Sunny
Offsite Time: 1245 **Ambient Temperature:** 70° F

Absorbent Sock Measurements Upon Arrival

Parameter	MW-5	MW-10	MW-12		
Well Diameter (inches)	4	4	4		
Sock Diameter (inches)	3	3	3		
Is the sock saturated with product? Yes or No	Yes	Yes	Yes		
If yes, length of saturation on socks (inches)	~30	36	~32		
Depth to LNAPL, feet below top of casing	-	9.80	10.51		
Depth to water, feet below top of casing	9.74	9.81	10.60		

No. of 55-gallon drums: _____

Drum #	-							
Fill Start Date	9/20/13							
Is it full?	No							
If not, how full?	*							

* Used Soakease place in garbage bag within 5 gallon bucket.

Absorbent Sock Measurements Prior to Depature

Parameter	MW-5	MW-10	MW-12		
Sock Replaced? Yes or No	Yes	Yes	Yes		
Sock Diameter (inches)	3	3	3		
Total Sock Length (feet)	3	3	3		
Sock Length Below Water* (feet)	2	2	2		
Sock Length Above Water * (feet)	1	1	1		

*Note: When installing sock, set the depth of sock such that 2/3 of it is above the water table. Store the used socks in sealed 5-gallon buckets and store them in 55-gal drum labelled hazardous waste.

Comments/Notes:

Signature: _____ Date: 3/18/14

BLAINE™
TECH SERVICES

March 20, 2014

Chevron Environmental Management Company
Brian Waite
6111 Bollinger Canyon Rd.
San Ramon, CA 94583

First Quarter 2014 Monitoring at
Chevron Service Station 90076
4265 Foothill Blvd.
Oakland, CA

Monitoring performed on March 13, 2014

Blaine Tech Services, Inc. Groundwater Monitoring Event 140313-JO1

This submission covers the routine monitoring of groundwater wells conducted on March 13, 2014 at this location. Ten monitoring wells were measured for depth to groundwater (DTW). Ten monitoring wells were sampled. All sampling activities were performed in accordance with local, state and federal guidelines.

Water levels measurements were collected using an electronic slope indicator. All sampled wells were purged of three case volumes, depending on well recovery, or until water temperature, pH and conductivity stabilized. Purging was accomplished using electric submersible pumps, positive air displacement pumps, or stainless steel, Teflon, or disposable bailers. Subsequent sample collection and sample handling was performed in accordance with EPA protocols. Alternately, where applicable, wells were sampled utilizing no-purge methodology. All reused equipment was decontaminated in an integrated stainless steel sink with de-ionized water supplied Hotsy pressure washer and Liquinox or equivalent.

SAN JOSE SACRAMENTO LOS ANGELES SAN DIEGO
1680 ROGERS AVENUE SAN JOSE, CA 95112-1105 (408) 573-0555 FAX (408) 573-7771 LIC. 746684 www.blainetech.com

Samples were delivered under chain-of-custody to Lancaster Laboratories of Lancaster, Pennsylvania, for analysis. Monitoring well purgewater and equipment rinsate water was collected and transported under bill-of-lading to Blaine Tech of San Jose, California.

Enclosed documentation from this event includes copies of the Well Gauging Sheet, Well Monitoring Data Sheets, and Chain-of-Custody.

Blaine Tech Services, Inc.'s activities at this site consisted of objective data and sample collection only. No interpretation of analytical results, defining of hydrogeologic conditions or formulation of recommendations was performed.

Please call if you have any questions.

Sincerely,

Dustin Becker
Blaine Tech Services, Inc.
Senior Project Manager

attachments: SOP
Well Gauging Sheet
Individual Well Monitoring Data Sheets
Wellhead Inspection Form
Bill of Lading
Calibration Log

cc: CRA
Attn: Nathan Lee
2300 Clayton Rd., Suite 920
Concord, CA 94520

SAN JOSE SACRAMENTO LOS ANGELES SAN DIEGO
1680 ROGERS AVENUE SAN JOSE, CA 95112-1105 (408) 573-0555 FAX (408) 573-7771 LIC. 746684 www.blainetech.com

BLAINE TECH SERVICES, INC.
METHODS AND PROCEDURES
FOR THE ROUTINE MONITORING OF
GROUNDWATER WELLS AT CHEVRON SITES

Blaine Tech Services, Inc. performs environmental sampling and documentation as an independent third party. We specialize in groundwater monitoring assignments and intentionally limit the scope of our services to those centered on the generation of objective information.

To avoid conflicts of interest, Blaine Tech Services, Inc. personnel do not evaluate or interpret the information we collect. As a state licensed contractor (C-57 well drilling –water – 746684) performing strictly technical services, we do not make any professional recommendations and perform no consulting of any kind.

SAMPLING PROCEDURES OVERVIEW

SAFETY

All groundwater monitoring assignments performed for Chevron comply with Chevron's safety guidelines, 29 CFR 1910.120 and SB-198 Injury and Illness Prevention Program (IIPP). All Field Technicians receive the full 40-hour 29CFR 1910.120 OSHA SARA HAZWOPER course, medical clearance and on-the-job training prior to commencing any work on any Chevron site.

INSPECTION AND GAUGING

Wells are inspected prior to evacuation and sampling. The condition of the wellhead is checked and noted according to a wellhead inspection checklist.

Standard measurements include the depth to water (DTW) and the total well depth (TD) obtained with industry standard electronic water level indicators that are graduated in increments of hundredths of a foot.

The water in each well is inspected for the presence of immiscibles. When free product is suspected, its presence is confirmed using an electronic interface probe (e.g. GeoTech). No samples are collected from a well containing product.

TRADITIONAL PURGING & SAMPLING

Evacuation

Depth to water measurements are collected by our personnel prior to purging and minimum purge volumes are calculated anew for each well based on the height of the water column and the diameter of the well. Expected purge volumes are never less than three case volumes and are set at no less than four case volumes in some jurisdictions.

Well purging devices are selected on the basis of the well diameter and the total volume to be evacuated. In most cases the well will be purged using an electric submersible pump (i.e. Grundfos) suspended near (but not touching) the bottom of the well.

Parameter Stabilization

Well purging completion standards include minimum purge volumes, but additionally require stabilization of specific groundwater parameters prior to sample collection. Typical groundwater parameters used to measure stability are electrical conductivity, pH, and temperature. Instrument readings are obtained at regular intervals during the evacuation process (no less than once per case volume).

Stabilization standards for routine quarterly monitoring of fuel sites include the following: Temperature is considered to have stabilized when successive readings do not fluctuate more than +/- 1 degree Celsius. Electrical conductivity is considered stable when successive readings are within 10%. pH is considered to be stable when successive readings remain constant or vary no more than 0.2 of a pH unit.

Sample Collection

All samples are collected using disposable bailers.

