



ARCADIS U.S., Inc.  
100 Montgomery Street, Suite 300  
San Francisco, California 94104  
Tel 415.374.2744  
Fax 415.374.2745  
[www.arcadis-us.com](http://www.arcadis-us.com)

Re: First Quarter 2012 Monitoring Report  
Former BP Station #11109  
4280 Foothill Blvd.  
Oakland, California  
ACEH Case #RO0000426

## RECEIVED

**9:16 am, May 01, 2012**

Alameda County  
Environmental Health

ENVIRONMENTAL

"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 13, 2012

Submitted by:  
ARCADIS U.S., Inc.

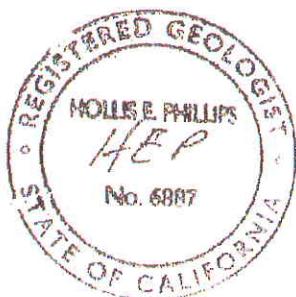
Hollis E. Phillips, PG  
Principal Geologist

Contact:  
Hollis E. Phillips

Phone:  
415.432.6903

Email:  
[Hollis.phillips@arcadis-us.com](mailto:Hollis.phillips@arcadis-us.com)

Our ref:  
GP09BPNA.C106.  
N0000





875 Cotting Ln., Suite G, Vacaville, CA 95688  
[T] 707-455-7290 [F] 707-455-7295  
[broadbentinc.com](http://broadbentinc.com)

**CREATING SOLUTIONS. BUILDING TRUST.**

April 13, 2012

Project No. 09-88-646

ARCADIS-US, Inc.  
100 Montgomery Street, Suite 300  
San Francisco, California 94104  
Submitted via ENFOS

Attn.: Ms. Hollis Phillips, PG – Principal Geologist

Re: First Quarter 2012 Monitoring Report, Former BP Service Station #11109, 4280 Foothill Boulevard, Oakland, Alameda County, California; ACEH Case #RO0000426

Dear Ms. Phillips:

Attached is the First Quarter 2012 Monitoring Report for Former BP Service Station #11109 (hereafter referred to as Station #11109), 4280 Foothill Boulevard, Oakland, Alameda County, California. Should you have questions regarding the work performed or results obtained, please do not hesitate to contact us at (707) 455-7290.

Sincerely,  
BROADBENT & ASSOCIATES, INC.

Alexander J Martinez  
Senior Staff Geologist

Thomas Sparrowe, PG  
Senior Geologist



enclosures

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

**FIRST QUARTER 2012  
MONITORING REPORT  
STATION #11109, OAKLAND, CALIFORNIA**

Broadbent & Associates, Inc. (Broadbent) is pleased to present this *First Quarter 2012 Monitoring Report* on behalf of ARCADIS-US, Inc. for Station #11109 located in Oakland, Alameda County, California. Monitoring activities at the site were performed in accordance with the reporting requirements issued by the Alameda County Environmental Health Services Agency (ACEH). Details of work performed, discussion of results, and recommendations are provided below.

Facility Name / Address:	Station #11109 / 4280 Foothill Boulevard, Oakland
Client Project Manager / Title:	Ms. Hollis Phillips, PG / Senior Geologist
Broadbent Contact:	Tom Sparrowe (707) 455-7290
Broadbent Project No.:	09-88-646
Primary Regulatory Agency / ID No.:	ACEH/ Case #RO0000426
Current phase of project:	Monitoring
List of Acronyms / Abbreviations:	See end of report text for list of acronyms/abbreviations used in report.

**WORK PERFORMED THIS QUARTER (First Quarter 2012):**

- Conducted groundwater monitoring/sampling for First Quarter 2012 on March 8, 2012.

**WORK SCHEDULED FOR NEXT QUARTER (Second Quarter 2012):**

- Submit *First Quarter 2012 Monitoring Report* (contained herein).

**GROUNDWATER MONITORING PLAN SUMMARY:**

Groundwater level gauging:	MW-2 through MW-12	(Semi-Annually 1Q & 3Q)
Groundwater sample collection:	MW-2 through MW-7, MW-10, MW-11, and MW-12	(Semi-Annually 1Q & 3Q)
Biodegradation indicator parameter monitoring:	None	

**QUARTERLY RESULTS SUMMARY:**

**LNAPL**

LNAPL observed this quarter:	Yes (MW-5, MW-10 & MW-12)	(yes\no)
LNAPL recovered this quarter:	11.5 (LNAPL/Water Mixture)	(gal)
Cumulative LNAPL recovered:	174.84 (LNAPL/Water Mixture)	(gal)

**Groundwater Elevation and Gradient:**

Depth to groundwater:	9.71 (MW-11) to 15.51 (MW-6)	(ft below TOC)
Gradient direction:	Northwest	(compass direction)
Gradient magnitude:	0.06	(ft/ft)
Average change in elevation:	0.13	(ft since last measurement)

**Laboratory Analytical Data**

Summary:	GRO was detected in three wells sampled at concentrations up to 5,000 µg/L in well MW-11. Benzene was detected in two wells sampled at concentrations up to 280 µg/L in well MW-11. Ethylbenzene, Toluene, and Total Xylenes were detected in well MW-11 at concentrations of 250 µg/L, 170 µg/L, and 380 µg/L, respectively. MTBE was detected in three wells sampled at concentrations up to 42 µg/L in well MW-4. Other petroleum hydrocarbon constituents were below laboratory reporting limits.
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## ACTIVITIES CONDUCTED & RESULTS:

First Quarter 2012 groundwater monitoring was conducted on March 8, 2012 by Broadbent personnel in accordance with the monitoring plan summary above. Light Non-Aqueous Phase Liquid (LNAPL) was observed in wells MW-5 (0.03 ft), MW-10 (0.32 ft) and MW-12 (0.32 ft). Well MW-2 was observed as dry during gauging activities. No other irregularities were noted during water level gauging. Depth to water measurements ranged from 9.71 ft below top of casing (TOC) at MW-11 to 15.51 ft below TOC at MW-6. Resulting groundwater surface elevations ranged from 30.33 ft above datum at MW-11 to 24.92 ft above datum at MW-8. Groundwater elevations are summarized in Table 1. Water level elevations yielded a potentiometric groundwater gradient to the northwest at approximately 0.06 ft/ft. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B. A Site Location Map is presented as Drawing 1. Potentiometric groundwater elevation contours are presented in Drawing 2.