Sample Containers

Sample material is decanted directly from the sampling bailer into sample containers provided by the laboratory that will analyze the samples. The transfer of sample material from the bailer to the sample container conforms to specifications contained in the USEPA T.E.G.D. The type of sample container, material of construction, method of closure and filling requirements are specific to the intended analysis. Chemicals needed to preserve the sample material are commonly placed inside the sample containers by the laboratory or glassware vendor prior to delivery of the bottle to our personnel. The laboratory sets the number of replicate containers.

Dewatered Wells

Normal evacuation removes no less than three case volumes of water from the well. However, less water may be removed in cases where the well dewaters and does not immediately recharge.

Measuring Recharge

Upon completion of well purging, a depth to water measurement is collected and notated to ensure that the well has recharged to within 80% of its static, pre-purge level prior to sampling.

Wells that do not immediately show 80% recharge or dewatered wells will be allowed approximately 2 hours to recharge prior to sampling or will be sampled at site departure. All wells requiring off-site traffic control in the public right-of-way, the 80% recharge rule may be disregarded in the interests of Health and Safety. The sample may be collected as soon as there is sufficient water. The water level at time of sampling will be noted.

Dissolved Oxygen Measurements

Dissolved Oxygen readings are taken pre- and/or post-purge using YSI meters (e.g. YSI Model 550) or HACH field test kits.

The YSI meters are able to collect accurate in-situ readings. The probe allows downhole measurements to be taken from wells with diameters as small as two inches. The probe and reel is decontaminated between wells as described above. The meter is calibrated

as per the instructions in the operating manual. The probe is lowered into the water column and the reading is allowed to stabilize prior to collection.

Oxidation Reduction Potential Measurements (ORP)

All readings are obtained with either Corning or Myron-L meters (e.g. Corning ORP-65 or a Myron-L Ultrameter). The meter is cleaned between wells as described above. The meter is calibrated at the start of each day according to the instruction manual.

LOW FLOW SAMPLING USING SAMPLE-PRO BLADDER PUMP

Calibration

Calibrate YSI Flow Cell as per manufacturer's specifications. Thoroughly rinse probe and cup between parameters. Calibration order as follows:

1. pH (use 3-point calibration of 7, 4, 10)
2. Oxygen Reduction Potential (ORP)
3. Specific Conductance
4. Dissolved Oxygen (DO) (calibrate simulating 100% oxygen saturation)

Purging & Sampling Collection

1. Insert new bladder into Sample-Pro pump housing.
2. Remove dedicated PE tubing from the well or start with new PE tubing cut to the required length.
3. Attach the PE tubing to the Sample-Pro Bladder Pump.
4. Gently lower the Sample-Pro Bladder Pump, and PE tubing into the well, placing the Sample-Pro Bladder Pump intake at the center of the screened interval. Take care to minimize disturbance to the water column.
5. Direct effluent line into YSI 556 Flow Cell.
6. Set Sample-Pro Bladder Pump speed at 100 - 500 ml/min.
7. Collect water quality parameter measurements for temperature, pH, conductivity, turbidity, DO and ORP every 3-5 minutes.
8. Monitor drawdown during purging with electronic water level meter. Record water level with each parameter measurement. MAXIMUM DRAWDOWN IS 0.33 FEET.
9. Collect parameter measurements until stability is achieved. Stability is defined as three consecutive measurements where:

Temp	± 1° Celsius
pH	± 0.1
Conductivity	± 3%
Turbidity	± 10% NTU
DO	± 0.3 mg/l
ORP	± 10 Mv

10. Sample may be collected once stability is achieved and at least one system volume of water removed from the well.
11. Disconnect effluent line from YSI 556 Flow Cell.
12. Sample through effluent line while maintaining constant flow rate.
13. Remove Sample-Pro Bladder Pump, and PE tubing from well.
14. Detach and reinstall dedicated PE tubing in well.

PURGEWATER CONTAINMENT

All non-hazardous purgewater evacuated from each groundwater monitoring well is captured and contained in on-board storage tanks on the Sampling Vehicle and/or special water hauling trailers. Effluent from the decontamination of reusable apparatus (sounders, electric pumps and hoses etc.), consisting of groundwater combined with deionized water and non-phosphate soap, is also captured and pumped into effluent tanks.

Non-hazardous purgewater is transported under standard Bill of Lading or Non-Hazardous Waste Manifest to a Blaine Tech Services, Inc. facility before being transported to a Chevron approved disposal facility

TRIP BLANKS

Trip Blanks, if requested, are taken to the site and kept inside the sample cooler for the duration of the event. They are turned over to the laboratory for analysis with the samples from that site.

DUPLICATES

Duplicates, if requested, may be collected at a site.

SAMPLE STORAGE

All sample containers are promptly placed in food grade ice chests for storage in the field and transport (direct or via our facility) to the designated analytical laboratory. These ice chests contain quantities of restaurant grade ice as a refrigerant material. The samples are maintained in either an ice chest or a refrigerator until relinquished into the custody of the laboratory or laboratory courier.

DOCUMENTATION CONVENTIONS

A label must be affixed to all sample containers. In most cases these labels are generated by our office personnel and are partially preprinted. Labels can also be hand written by our field personnel. The site is identified with the store number and site address, as is the particular groundwater well from which the sample is drawn (e.g. MW-1, MW-2, S-1 etc.). The time and date of sample collection along with the initials of the person who collects the sample are handwritten onto the label. Field documentation is contemporaneous.

DECONTAMINATION

All equipment is brought to the site in clean and serviceable condition and is cleaned after use in each well and before subsequent use in any other well. Equipment such as hose reels, pumps and bailers is decontaminated before leaving the site.

The primary decontamination device is a commercial steam cleaner. The steam cleaner is de-tuned to function as a hot pressure washer that is then operated with high quality deionized water that is produced at our facility and stored onboard our sampling vehicle. Cleaning is

facilitated by the use of proprietary fixtures and devices included in the patented workstation (U.S. Patent 5,535,775) that is incorporated in each sampling vehicle.
Any sensitive equipment or parts (i.e. Dissolved Oxygen sensor membrane, water level indicator, etc.) that cannot be washed using the high pressure water, will be sprayed with a non-phosphate soap and deionized water solution and rinsed with deionized water.

FERROUS IRON MEASUREMENTS

All field measurements are collected at time of sampling with a HACH test kit.

WELL GAUGING DATA

Project # 140313-J6 Date 3-13-14 Client Chevron

Site 4265 Foothill Blvd Oakland CA.

Well ID	Time	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	Notes
C-1	0759	3					12.13	37.87		
C-2	0806	3					12.45	36.42		
C-3	0756	3					19.00	39.11		
C-4	0825	3					9.97	36.30		
C-5	0803	2					20.26	44.20		
C-6	0810	2					21.10	53.60		
C-7	0822	2					24.90	50.85		
C-8	0814	2					25.01	56.81		
C-9	0818	2					24.82	45.63		
C-10	0753	2					9.10	29.90		

CHEVRON WELL MONITORING DATA SHEET

Project #: 180318-101	Station #: 9-0076
Sampler: JD	Date: 3-13-14
Weather: clear	Ambient Air Temperature: 64°F
Well I.D.: C-1	Well Diameter: 2 (3) 4 6 8 ____
Total Well Depth: 37.87	Depth to Water: 12.13
Depth to Free Product: ____	Thickness of Free Product (feet): ____
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 17.27	

Purge Method:

- Bailer
- Disposable Bailer
- Positive Air Displacement
- (Electric Submersible)
- Waterra
- Peristaltic
- Extraction Pump
- Other_____

Sampling Method: Bailer

- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other: _____

9.5 (Gals.) X	3	=	28.5 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1005	68.1	7.07	793	216	9.5	
		Well	dewatered	@ 10	gallons	
1015	68.0	7.02	794	21	—	

Did well dewater? (Yes) No Gallons actually evacuated: 16.0

Sampling Date: 3-13-14 Sampling Time: 1015 Depth to Water: 17.16

Sample I.D.: C-1 Laboratory: (Lancaster) Other_____

Analyzed for: TPH-G BTEX MTBE OXYS Other: See COC

Duplicate I.D.: Analyzed for: TPH-G BTEX MTBE OXYS Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

CHEVRON WELL MONITORING DATA SHEET

Project #: 140313-J01	Station #: 9-0076
Sampler: SD	Date: 3-13-14
Weather: clear	Ambient Air Temperature: 68°F
Well I.D.: C-2	Well Diameter: 2 (3) 4 6 8 ___
Total Well Depth: 36.42	Depth to Water: 12.45
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 17.24	

Purge Method:

- Bailer
- Disposable Bailer
- Positive Air Displacement
- (Electric Submersible)
- Waterra
- Peristaltic
- Extraction Pump
- Other_____

Sampling Method: ~~Bailer~~

- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other: _____

8.8 (Gals.) X 3 = 26.4 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	Gals. Removed	Observations
1145	69.5	6.77	848	21	8.8	
1148	69.5	6.72	850	20	17.6	
1151	69.5	6.70	852	20	26.4	

Did well dewater? Yes (No) Gallons actually evacuated: ~~17.06~~ 26.4

Sampling Date: 3-13-14 Sampling Time: 1200 Depth to Water: 17.06

Sample I.D.: C-2 Laboratory: (Lancaster) Other_____

Analyzed for: TPH-G BTEX MTBE OXYS Other: See COC

Duplicate I.D.: Analyzed for: TPH-G BTEX MTBE OXYS Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

CHEVRON WELL MONITORING DATA SHEET

Project #: 140313-301	Station #: 9-0076
Sampler: JD	Date: 3-13-14
Weather: clear	Ambient Air Temperature: 65°F
Well I.D.: C-3	Well Diameter: 2 (3) 4 6 8 ____
Total Well Depth: 39.11	Depth to Water: 19.00
Depth to Free Product:	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 23.02	

Purge Method:

- Bailer
- Disposable Bailer
- Positive Air Displacement
- (Electric Submersible)
- Waterra
- Peristaltic
- Extraction Pump
- Other_____

Sampling Method:

- Bailer
- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other: _____

7.4 (Gals.) X	3 =	22.2 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1025	68.1	7.32	827	39	7.4	
1027	68.2	7.31	830	40	14.8	
1029	68.3	7.30	834	39	22.2	

Did well dewater? Yes (No) Gallons actually evacuated: 22.2

Sampling Date: 3-13-14 Sampling Time: ~~1315~~ 1040 Depth to Water: 22.29

Sample I.D.: C-3 Laboratory: (Lancaster) Other_____

Analyzed for: TPH-G BTEX MTBE OXYS Other: See COC

Duplicate I.D.: Analyzed for: TPH-G BTEX MTBE OXYS Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

CHEVRON WELL MONITORING DATA SHEET

Project #: 140313-J01	Station #: 9-0076
Sampler: JO	Date: 3-13-14
Weather: clear	Ambient Air Temperature: 65°F
Well I.D.: C-4	Well Diameter: 2 (3) 4 6 8 ____
Total Well Depth: 36.30	Depth to Water: 9.97
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 15.23	

Purge Method:

- Bailer
- Disposable Bailer
- Positive Air Displacement
- (Electric Submersible)
- Waterra
- Peristaltic
- Extraction Pump
- Other_____

Sampling Method: Bailer

- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other: _____

1 Case Volume	Specified Volumes	Calculated Volume
9.7 (Gals.) X	3 =	29.1 Gals.

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1055	69.4	7.05	850	13	9.7	
1057	69.4	7.02	849	14	19.4	
1059	69.4	7.02	845	14	29.1	

Did well dewater? Yes (No) Gallons actually evacuated: 29.1

Sampling Date: 3-13-14 Sampling Time: 1110 Depth to Water: 14.97

Sample I.D.: C-4 Laboratory: (Lancaster) Other_____

Analyzed for: TPH-G BTEX MTBE OXYS Other: See COC

Duplicate I.D.: Analyzed for: TPH-G BTEX MTBE OXYS Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

CHEVRON WELL MONITORING DATA SHEET

Project #: 140313-701	Station #: 9-0676
Sampler: JD	Date: 3-13-14
Weather: clear	Ambient Air Temperature: 65°F
Well I.D.: C-5	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: 44.20	Depth to Water: 20.26
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 25.05	

Purge Method:

- Bailer
- Disposable Bailer
- Positive Air Displacement
- (Electric Submersible)
- Waterra
- Peristaltic
- Extraction Pump
- Other_____

Sampling Method: Bailer

- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other: _____

3.8 (Gals.) X	3 =	11.4 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
1125	671	7.10	736	>1000	3.8	
1127	671	7.02	739	>1000	7.6	
1129	672	7.10	740	>1000	11.4	

Did well dewater? Yes (No)	Gallons actually evacuated: 11.4		
Sampling Date: 3-13-14	Sampling Time: 1135	Depth to Water: 24.77	
Sample I.D.: C-5	Laboratory: (Lancaster) Other_____		
Analyzed for: TPH-G BTEX MTBE OXYS	Other: See COC		
Duplicate I.D.:	Analyzed for: TPH-G BTEX MTBE OXYS	Other:	
D.O. (if req'd): Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd): Pre-purge:	mV	Post-purge:	mV

CHEVRON WELL MONITORING DATA SHEET

Project #: 140313-S01	Station #: 9-0076
Sampler: JD	Date: 3-13-14
Weather: clear	Ambient Air Temperature: 60°F
Well I.D.: C-6	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: 53.60	Depth to Water: 21.10
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 27.60	

Purge Method:

Bailer
Disposable Bailer
Positive Air Displacement
(Electric Submersible)
Waterra
Peristaltic
Extraction Pump
Other_____

Sampling Method: Bailer
(Disposable Bailer)
Extraction Port
Dedicated Tubing
Other: _____

5.2 (Gals.) X	3	= 15.6 Gals.
1 Case Volume	Specified Volumes	Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0903	67.9	7.00	824	212	5.2	
		well	dewatered	@ 9.0	gallons	
1215	68.0	7.02	819	30	0 —	

Did well dewater? (Yes) No Gallons actually evacuated: 9.0

Sampling Date: 3-13-14 Sampling Time: 1215 Depth to Water: 21.92

Sample I.D.: C-6 Laboratory: (Lancaster) Other_____

Analyzed for: TPH-G BTEX MTBE OXYS Other: See COC

Duplicate I.D.: Analyzed for: TPH-G BTEX MTBE OXYS Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

CHEVRON WELL MONITORING DATA SHEET

Project #: 140313-JD	Station #: 9-0076
Sampler: JD	Date: 3-13-14
Weather: Clear	Ambient Air Temperature: 65°F
Well I.D.: Clear C-7	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 50.85	Depth to Water: 24.90
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 30.09	

Purge Method:

- Bailer
- Disposable Bailer
- Positive Air Displacement
- (Electric Submersible)
- Waterra
- Peristaltic
- Extraction Pump
- Other_____

Sampling Method: ~~Bailer~~

- (Disposable Bailer)
- ~~Extraction Port~~
- Dedicated Tubing
- Other: _____

4.1 (Gals.) X 3 = 12.3 Gals.
1 Case Volume | Specified Volumes | Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0913	65.1	6.84	1124	39	4.1	
		well	dewatered	C	7.0	
1238	68.2	6.90	1120	20	—	

Did well dewater? (Yes) No Gallons actually evacuated: 7.0

Sampling Date: 3-13-14 Sampling Time: 1230 Depth to Water: 25.29

Sample I.D.: C-7 Laboratory: (Lancaster) Other_____

Analyzed for: TPH-G BTEX MTBE OXYS Other: See COC

Duplicate I.D.: Analyzed for: TPH-G BTEX MTBE OXYS Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

CHEVRON WELL MONITORING DATA SHEET

Project #: 140313-J01	Station #: 9-0076
Sampler: JO	Date: 3-13-14
Weather: clear	Ambient Air Temperature: 64°F
Well I.D.: C-8	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 56.91	Depth to Water: 25.01
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 31.37	

Purge Method:

- Bailer
- Disposable Bailer
- Positive Air Displacement
- (Electric Submersible)
- Waterra
- Peristaltic
- Extraction Pump
- Other_____

Sampling Method: Bailer

- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other: _____

5.0 (Gals.) X	3	=	15.0 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0945	64.9	7.47	1286	219	5.0	
0947	65.0	7.39	1279	209	10.0	
0949	66.0	7.36	1275	196	15.0	

Did well dewater? Yes (No) Gallons actually evacuated: 15.0

Sampling Date: 3-13-14 Sampling Time: 0955 Depth to Water: 25.92

Sample I.D.: C-8 Laboratory: (Lancaster) Other_____

Analyzed for: TPH-G BTEX MTBE OXYS Other: see COC

Duplicate I.D.: Analyzed for: TPH-G BTEX MTBE OXYS Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

CHEVRON WELL MONITORING DATA SHEET

Project #: 140313-JO1	Station #: 9-0076
Sampler: JO	Date: 3-18-14
Weather: clear	Ambient Air Temperature: 63°F
Well I.D.: C-9	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: 45.63	Depth to Water: 24.82
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 28.98	

Purge Method:

- Bailer
- Disposable Bailer
- Positive Air Displacement
- (Electric Submersible)
- Waterra
- Peristaltic
- Extraction Pump
- Other_____

Sampling Method: Bailer

- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other: _____

3.3 (Gals.) X	3	=	9.9 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0925	68.2	7.19	813	>1000	3.3	
0926	68.2	7.17	818	>1000	6.6	
0927	68.2	7.16	820	>1000	9.9	

Did well dewater? Yes (No) Gallons actually evacuated: 9.9

Sampling Date: 3-18-14 Sampling Time: 0930 Depth to Water: 29.03

Sample I.D.: C-9 Laboratory: (Lancaster) Other_____

Analyzed for: TPH-G BTEX MTBE OXYS Other: See COC

Duplicate I.D.: Analyzed for: TPH-G BTEX MTBE OXYS Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

CHEVRON WELL MONITORING DATA SHEET

Project #: 140313-J01	Station #: 9-0076
Sampler: JD	Date: 3-13-14
Weather: clear	Ambient Air Temperature: 60° F
Well I.D.: C-10	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 29.90	Depth to Water: 9.10
Depth to Free Product: —	Thickness of Free Product (feet): —
Referenced to: (PVC) Grade	D.O. Meter (if req'd): YSI HACH
DTW with 80% Recharge [(Height of Water Column x 0.20) + DTW]: 13.26	

Purge Method:

- Bailer
- Disposable Bailer
- Positive Air Displacement
- (Electric Submersible)
- Waterra
- Peristaltic
- Extraction Pump
- Other_____

Sampling Method: Bailer

- (Disposable Bailer)
- Extraction Port
- Dedicated Tubing
- Other: _____

3.3 (Gals.) X	3	=	9.9 Gals.
1 Case Volume	Specified Volumes		Calculated Volume

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius² * 0.163

Time	Temp (°F)	pH	Cond. (mS or (µS))	Turbidity (NTUs)	Gals. Removed	Observations
0845	64.7	6.79	822	>1000	3.3	
0847	64.7	6.89	819	>1000	6.6	
0849	64.6	6.90	817	>1000	9.9	

Did well dewater? Yes (No) Gallons actually evacuated: 9.9

Sampling Date: 3-13-14 Sampling Time: 0855 Depth to Water: 12.92

Sample I.D.: C-10 Laboratory: (Lancaster) Other_____

Analyzed for: TPH-G BTEX MTBE OXYS Other: See COC

Duplicate I.D.: Analyzed for: TPH-G BTEX MTBE OXYS Other:

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV

CHAIN OF CUSTODY FORM

Chevron Environmental Management Company ▪ 6111 Bollinger Canyon Rd.▪ San Ramon, CA 94583 COC 1 of 2

Chevron Site Number: 90076
Chevron Site Global ID: TO600100339
Chevron Site Address: 4265 Foothill Blvd.,
Oakland, CA
Chevron PM: BRIAN WAITE
Chevron PM Phone No.: (925)790-6486
☒ Retail and Terminal Business Unit (RTBU) Job
☒ Construction/Retail Job

Chevron Consultant: CRA
Address: 2300 Clayton Rd., Suite 920, Concord,
CAConsultant Contact: Nathan Lee
Consultant Phone No. 925-849-1003
Consultant Project No. 140313-J01
Sampling Company: Blaine Tech Services
Sampled By (Print): J. Kraft
Sampler Signature:

Charge Code: NWRTB-0090076-0-OML
NWRTB 00SITE NUMBER-0- WBS
(WBS ELEMENTS:
SITE ASSESSMENT: **A1L** REMEDIATION IMPLEMENTATION: **R5L**
SITE MONITORING: **OML** OPERATION MAINTENANCE & MONITORING: **M1L**

THIS IS A LEGAL DOCUMENT. ALL FIELDS MUST BE FILLED OUT CORRECTLY AND COMPLETELY.