Groundwater samples were collected on March 8, 2012, consistent with the current monitoring schedule. Samples were not collected from wells MW-5, MW-10, and MW-12 due to the presence of LNAPL. A sample was not collected from well MW-2 as the well was observed as dry. No other 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 8015M (MW-4, MW-7, MW-11); 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, MW-11); and Methyl Tertiary Butyl Ether (MTBE) by EPA Method 8260 (MW-3, MW-4, MW-6). No significant irregularities were encountered during analysis of the samples. The laboratory analytical report, including chain-of-custody documentation, is provided in Appendix C.

GRO were detected above the laboratory reporting limit in three wells sampled at concentrations up to 5,000 micrograms per liter ( $\mu\text{g/L}$ ) in well MW-11. Benzene was detected above the laboratory reporting limit in two wells sampled at concentrations up to 280  $\mu\text{g/L}$  in well MW-11. Toluene was detected above the laboratory reporting limit in well MW-11 at a concentration of 170  $\mu\text{g/L}$ . Ethylbenzene was detected above the laboratory reporting limit in well MW-11 at a concentration of 250  $\mu\text{g/L}$ . Total Xylenes were detected above the laboratory reporting limit in well MW-11 at a concentration of 380  $\mu\text{g/L}$ . MTBE was detected above the laboratory reporting limit in three wells sampled at concentrations up to 42  $\mu\text{g/L}$  in well MW-4. The remaining analytes were not detected above their laboratory reporting limits in the wells sampled this monitoring event. Groundwater monitoring laboratory analytical results are summarized in Table 1 and Table 2. The most recent GRO, Benzene, and MTBE concentrations are also presented in Drawing 2. 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.

## SAMPLING PROTOCOL:

Going forward from the next sampling event, HydraSleeve™ groundwater sampling tools will be used to collect groundwater samples at the site. The HydraSleeve™ groundwater sampler collects a representative sample from a specific depth interval within the monitoring well screen. The HydraSleeve™ sampler is lowered into the well and remains closed until the desired sampling depth is reached. When the HydraSleeve™ is retrieved it opens to collect a sample from a 2.5-foot long interval within the well screen. HydraSleeves™ will be used to collect samples from the middle of the saturated screen interval without purging or mixing water from other intervals.

Sampling by HydraSleeves™ provides monitoring data of equivalent quality to purge and sample methods and is similar to sampling using passive diffusion bags (PDBs), which are also used to collect no-purge groundwater samples. Because HydraSleeves™ collect groundwater from the well, samples can be analyzed for any constituent, unlike samples collected with PDBs, which are limited to volatile organic

compound (VOC) analyses. Analytical results for samples collected with HydraSleeves™ typically reveal concentrations of target constituents within the expected historical ranges for a given monitoring well. If target constituent concentrations are significantly different in samples collected with HydraSleeves™, this can reveal previously unknown contaminant stratification or sampling bias introduced by purging when groundwater with lower or higher concentrations of target constituents is drawn into the well via preferential pathways in the site geology during purging. If concentrations of target constituents are significantly different than historical monitoring results at a location, additional evaluation will be performed using a combination of methods during subsequent monitoring.

## DISCUSSION:

Groundwater levels on March 8, 2012 were between historic minimum and maximum elevations for each well gauged except for a historic minimum in wells MW-10 and MW-12. Groundwater elevations yielded a potentiometric groundwater gradient to the northwest at approximately 0.06 ft/ft, generally consistent with the historic flow direction and gradient data since 2009, as presented in Table 3.

As stated above, LNAPL was observed in wells MW-5 (0.03 ft), MW-10 (0.32 ft) and MW-12 (0.32 ft) and no samples were collected for analysis. Approximately 2.5 gallons of LNAPL/water mixture was removed from well MW-5 and 4.5 gallons each from wells MW-10 and MW-12 during this visit. Table 4 provides a summary of LNAPL removal. Hydrocarbon concentrations in the remaining wells were within the historic minimum and maximum ranges recorded for each well, with the following exceptions: GRO and Ethylbenzene reached historic minimums in well MW-11; MTBE reached historic minimums in wells MW-3 and MW-11. Recent and historic laboratory analytical results are summarized in Table 1 and Table 2.

## RECOMMENDATIONS:

There is no scheduled environmental work for Second Quarter of 2012. The next semi-annual monitoring and sampling event is scheduled to be conducted during the Third Quarter of 2012. As discussed in the Sampling Protocol section, it is recommended to utilize HydraSleeve™ samplers during the Third Quarter 2012 groundwater monitoring and sampling event, unless directed otherwise by the ACEH. ARCADIS-US plans to conduct Dual Phase Extraction (DPE) activities at the Site during the Second Quarter 2012 pending permit approval from the Bay Area Air Quality Management District (BAAQMD). ARCADIS-US will provide notification to ACEH upon permit approval and the proposed dates for DPE activities.