Lancaster Laboratories
☒ Lancaster, PA
Lab Contact: Jill Parker
2425 New Holland Pike,
Lancaster, PA 17601
Phone No:
(717)656-2300

Other Lab

Temp. Blank Check
Time / Temp.
0800 / 1°C
1000 / 1°C
1200 / 1°C

ANALYSES REQUIRED

#	EPA 8260B/GC/MS TPH-G ☐ BTEX ☒ MTBE ☒ OXYGENATES ☐ HVOC ☐	EPA 8015B GRO ☒ DRO ☐ ORO ☐ HC SCREEN ☐	EPA 8021B BTEX ☐ MTBE ☐	EPA 6010 Ca, Fe, K, Mg, Mn, Na	EPA6010/7000 TITLE 22 METALS ☐ TTLC ☐ STLC ☐	EPA150.1 PH ☐	EPA 310.1 ALKALINITY ☐	SM2510B SPECIFIC CONDUCTIVITY	EPA 418.1 TRPH ☐	EPA 413.1 OIL & GREASE ☐	#	EPA 8260 ETHANOL	EPA 8015 TPH-D ☐		Preservation Codes
	4	4					1			1		1	1		H =HCL T= Thiosulfate N =HNO_3 B = NaOH S = H_2SO_4 O = Other

Special Instructions
Must meet lowest detection limits possible for 8260 Compounds

SAMPLE ID: Field Point Name	Matrix	Top Depth	Date (yymmdd)	Sample Time	# of Containers	Container Type	Notes/Comments
QA	T		~~140313~~ 140313	0750	2	VOAS	
C-1	GW			1015	6		
C-2				1200			
C-3				1040			
C-4				1110			
C-5				1135			
C-6				1215			
C-7				1230			
C-8				0955			
C-9				0930			

Relinquished By	Company	Date/Time	Relinquished To	Company	Date/Time
	BTS	3-13-14/1600		BTS	3-13-14/1600
	BTS	3-17-14/1115		CCL	3/17/14 1115

Turnaround Time:
Standard☑ 24 Hours☐ 48 hours☐ 72 Hours☐ Other☐

Sample Integrity: (Check by lab on arrival)
Intact: ____ On Ice: ____ Temp: ____

COC #

CHAIN OF CUSTODY FORM

Chevron Environmental Management Company ■ 6111 Bollinger Canyon Rd.■ San Ramon, CA 94583 COC 2 of 2

Chevron Site Number: 90076
Chevron Site Global ID: TO600100339
Chevron Site Address: 4265 Foothill Blvd.,
Oakland, CA
Chevron PM: BRIAN WAITE
Chevron PM Phone No.: (925)790-6486
☒ Retail and Terminal Business Unit (RTBU) Job
☒ Construction/Retail Job

Chevron Consultant: CRA
Address: 2300 Clayton Rd., Suite 920, Concord,
CAConsultant Contact: Nathan Lee
Consultant Phone No. 925-849-1003
Consultant Project No. 130313-101
Sampling Company: Blaine Tech Services
Sampled By (Print): S. CATZ
Sampler Signature:

Charge Code: NWRTB-0090076-0-OML
NWRTB 00SITE NUMBER-0- WBS
(WBS ELEMENTS:
SITE ASSESSMENT: **A1L** REMEDIATION IMPLEMENTATION: **R5L**
SITE MONITORING: **OML** OPERATION MAINTENANCE & MONITORING: **M1L**

THIS IS A LEGAL DOCUMENT. ALL FIELDS MUST BE FILLED OUT CORRECTLY AND COMPLETELY.

Lancaster Laboratories
☒ Lancaster, PA
Lab Contact: Jill Parker
2425 New Holland Pike,
Lancaster, PA 17601
Phone No:
(717)656-2300

Other Lab

Temp. Blank Check

Time	Temp.
0900	1°C
1000	1°C
1200	1°C

ANALYSES REQUIRED

SAMPLE ID: Field Point Name	Matrix	Top Depth	Date (yymmdd)	Sample Time	# of Containers	Container Type	EPA 8260B/GC/MS OXYGENATES☐ HVOC☐ TPH-G☐ BTEX☐ MTBE☒	EPA 8015B DRO☐ ORO☐ HC SCREEN☐ GRO☑	EPA 8021B BTEX☐ MTBE☐	EPA 6010 Ca, Fe, K, Mg, Mn, Na	EPA6010/7000 TITLE 22 METALS☐ TTLC☐ STLC☐	EPA150.1 PH☐	EPA 310.1 ALKALINITY☐	SM2510B SPECIFIC CONDUCTIVITY	EPA 413.1 OIL & GREASE☐	EPA 418.1 TRPH☐	EPA 8260 ETHANOL	EPA 8015 TPH-D☐			Preservation Codes / Special Instructions / Notes/Comments
							1X	1X									1X				H =HCL T= Thiosulfate N =HNO_3 B = NaOH S = H_2SO_4 O = Other Special Instructions: Must meet lowest detection limits possible for 8260 Compounds
C-16	W		140313	0855	6	VOAs	X	X									X				

Relinquished By	Company	Date/Time	Relinquished To	Company	Date/Time
	BS	3-13-14/1600		BS	3-13-14/1600
	BS	3/17/14/1115		CCI	3/17/14 1115

Turnaround Time:
Standard☑ 24 Hours☐ 48 hours☐ 72 Hours☐ Other☐

Sample Integrity: (Check by lab on arrival)
Intact:____ On Ice:____ Temp:____

COC #

WELLHEAD INSPECTION CHECKLIST

Client Chevron Date 3-13-14

Site Address 42605 Foothill Blvd Oakland CA

Job Number 140378-J01 Technician JD

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)	Repair Order Submitted
C-1	X							
C-2	X							
C-3						X		
C-4						X		
C-5	X							
C-6	X							
C-7	X							
C-8	X							
C-9						X		
C-10	X							

NOTES: C-3 -1/2, C-4 -2/2 Bolts C-9 1/2 Bolts missing 1/2 Tabs Broken

CHEVRON-NORTHERN CALIFORNIA TYPE **A** BILL OF LADING BILL OF LADING No._____

SOURCE RECORD **BILL OF LADING**

FOR PURGEWATER RECOVERED FROM GROUNDWATER WELLS AT CHEVRON FACILITIES IN THE STATE OF CALIFORNIA. THE PURGE- WATER WHICH HAS BEEN RECOVERED FROM GROUND-WATER WELLS IS COLLECTED BY THE CONTRACTOR AND HAULED TO THEIR FACILITY IN SAN JOSE, CALIFORNIA FOR TEMPORARILY HOLDING PENDING TRANSPORT BY OTHERS TO FINAL DESTINATION.

The contractor performing this work is BLAINE TECH SERVICES, INC. (BLAINE TECH), 1680 Rogers Ave. San Jose CA (408) 573-0555). BLAINE TECH. is authorized by Chevron Environmental Management Company (CHEVRON EMC) to recover, collect, apportion into loads, and haul the purgewater that is drawn from wells at the CHEVRON EMC facility indicated below and to deliver that purgewater to BLAINE TECH for temporarily holding. Transport routing of the purgewater may be direct from one CHEVRON EMC facility to BLAINE TECH; from one CHEVRON EMC facility to BLAINE TECH via another CHEVRON EMC facility; or any combination thereof. The well purgewater is and remains the property of CHEVRON EMC.

This **Source Record BILL OF LADING** was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the Chevron facility described below:

9-0076 — CHEVRON #

Brian Waite — Chevron Engineer

11265 — street number

Foothill Blvd — street name

Oakland — city

CA — state

WELL I.D.	GALS.	WELL I.D.	GALS.
C-1	10	C-9	9.9
C-2	26.4	C-10	9.9
C-3	22.2		
C-4	29.1		
C-5	11.4		
C-6	9.0		
C-7	7.0		
C-8	15.0		

added equip. rinse water / 2.0

any other adjustments /

TOTAL GALS. RECOVERED 151.9 ~~2.0~~

loaded onto BTS vehicle # 85

BTS event # 140313-J01 time 1230 date 3/13/14

Transporter signature

****

REC'D AT BTS time date 3/13/14

Unloaded/received by signature

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME Chevron 9-0076				PROJECT NUMBER 140313-J01			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP.	INITIALS
Myron L Ultra meter II	6222814	3-13-14 0700	7, 10, 4, 3900 us	7.01, 10.03, 4.00 3900 us	yes	17°C	JO

ARCADIS

Appendix C

Laboratory Report and Chain-of-Custody Documentation

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

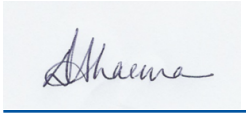
ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pleasanton
1220 Quarry Lane
Pleasanton, CA 94566
Tel: (925)484-1919

TestAmerica Job ID: 720-56059-1
Client Project/Site: BP #11109, Oakland

For:
ARCADIS U.S., Inc.
100 Montgomery Street
Suite 300
San Francisco, California 94104

Attn: Hollis Phillips



Authorized for release by:
3/14/2014 2:50:40 PM

Dimple Sharma, Senior Project Manager
(925)484-1919
dimple.sharma@testamericainc.com

Table of Contents

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 720-56059-1

Laboratory: TestAmerica Pleasanton

Narrative

Job Narrative
720-56059-1

Comments
No additional comments.

Receipt
The samples were received on 3/13/2014 12:10 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #11109, Oakland

TestAmerica Job ID: 720-56059-1

Client Sample ID: MW-3(3/13/14) — Lab Sample ID: 720-56059-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	4.2		0.50		ug/L	1		8260B/CA_LUFT MS	Total/NA

Client Sample ID: MW-4(3/13/14) — Lab Sample ID: 720-56059-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	19		0.50		ug/L	1		8260B/CA_LUFT MS	Total/NA

Client Sample ID: MW-6(3/13/14) — Lab Sample ID: 720-56059-3

No Detections.

Client Sample ID: MW-7(3/13/14) — Lab Sample ID: 720-56059-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
MTBE	1.3		0.50		ug/L	1		8260B/CA_LUFT MS	Total/NA
Gasoline Range Organics (GRO) -C6-C12	100		50		ug/L	1		8260B/CA_LUFT MS	Total/NA

This Detection Summary does not include radiochemical test results.

Client: ARCADIS U.S., Inc.
Project/Site: BP #11109, Oakland

TestAmerica Job ID: 720-56059-1

Client Sample ID: MW-3(3/13/14)
Date Collected: 03/13/14 11:00
Date Received: 03/13/14 12:10

Lab Sample ID: 720-56059-1
Matrix: Water

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	4.2		0.50		ug/L			03/14/14 03:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*95*		*67 - 130*		*03/14/14 03:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*72 - 130*		*03/14/14 03:39*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*03/14/14 03:39*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: BP #11109, Oakland

TestAmerica Job ID: 720-56059-1

Client Sample ID: MW-4(3/13/14)
Date Collected: 03/13/14 10:40
Date Received: 03/13/14 12:10

Lab Sample ID: 720-56059-2
Matrix: Water

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	**19**		0.50		ug/L			03/14/14 04:09	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			03/14/14 04:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*67 - 130*		*03/14/14 04:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 130*		*03/14/14 04:09*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*03/14/14 04:09*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: BP #11109, Oakland

TestAmerica Job ID: 720-56059-1

Client Sample ID: MW-6(3/13/14)
Date Collected: 03/13/14 10:20
Date Received: 03/13/14 12:10

Lab Sample ID: 720-56059-3
Matrix: Water

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.50		ug/L			03/14/14 04:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*67 - 130*		*03/14/14 04:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*72 - 130*		*03/14/14 04:38*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*03/14/14 04:38*	*1*

Client: ARCADIS U.S., Inc.
Project/Site: BP #11109, Oakland

TestAmerica Job ID: 720-56059-1

Client Sample ID: MW-7(3/13/14)
Date Collected: 03/13/14 11:10
Date Received: 03/13/14 12:10

Lab Sample ID: 720-56059-4
Matrix: Water

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	**1.3**		0.50		ug/L			03/13/14 23:39	1
Benzene	ND		0.50		ug/L			03/13/14 23:39	1
EDB	ND		0.50		ug/L			03/13/14 23:39	1
1,2-DCA	ND		0.50		ug/L			03/13/14 23:39	1
Ethylbenzene	ND		0.50		ug/L			03/13/14 23:39	1
Toluene	ND		0.50		ug/L			03/13/14 23:39	1
Xylenes, Total	ND		1.0		ug/L			03/13/14 23:39	1
Gasoline Range Organics (GRO) -C6-C12	**100**		50		ug/L			03/13/14 23:39	1
TBA	ND		10		ug/L			03/13/14 23:39	1
Ethanol	ND		250		ug/L			03/13/14 23:39	1
DIPE	ND		0.50		ug/L			03/13/14 23:39	1
TAME	ND		0.50		ug/L			03/13/14 23:39	1
Ethyl t-butyl ether	ND		0.50		ug/L			03/13/14 23:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*104*		*67 - 130*		*03/13/14 23:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 130*		*03/13/14 23:39*	*1*
Toluene-d8 (Surr)	*106*		*70 - 130*		*03/13/14 23:39*	*1*