## LIMITATIONS:

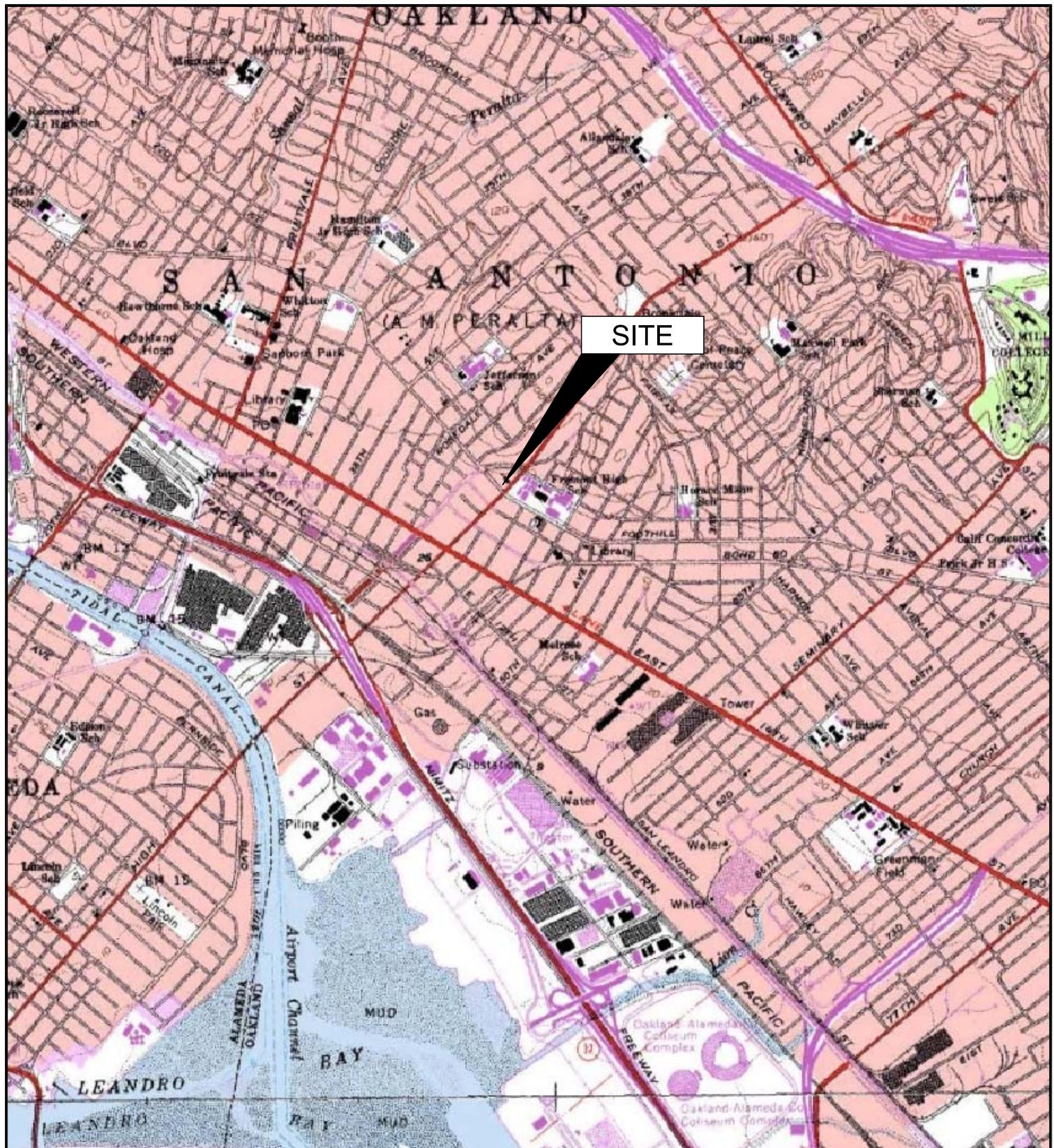
The findings presented in this report are based upon observations of field personnel, points investigated, results of laboratory tests performed by TestAmerica Laboratories, Inc. (Pleasanton, California), and our understanding of ACEH requirements. Our services were performed in accordance with the generally 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 (a BP affiliated 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.

**ATTACHMENTS:**

- Drawing 1: Site Location Map  
Drawing 2: Groundwater Elevation Contours and Analytical Summary Map, March 8, 2012
- Table 1: Summary of Groundwater Monitoring Data: Water Elevations and Laboratory Analyses  
Table 2: Summary of Fuel Additives Analytical Data  
Table 3: Historical Groundwater Gradient - Direction and Magnitude  
Table 4: Summary of LNAPL Removal
- Appendix A: Field Methods  
Appendix B: Field Data Sheets and Non-Hazardous Waste Data Form  
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
Broadbent:	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
EDB:	1,2-Dibromomethane	TAME:	Tert-Amyl Methyl Ether
ETBE:	Ethyl Tertiary Butyl Ether	TBA:	Tertiary Butyl Ether
TOC:	Top of Casing	µg/L:	Micrograms per liter



0 2000 4000  
APPROXIMATE SCALE (ft)

IMAGE SOURCE: USGS



**BROADBENT & ASSOCIATES, INC.**  
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL  
1324 Mangrove Ave. Suite 212, Chico, CA 95926  
Project No.: 06-88-646 Date: 07/23/09