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS

Lab Sample ID: MB 720-155221/4
Matrix: Water
Analysis Batch: 155221

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
MTBE	ND		0.50		ug/L			03/13/14 19:11	1
Benzene	ND		0.50		ug/L			03/13/14 19:11	1
EDB	ND		0.50		ug/L			03/13/14 19:11	1
1,2-DCA	ND		0.50		ug/L			03/13/14 19:11	1
Ethylbenzene	ND		0.50		ug/L			03/13/14 19:11	1
Toluene	ND		0.50		ug/L			03/13/14 19:11	1
Xylenes, Total	ND		1.0		ug/L			03/13/14 19:11	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			03/13/14 19:11	1
TBA	ND		10		ug/L			03/13/14 19:11	1
Ethanol	ND		250		ug/L			03/13/14 19:11	1
DIPE	ND		0.50		ug/L			03/13/14 19:11	1
TAME	ND		0.50		ug/L			03/13/14 19:11	1
Ethyl t-butyl ether	ND		0.50		ug/L			03/13/14 19:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*93*		*67 - 130*		*03/13/14 19:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*72 - 130*		*03/13/14 19:11*	*1*
Toluene-d8 (Surr)	*98*		*70 - 130*		*03/13/14 19:11*	*1*

Lab Sample ID: LCS 720-155221/5
Matrix: Water
Analysis Batch: 155221

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
MTBE	25.0	26.5		ug/L		106	62 - 130
Benzene	25.0	25.1		ug/L		100	79 - 130
EDB	25.0	26.1		ug/L		104	70 - 130
1,2-DCA	25.0	24.2		ug/L		97	61 - 132
Ethylbenzene	25.0	25.4		ug/L		102	80 - 120
Toluene	25.0	26.0		ug/L		104	78 - 120
m-Xylene & p-Xylene	50.0	52.4		ug/L		105	70 - 142
o-Xylene	25.0	27.4		ug/L		110	70 - 130
TBA	500	468		ug/L		94	70 - 130
Ethanol	500	524		ug/L		105	31 - 216
DIPE	25.0	26.7		ug/L		107	69 - 134
TAME	25.0	26.1		ug/L		104	79 - 130
Ethyl t-butyl ether	25.0	27.1		ug/L		108	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*104*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*92*		*72 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: LCS 720-155221/7
Matrix: Water
Analysis Batch: 155221

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C12			500	479		ug/L		96	58 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*102*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*95*		*72 - 130*
Toluene-d8 (Surr)	*102*		*70 - 130*

Lab Sample ID: LCSD 720-155221/6
Matrix: Water
Analysis Batch: 155221

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
MTBE			25.0	27.2		ug/L		109	62 - 130	2	20
Benzene			25.0	25.0		ug/L		100	79 - 130	0	20
EDB			25.0	26.3		ug/L		105	70 - 130	1	20
1,2-DCA			25.0	23.6		ug/L		95	61 - 132	2	20
Ethylbenzene			25.0	24.9		ug/L		99	80 - 120	2	20
Toluene			25.0	25.5		ug/L		102	78 - 120	2	20
m-Xylene & p-Xylene			50.0	51.3		ug/L		103	70 - 142	2	20
o-Xylene			25.0	27.0		ug/L		108	70 - 130	2	20
TBA			500	462		ug/L		92	70 - 130	1	20
Ethanol			500	510		ug/L		102	31 - 216	3	30
DIPE			25.0	26.6		ug/L		106	69 - 134	0	20
TAME			25.0	26.3		ug/L		105	79 - 130	1	20
Ethyl t-butyl ether			25.0	27.2		ug/L		109	70 - 130	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*103*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*92*		*72 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*

Lab Sample ID: LCSD 720-155221/8
Matrix: Water
Analysis Batch: 155221

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C12			500	474		ug/L		95	58 - 120	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*101*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*72 - 130*
Toluene-d8 (Surr)	*102*		*70 - 130*

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: MB 720-155230/4
Matrix: Water
Analysis Batch: 155230

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.50		ug/L			03/13/14 19:17	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			03/13/14 19:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*100*		*67 - 130*		*03/13/14 19:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*72 - 130*		*03/13/14 19:17*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*03/13/14 19:17*	*1*

Lab Sample ID: LCS 720-155230/5
Matrix: Water
Analysis Batch: 155230

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methyl tert-butyl ether			25.0	26.3		ug/L		105	62 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*103*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*104*		*72 - 130*
Toluene-d8 (Surr)	*102*		*70 - 130*

Lab Sample ID: LCS 720-155230/7
Matrix: Water
Analysis Batch: 155230

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C12			500	513		ug/L		103	58 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*104*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*105*		*72 - 130*
Toluene-d8 (Surr)	*102*		*70 - 130*

Lab Sample ID: LCSD 720-155230/6
Matrix: Water
Analysis Batch: 155230

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methyl tert-butyl ether			25.0	26.0		ug/L		104	62 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*104*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*103*		*72 - 130*
Toluene-d8 (Surr)	*102*		*70 - 130*

Method: 8260B/CA_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: LCSD 720-155230/8
Matrix: Water
Analysis Batch: 155230

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C12			500	505		ug/L		101	58 - 120	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*105*		*67 - 130*
1,2-Dichloroethane-d4 (Surr)	*109*		*72 - 130*
Toluene-d8 (Surr)	*102*		*70 - 130*

QC Association Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #11109, Oakland

TestAmerica Job ID: 720-56059-1

GC/MS VOA

Analysis Batch: 155221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-56059-4	MW-7(3/13/14)	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-155221/5	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-155221/7	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-155221/6	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-155221/8	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
MB 720-155221/4	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	

Analysis Batch: 155230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-56059-1	MW-3(3/13/14)	Total/NA	Water	8260B/CA_LUFT MS	
720-56059-2	MW-4(3/13/14)	Total/NA	Water	8260B/CA_LUFT MS	
720-56059-3	MW-6(3/13/14)	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-155230/5	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-155230/7	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-155230/6	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-155230/8	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
MB 720-155230/4	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	

Lab Chronicle

Client: ARCADIS U.S., Inc.
Project/Site: BP #11109, Oakland

TestAmerica Job ID: 720-56059-1

Client Sample ID: MW-3(3/13/14)

Lab Sample ID: 720-56059-1

Date Collected: 03/13/14 11:00

Matrix: Water

Date Received: 03/13/14 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	155230	03/14/14 03:39	PDR	TAL PLS

Client Sample ID: MW-4(3/13/14)