Former BP Station #11109  
4280 Foothill Boulevard  
Oakland, California

Site Location Map

**1**

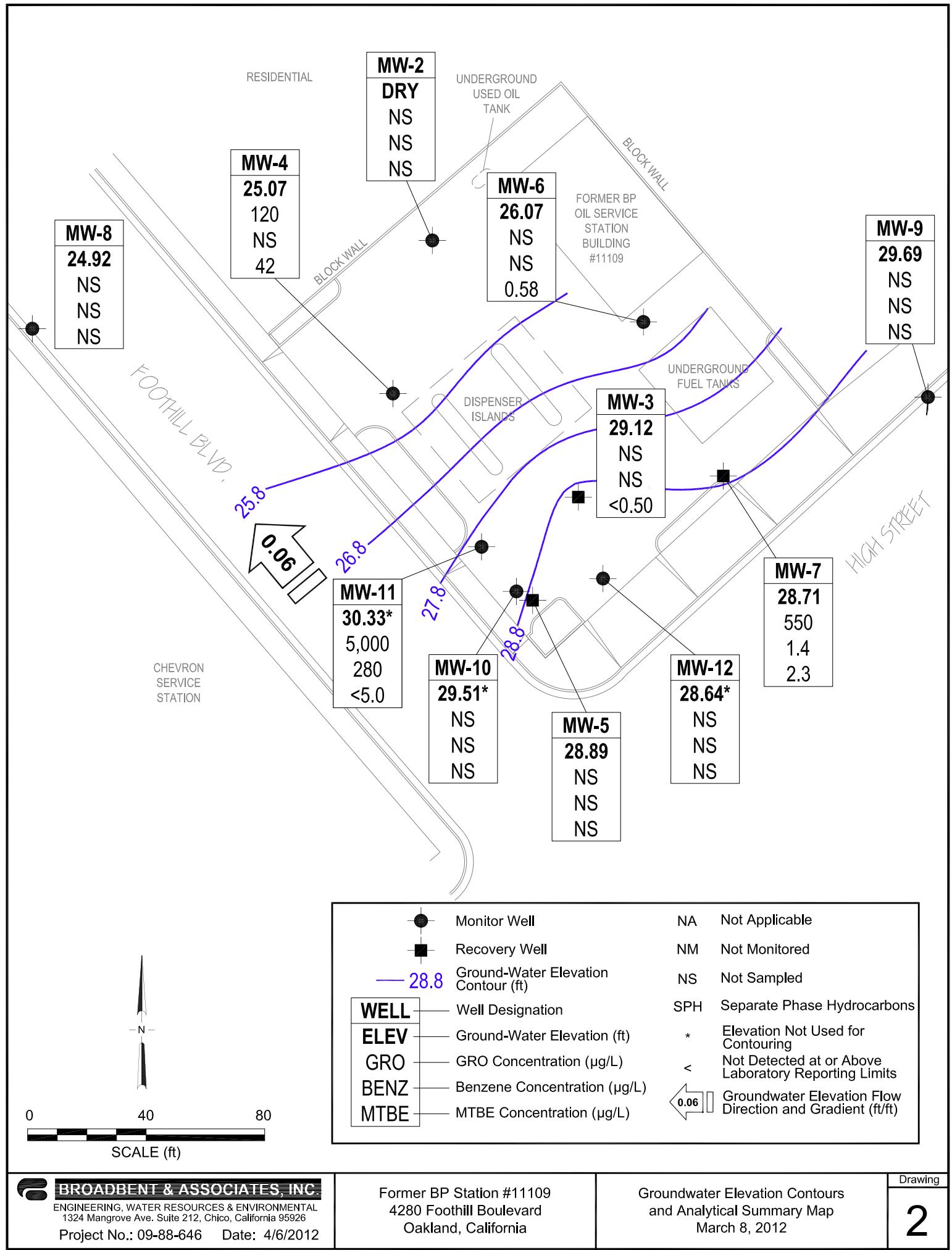


Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOc			
MW-1																	
1/31/1990	--	38.19	15.41	0.00	22.78	--	--	--	--	--	--	--	--	--	--	--	
2/5/1990	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	c
MW-2																	
2/5/1990	--	41.22	21.90	0.00	19.32	1,300	--	14	<0.1	9	13	--	--	--	--	--	
2/14/1991	--		21.16	0.00	20.06	<50	<10000	<0.3	<0.3	<0.3	<0.3	--	<5000	51	--	--	d
5/13/1991	--		21.32	0.00	19.90	<50	<50	<0.3	<0.3	<0.3	<0.3	--	6,000	0.5	--	--	e
7/24/1991	--		22.92	0.00	18.30	--	--	--	--	--	--	--	--	--	--	--	
10/3/1991	--		24.90	0.00	16.32	<50	<50	<0.3	0.8	<0.3	<0.3	--	<5000	0.7	--	--	e
10/15/1991	--		24.10	0.00	17.12	--	--	--	--	--	--	--	--	--	--	--	
12/4/1991	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	f
12/16/1991	--		23.95	0.00	17.27	--	--	--	--	--	--	--	--	--	--	--	
1/6/1992	--		23.30	0.00	17.92	<50	<50	<0.3	<0.3	<0.3	<0.3	--	<5000	--	--	--	
1/22/1992	--		23.14	0.00	18.08	--	--	--	--	--	--	--	--	--	--	--	
1/28/1992	--		22.99	0.00	18.23	--	--	--	--	--	--	--	--	--	--	--	
2/5/1992	--		22.63	0.00	18.59	--	--	--	--	--	--	--	--	--	--	--	
2/12/1992	--		22.04	0.00	19.18	--	--	--	--	--	--	--	--	--	--	--	
2/17/1992	--		20.84	0.00	20.38	--	--	--	--	--	--	--	--	--	--	--	
4/3/1992	--		18.29	0.00	22.93	--	--	--	--	--	--	--	--	--	--	--	
4/8/1992	--		18.86	0.00	22.36	<50	63	<0.5	<0.5	<0.5	<0.5	--	<5000	--	--	--	
4/14/1992	--		19.45	0.00	21.77	--	--	--	--	--	--	--	--	--	--	--	
4/29/1992	--		20.35	0.00	20.87	--	--	--	--	--	--	--	--	--	--	--	
5/7/1992	--		20.84	0.00	20.38	--	--	--	--	--	--	--	--	--	--	--	
7/3/1992	--		22.34	0.00	18.88	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
10/8/1992	--		23.73	0.00	17.49	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
12/31/1992	--		21.12	0.00	20.10	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
4/21/1993	--		17.68	0.00	23.54	<50	<50	<0.5	<0.5	<0.5	<0.5	--	<5000	--	--	--	g, n
7/7/1993	--		20.30	0.00	20.92	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	1.0	--	--	e, n
9/21/1993	--		21.93	0.00	19.29	<50	--	0.9	0.7	0.7	2.6	21.54	--	--	--	--	n
12/17/1993	--		21.48	0.00	19.74	--	--	--	--	--	--	--	--	--	--	--	
12/23/1993	--		--	--	--	<50	--	<0.5	<0.5	<0.5	0.7	--	--	--	--	--	n

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
MW-2 Cont.																	
4/7/1994	--	41.22	20.25	0.00	20.97	<50	--	<0.5	<0.5	<0.5	<0.5	12.2	--	--	5.9	--	n
7/6/1994	--		20.59	0.00	20.63	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	3.1	--	n
10/7/1994	--		22.04	0.00	19.18	<50	--	<0.5	<0.5	<0.5	<0.5	15.2	--	--	2.8	--	n
1/27/1995	--		26.12	0.00	15.10	<50	440	<0.5	<0.5	<0.5	<1	--	<5000	--	4.8	--	
3/30/1995	--		12.34	0.00	28.88	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	7.2	--	
6/20/1995	--		16.42	0.00	24.80	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	6.0	--	
10/3/1995	--		20.06	0.00	21.16	<50	--	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	5.7	--	
12/6/1995	--		21.31	0.00	19.91	<50	--	<0.50	<0.50	<0.50	<1.0	46	--	--	5.4	--	
3/21/1996	--		12.28	0.00	28.94	<50	--	<0.5	<1.0	<1.0	<1.0	<1.0	--	--	7.4	--	
6/21/1996	--		13.28	0.00	27.94	<50	--	<0.5	<1	<1	<1	<10	--	--	7.3	--	
9/6/1996	--		13.94	0.00	27.28	--	--	--	--	--	--	--	--	--	--	--	
9/9/1996	--		--	--	--	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	7.4	--	
12/19/1996	--		12.19	0.00	29.03	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	7.9	--	
3/17/1997	--		11.59	0.00	29.63	--	--	--	--	--	--	--	--	--	--	--	
8/12/1997	--		13.21	0.00	28.01	--	--	--	--	--	--	--	--	--	--	--	
12/10/1997	--		12.34	0.00	28.88	--	--	--	--	--	--	--	--	--	--	--	
3/12/1998	--		11.04	0.00	30.18	--	--	--	--	--	--	--	--	--	--	--	
6/23/1998	--		11.77	0.00	29.45	--	--	--	--	--	--	--	--	--	--	--	
3/31/1999	--		12.38	0.00	28.84	--	--	--	--	--	--	--	--	--	--	--	
8/25/1999	--		17.72	0.00	23.50	--	--	--	--	--	--	--	--	--	--	--	
3/9/2000	--		11.94	0.00	29.28	--	--	--	--	--	--	--	--	--	--	--	
3/8/2001	--		10.31	0.00	30.91	--	--	--	--	--	--	--	--	--	--	--	
3/8/2002	--		14.35	0.00	26.87	--	--	--	--	--	--	--	--	--	--	--	
3/18/2002	--		13.11	0.00	28.11	--	--	--	--	--	--	--	--	--	--	--	
3/11/2003	--		13.24	0.00	27.98	--	--	--	--	--	--	--	--	--	--	--	
12/09/2003	P		18.58	0.00	22.64	350	--	<0.50	<0.50	0.56	2.8	24	--	--	6.2	q	
03/09/2004	P		12.52	0.00	28.70	74	--	<0.50	<0.50	0.83	4.7	27	--	--	6.5		
09/17/2004	P		18.05	0.00	23.17	59	--	<0.50	<0.50	<0.50	<0.50	21	--	--	6.3		
03/07/2005	--		2.32	0.00	38.90	--	--	--	--	--	--	--	--	--	--	p	
09/06/2005	--		--	--	--	--	--	--	--	--	--	--	--	--	--	r	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOc			
<b>MW-2 Cont.</b>																	
03/06/2006	--	41.22	--	--	--	--	--	--	--	--	--	--	--	--	--	--	p
9/5/2006	--		10.46	0.00	30.76	79	--	<0.50	5.1	<0.50	0.73	<0.50	--	--	--	6.4	p
3/5/2007	--		12.25	0.00	28.97	--	--	--	--	--	--	--	--	--	--	--	p
9/7/2007	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r
3/6/2008	--		12.33	0.00	28.89	--	--	--	--	--	--	--	--	--	--	--	w
9/3/2008	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r
3/4/2009	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r
9/30/2009	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r, x
10/28/2009	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r
3/23/2010	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r
6/10/2010	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r
9/16/2010	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r
2/23/2011	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r
9/28/2011	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r
<b>3/8/2012</b>	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	r
<b>MW-3</b>																	
2/5/1990	--	40.74	17.45	0.00	23.29	1,400	--	15	<2.5	11	8	--	--	--	--	--	
2/14/1991	--		18.52	0.00	22.22	320	--	8	<0.3	8	1	--	--	--	--	--	
5/13/1991	--		19.32	0.00	21.42	640	--	13	<0.3	18	1	--	--	--	--	--	
7/24/1991	--		20.69	0.00	20.05	--	--	--	--	--	--	--	--	--	--	--	
10/3/1991	--		19.47	0.00	21.27	940	--	21	<0.3	23	2.1	--	--	--	--	--	
10/15/1991	--		20.46	0.00	20.28	--	--	--	--	--	--	--	--	--	--	--	
12/4/1991	--		18.29	0.00	22.45	--	--	--	--	--	--	--	--	--	--	--	
12/16/1991	--		18.34	0.00	22.40	--	--	--	--	--	--	--	--	--	--	--	
1/6/1992	--		18.50	0.00	22.24	580	--	6.1	1	6.1	7.1	--	--	--	--	--	
1/22/1992	--		17.86	0.00	22.88	--	--	--	--	--	--	--	--	--	--	--	
1/28/1992	--		15.84	0.00	24.90	--	--	--	--	--	--	--	--	--	--	--	
2/5/1992	--		17.53	0.00	23.21	--	--	--	--	--	--	--	--	--	--	--	
2/12/1992	--		17.15	0.00	23.59	--	--	--	--	--	--	--	--	--	--	--	
2/17/1992	--		16.18	0.00	24.56	--	--	--	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
MW-3 Cont.																	
4/3/1992	--	40.74	14.80	0.00	25.94	--	--	--	--	--	--	--	--	--	--	--	--
4/8/1992	--		17.06	0.00	23.68	1,100	--	30	4.6	32	11	--	--	--	--	--	--
4/14/1992	--		15.22	0.00	25.52	--	--	--	--	--	--	--	--	--	--	--	--
4/29/1992	--		15.90	0.00	24.84	--	--	--	--	--	--	--	--	--	--	--	--
5/7/1992	--		16.35	0.00	24.39	--	--	--	--	--	--	--	--	--	--	--	--
7/3/1992	--		17.74	0.00	23.00	1,200	--	38	<2.5	24	<2.5	--	--	--	--	--	--
10/8/1992	--		19.06	0.00	21.68	1,400	--	31	<0.5	25	13	--	--	--	--	--	--
12/31/1992	--		16.61	0.00	24.13	960	--	11	3.6	10	3.8	--	--	--	--	--	h
12/31/1992	--		16.61	0.00	24.13	820	--	12	4.1	13	5.9	--	--	--	--	--	--
4/21/1993	--		14.24	0.00	26.50	420	--	5.6	<0.5	3.9	1.4	--	--	--	--	--	n
4/21/1993	--		14.24	0.00	26.50	390	--	5	<0.5	3.7	1.5	--	--	--	--	--	h, n
7/7/1993	--	40.13	15.19	0.00	24.94	54	--	0.6	0.6	<0.5	<0.5	12.68	--	--	--	--	i, n
9/21/1993	--		16.58	0.00	23.55	540	--	7.9	0.9	4.7	2.4	--	--	--	--	--	n
12/17/1993	--		15.82	0.00	24.31	--	--	--	--	--	--	--	--	--	--	--	
12/23/1993	--		--	--	--	480	--	9.2	<0.5	5.4	5.3	--	--	--	--	--	h
12/23/1993	--		--	--	--	500	--	9.8	1.5	3.3	2.1	--	--	--	--	--	n
4/7/1994	--		28.50	0.00	11.63	460	--	20	7.7	9	11	--	--	--	--	--	h
4/7/1994	--		28.50	0.00	11.63	460	--	20	7.4	8.9	11	18.2	--	--	--	--	n
7/6/1994	--		--	--	--	300	--	10	0.6	1.7	6.4	5.54	--	--	4.8	--	n
10/7/1994	--		27.65	0.00	12.48	620	--	28	<0.5	2.2	12	31.4	31	--	4.4	--	n
1/27/1995	--		27.65	0.00	12.48	--	--	--	--	--	--	--	--	--	--	--	j
3/30/1995	--		26.05	0.00	14.08	300	--	10	6	3.4	18	--	--	--	7.6	--	
6/20/1995	--		19.49	0.00	20.64	170	--	7.2	3.4	0.85	15	--	--	--	--	--	
10/3/1995	--		24.93	0.00	15.20	170	--	2.1	<0.50	0.81	8	6.7	--	--	--	--	
12/6/1995	--		25.14	0.00	14.99	1,400	--	6.1	3	1.7	190	53	--	--	--	--	h
12/6/1995	--		25.14	0.00	14.99	1,700	--	6.7	3.1	2.8	210	64	--	--	--	--	
3/21/1996	--		9.48	0.00	30.65	<50	--	0.5	<1	<1	1	<10	--	--	7.3	--	
6/21/1996	--		11.60	0.00	28.53	<50	--	13	<1	<1	<1	12	--	--	7.6	--	
9/6/1996	--		12.23	0.00	27.90	--	--	--	--	--	--	--	--	--	--	--	
9/9/1996	--		--	--	--	<250	--	6.5	<5.0	<5.0	<5.0	<50	--	--	7.6	--	