Lab Sample ID: 720-56059-2

Date Collected: 03/13/14 10:40

Matrix: Water

Date Received: 03/13/14 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	155230	03/14/14 04:09	PDR	TAL PLS

Client Sample ID: MW-6(3/13/14)

Lab Sample ID: 720-56059-3

Date Collected: 03/13/14 10:20

Matrix: Water

Date Received: 03/13/14 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	155230	03/14/14 04:38	PDR	TAL PLS

Client Sample ID: MW-7(3/13/14)

Lab Sample ID: 720-56059-4

Date Collected: 03/13/14 11:10

Matrix: Water

Date Received: 03/13/14 12:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	155221	03/13/14 23:39	ASC	TAL PLS

Laboratory References:

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Certification Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #11109, Oakland

TestAmerica Job ID: 720-56059-1

Laboratory: TestAmerica Pleasanton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2496	01-31-16

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #11109, Oakland

TestAmerica Job ID: 720-56059-1

Method	Method Description	Protocol	Laboratory
8260B/CA_LUFTMS	8260B / CA LUFT MS	SW846	TAL PLS

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PLS = TestAmerica Pleasanton, 1220 Quarry Lane, Pleasanton, CA 94566, TEL (925)484-1919

Sample Summary

Client: ARCADIS U.S., Inc.
Project/Site: BP #11109, Oakland

TestAmerica Job ID: 720-56059-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-56059-1	MW-3(3/13/14)	Water	03/13/14 11:00	03/13/14 12:10
720-56059-2	MW-4(3/13/14)	Water	03/13/14 10:40	03/13/14 12:10
720-56059-3	MW-6(3/13/14)	Water	03/13/14 10:20	03/13/14 12:10
720-56059-4	MW-7(3/13/14)	Water	03/13/14 11:10	03/13/14 12:10

San Francisco
1220 Quarry Lane

Pleasanton, CA 94566
phone 925.484.1919 fax 925.600.3002

720-56059

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
IS2380
TestAmerica Laboratories, Inc.

3/14/2014

Client Contact	Project Manager: Kristene Tidwell	Site Contact: James Ramos	Date:	COC No:
Broadbent and Associates	Tel/Fax: 707-455-7290 / 707-455-7295	Lab Contact:	Carrier:	____ of ____ COCs
875 Cotting Lane	Analysis Turnaround Time			Job No.
Vacaville, California 94591	Calendar (C) or Work Days (W) _____			
707-455-7290 Phone	TAT if different from Below ____STD_____			SDG No.
707-455-7295 FAX	☐ 2 weeks			
Project Name: Arcadis 11109	☐ 1 week			
Site: 4280 Foothill, Oakland, California	☐ 2 days			
Global ID#: T0600100217	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	GRO by 8260	BTEX/5 FO + EDB By 8260B	1, 2 DCA By 8260B	Ethanol By 8260B	MTBE By 8260B	Sample Specific Notes:
MW-3 (3/13/14)	3/13/14	1100	Grab	AQ	3						x	
MW-4 (3/13/14)		1040	Grab	AQ	3		x				x	
JR MW-5 (3/13/14)			Grab	AQ	3		x	x	x	x		
MW-6 (3/13/14)		1020	Grab	AQ	3						x	
MW-7 (3/13/14)		1110	Grab	AQ	3		x	x	x	x		
JR MW-10 (3/13/14)			Grab	AQ	3		x	x	x	x		
JR MW-11 (3/13/14)		[redacted]	Grab	AQ	3		x	x	x	x		
JR MW-12 (3/13/14)			Grab	AQ	3		x	x	x	x		
TB-11109-03132014	—	—	—	AQ	2							ON HOLD

720-56059 Chain of Custody

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Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Poison B ☐ Unknown ☐

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements & Comments:

3.6°C

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	Broadbent	3/13/14 1210	John Nuelle	TestAm	3-13-14 1210
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 720-56059-1

Login Number: 56059

List Source: TestAmerica Pleasanton

List Number: 1

Creator: Gonzales, Justinn

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix D

GeoTracker Upload Confirmation Receipts

STATE WATER RESOURCES CONTROL BOARD
GEOTRACKER ESI

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Main Menu | Tools | View Submittals | Facility Management | Download / Upload

TOOLS
- Upload EDD
- Check EDD
- VVL Search Tool
- Edit Field Points
- Other Tools
- Logout

VIEW SUBMITTALS
- By Facility
- All Submittals (6410)
- Pending Submittals (73)
- Denied Submittals (227)
- Received Submittals (6061)

FACILITY MANAGEMENT
- Associated Facilities (204)
- Pending Facilities (1)
- Denied Facilities (0)
- Request Additional Facilities
- Upload Auth RP Form

FACILITY REQUESTS
- Pending Requests (0)
- Approved Requests (2)
- Denied Requests (400)

DOWNLOAD
- Associated Global IDs
- Field Point Names

Logged in as ARCADISBP (AUTH_RP)

UPLOADING A EDF FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	**EDF**
Report Title:	**Fourth Quarter 2013 and First Quarter 2014 Semi-Annual Groundwater Monitoring Report**
Report Type:	**Monitoring Report - Semi-Annually**
Facility Global ID:	**T0600100217**
Facility Name:	**BP #11109**
File Name:	**720-56059-1.zip**
Organization Name:	**ARCADIS**
Username:	**ARCADISBP**
IP Address:	**70.39.231.172**
Submittal Date/Time:	**4/25/2014 3:11:04 PM**
Confirmation Number:	**6719560742**

VIEW QC REPORT

VIEW DETECTIONS REPORT

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TOOLS
- Upload EDD
- Check EDD
- VVL Search Tool
- Edit Field Points
- Other Tools
- Logout

VIEW SUBMITTALS
- By Facility
- All Submittals (6409)
- Pending Submittals (72)
- Denied Submittals (227)
- Received Submittals (6061)

FACILITY MANAGEMENT
- Associated Facilities (204)
- Pending Facilities (1)
- Denied Facilities (0)
- Request Additional Facilities
- Upload Auth RP Form

FACILITY REQUESTS
- Pending Requests (0)
- Approved Requests (2)
- Denied Requests (400)

DOWNLOAD
- Associated Global IDs
- Field Point Names

Logged in as ARCADISBP (AUTH_RP)

UPLOADING A GEO_WELL FILE

SUCCESS

Processing is complete. No errors were found!
Your file has been successfully submitted!

Submittal Type:	**GEO_WELL**
Report Title:	**Fourth Quarter 2013 and First Quarter 2014 Semi-Annual Groundwater Monitoring Report**
Facility Global ID:	**T0600100217**
Facility Name:	**BP #11109**
File Name:	**GEO_WELL.zip**
Organization Name:	**ARCADIS**
Username:	**ARCADISBP**
IP Address:	**70.39.231.172**
Submittal Date/Time:	**4/25/2014 3:08:15 PM**
Confirmation Number:	**9720086276**