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Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOc			
MW-3 Cont.																	
12/19/1996	--	40.13	10.46	0.00	29.67	<50	--	4.1	<1.0	<1.0	<1.0	<10	--	--	8.4	--	
3/17/1997	--		9.86	0.00	30.27	50	--	<5	<1.0	<1.0	<1.0	<10	--	--	7.4	--	
8/12/1997	--		12.11	0.00	28.02	<50	--	0.79	<1.0	<1.0	<1.0	10	--	--	6.1	--	
12/10/1997	--		10.90	0.00	29.23	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	3.2	--	
3/12/1998	--		10.20	0.00	29.93	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	--	h
3/12/1998	--		10.20	0.00	29.93	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	6.3	--	
6/23/1998	--		10.17	0.00	29.96	50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	3.4	--	
3/31/1999	--		11.45	0.00	28.68	60	--	<1.0	<1.0	<1.0	<1.0	6.2	--	--	--	--	
8/25/1999	--		12.52	0.00	27.61	<50	--	<1.0	<1.0	<1.0	<1.0	7.7	--	--	--	--	
3/9/2000	--		12.39	0.00	27.74	<50	--	<0.5	0.54	<0.5	1.7	6.3	--	--	--	--	
3/8/2001	--		10.41	0.00	29.72	<50	--	<0.5	<0.5	<0.5	0.59	7.7	--	--	--	--	
3/8/2002	--		9.83	0.00	30.30	62	--	<0.5	<0.5	<0.5	<1.0	11.6	--	--	--	--	
3/18/2002	--		9.20	0.00	30.93	--	--	--	--	--	--	--	--	--	--	--	
3/11/2003	--		10.54	0.00	29.59	<50	--	<0.50	<0.50	<0.50	<0.50	6.7	--	--	--	--	
12/09/2003	P		12.88	0.00	27.25	<50	--	<0.50	<0.50	<0.50	<0.50	6.4			--	6.3	
03/09/2004	P		9.49	0.00	30.64	<50	--	<0.50	<0.50	<0.50	0.63	6.9			--	6.1	
09/17/2004	--		12.76	0.00	27.37	--	--	--	--	--	--	--			--	--	
03/07/2005	P		7.30	0.00	32.83	<50	--	<0.50	<0.50	<0.50	0.52	5.1			--	7.0	
09/06/2005	--	42.92	10.81	0.00	32.11	--	--	--	--	--	--	--			--	--	
03/06/2006	P		8.85	0.00	34.07	<50	--	<0.50	<0.50	<0.50	<0.50	6.9			--	6.8	u
9/5/2006	--		9.86	0.00	33.06	--	--	--	--	--	--	--	--	--	--	--	
3/5/2007	P		8.33	0.00	34.59	<50	--	<0.50	<0.50	<0.50	<0.50	5.4	--	--	2.31	6.95	
9/7/2007	--		11.10	0.00	31.82	--	--	--	--	--	--	--	--	--	--	--	
3/6/2008	P		8.92	0.00	34.00	<50	--	<0.50	<0.50	<0.50	<0.50	4.2	--	--	2.5	6.86	
9/3/2008	--		12.19	0.00	30.73	--	--	--	--	--	--	--	--	--	--	--	
3/4/2009	P		8.28	0.00	34.64	<50	--	<0.50	<0.50	<0.50	<0.50	4.9	--	--	1.19	6.71	
9/30/2009	P	40.13	11.60	0.00	28.53	<50	--	<0.50	<0.50	<0.50	<0.50	6.8	--	--	--	7.12	x
10/28/2009	--		10.40	0.00	29.73	--	--	--	--	--	--	--	--	--	--	--	
3/23/2010	P		8.27	0.00	31.86	<50	--	<0.50	<0.50	<0.50	<1.0	3.2	--	--	2.47	6.61	
6/10/2010	--		9.40	0.00	30.73	--	--	--	--	--	--	--	--	--	--	--	

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Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOc			
<b>MW-3 Cont.</b>																	
9/16/2010	P	40.13	11.14	0.00	28.99	<50	--	<0.50	<0.50	<0.50	<1.0	5.9	--	--	0.91	6.60	
2/23/2011	P		8.71	0.00	31.42	--	--	--	--	--	--	0.58	--	--	2.76	6.83	
9/28/2011	P		11.14	0.00	28.99	--	--	--	--	--	--	3.2	--	--	1.52	7.23	
<b>3/8/2012</b>	<b>P</b>		<b>11.01</b>	<b>0.00</b>	<b>29.12</b>	--	--	--	--	--	--	<b>&lt;0.50</b>	--	--	<b>3.10</b>	<b>7.24</b>	
<b>MW-4</b>																	
2/5/1990	--	40.11	20.75	0.00	19.36	620	--	<0.5	9	<0.5	10	--	--	--	--	--	
2/14/1991	--		21.73	0.00	18.38	180	--	<0.3	<0.3	0.4	2	--	--	--	--	--	
5/13/1991	--		18.55	0.00	21.56	72	--	0.7	<0.3	<0.3	<0.3	--	--	--	--	--	
7/24/1991	--		21.31	0.00	18.80	--	--	--	--	--	--	--	--	--	--	--	
10/3/1991	--		22.57	0.00	17.54	57	--	<0.3	<0.3	<0.3	<0.3	--	--	--	--	--	
10/15/1991	--		22.88	0.00	17.23	--	--	--	--	--	--	--	--	--	--	--	
12/4/1991	--		22.54	0.00	17.57	--	--	--	--	--	--	--	--	--	--	--	
12/16/1991	--		22.59	0.00	17.52	--	--	--	--	--	--	--	--	--	--	--	
1/6/1992	--		22.00	0.00	18.11	480	--	0.8	3.2	1.9	7.7	--	--	--	--	--	
1/22/1992	--		21.58	0.00	18.53	--	--	--	--	--	--	--	--	--	--	--	
1/28/1992	--		21.42	0.00	18.69	--	--	--	--	--	--	--	--	--	--	--	
2/5/1992	--		21.10	0.00	19.01	--	--	--	--	--	--	--	--	--	--	--	
2/12/1992	--		20.74	0.00	19.37	--	--	--	--	--	--	--	--	--	--	--	
2/17/1992	--		19.78	0.00	20.33	--	--	--	--	--	--	--	--	--	--	--	
4/3/1992	--		16.80	0.00	23.31	--	--	--	--	--	--	--	--	--	--	--	
4/8/1992	--		17.13	0.00	22.98	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
4/14/1992	--		17.74	0.00	22.37	--	--	--	--	--	--	--	--	--	--	--	
4/29/1992	--		18.56	0.00	21.55	--	--	--	--	--	--	--	--	--	--	--	
5/7/1992	--		19.10	0.00	21.01	--	--	--	--	--	--	--	--	--	--	--	
7/3/1992	--		20.71	0.00	19.40	<50	--	0.6	<0.5	<0.5	<0.5	--	--	--	--	--	
10/8/1992	--		22.43	0.00	17.68	270	--	<0.5	2.1	2.5	3.2	--	--	--	--	--	
12/31/1992	--		19.58	0.00	20.53	150	--	<0.5	<0.5	<0.5	<0.5	1.3	--	--	--	--	
4/21/1993	--		17.79	0.00	22.32	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	n
7/7/1993	--		18.44	0.00	21.67	160	--	1.2	5.4	3.8	19	5.51	--	--	--	--	n
9/21/1993	--		20.14	0.00	19.97	71	--	<0.5	1.9	<0.5	2.1	--	--	--	--	--	n

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						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOc			
MW-4 Cont.						--	--	--	--	--	--	--	--	--	--	--	
12/17/1993	--	40.11	19.80	0.00	20.31	--	--	--	--	--	--	--	--	--	--	--	
12/23/1993	--		--	--	--	<50	--	3.1	1.6	0.8	3.8	5.7	--	--	--	--	n
4/7/1994	--		19.12	0.00	20.99	<50	--	<0.5	<0.5	<0.5	<0.5	11.7	--	--	6.6	--	n
7/6/1994	--		19.90	0.00	20.21	62	--	<0.5	<0.5	<0.5	<0.5	--	--	--	4.1	--	n
10/7/1994	--		20.07	0.00	20.04	<50	--	<0.5	<0.5	<0.5	<0.5	7.38	--	--	3.6	--	n
1/27/1995	--		13.72	0.00	26.39	<50	--	<0.5	<0.5	<0.5	<1	--	--	--	2.7	--	
3/30/1995	--		11.46	0.00	28.65	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	8.3	--	
6/20/1995	--		14.78	0.00	25.33	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	
10/3/1995	--		19.62	0.00	20.49	<50	--	<0.50	<0.50	<0.50	<1.0	5	--	--	5.8	--	
12/6/1995	--		19.91	0.00	20.20	<50	--	<0.50	<0.50	<0.50	<1.0	47	--	--	5.7	--	
3/21/1996	--		11.12	0.00	28.99	<50	--	<0.5	<1	<1	<1	<10	--	--	7.8	--	
6/21/1996	--		12.21	0.00	27.90	<50	--	<0.5	<1	<1	<1	<10	--	--	7.9	--	
9/6/1996	--		12.89	0.00	27.22	--	--	--	--	--	--	--	--	--	--	--	
9/9/1996	--		--	--	--	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	7.2	--	
12/19/1996	--		11.01	0.00	29.10	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	8.4	--	
3/17/1997	--		10.42	0.00	29.69	--	--	--	--	--	--	--	--	--	--	--	
8/12/1997	--		12.77	0.00	27.34	--	--	--	--	--	--	--	--	--	--	--	
12/10/1997	--		11.22	0.00	28.89	--	--	--	--	--	--	--	--	--	--	--	
3/12/1998	--		10.81	0.00	29.30	--	--	--	--	--	--	--	--	--	--	--	
6/23/1998	--		10.61	0.00	29.50	--	--	--	--	--	--	--	--	--	--	--	
3/31/1999	--		11.46	0.00	28.65	--	--	--	--	--	--	--	--	--	--	--	
8/25/1999	--		16.16	0.00	23.95	--	--	--	--	--	--	--	--	--	--	--	
3/9/2000	--		12.23	0.00	27.88	--	--	--	--	--	--	--	--	--	--	--	
3/8/2001	--		11.04	0.00	29.07	--	--	--	--	--	--	--	--	--	--	--	
3/8/2002	--		12.73	0.00	27.38	--	--	--	--	--	--	--	--	--	--	--	
3/18/2002	--		11.62	0.00	28.49	--	--	--	--	--	--	--	--	--	--	--	
3/11/2003	--		13.44	0.00	26.67	--	--	--	--	--	--	--	--	--	--	--	
12/09/2003	P		15.03	0.00	25.08	<250	--	<2.5	<2.5	<2.5	<2.5	130	--	--	--	6.1	
03/09/2004	P		11.04	0.00	29.07	<50	--	<0.50	<0.50	<0.50	<0.50	35	--	--	--	5.5	
09/17/2004	P		16.75	0.00	23.36	<250	--	<2.5	<2.5	<2.5	<2.5	140	--	--	--	6.5	

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						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOc			
<b>MW-4 Cont.</b>																	
03/07/2005	P	40.11	11.02	0.00	29.09	67	--	<0.50	<0.50	<0.50	<0.50	42			--	6.6	
09/06/2005	P	42.88	14.64	0.00	28.24	81	--	<0.50	<0.50	<0.50	<1.5	180			--	6.7	s, t
03/06/2006	P		12.42	0.00	30.46	<100	--	<1.0	<1.0	<1.0	<1.0	110			--	6.4	
9/5/2006	--		13.81	0.00	29.07	130	--	<1.0	<1.0	<1.0	<1.0	190	--	--	--	6.5	
3/5/2007	P		10.63	0.00	32.25	<50	--	<0.50	<0.50	<0.50	<0.50	13	--	--	3.34	7.11	
9/7/2007	P			0.00	28.11	90	--	<0.50	<0.50	<0.50	<0.50	130	--	--	1.14	6.68	s, v (MTBE)
3/6/2008	P		11.30	0.00	31.58	<50	--	<0.50	<0.50	<0.50	<0.50	170	--	--	1.76	6.62	
9/3/2008	P		16.11	0.00	26.77	<50	--	<5.0	<5.0	<5.0	<5.0	150	--	--	1.97	6.33	
3/4/2009	P		10.78	0.00	32.10	140	--	<5.0	<5.0	<5.0	<5.0	110	--	--	1.31	6.47	
9/30/2009	P	40.10	16.48	0.00	23.62	240	--	<2.0	<2.0	<2.0	<2.0	140	--	--	0.08	6.88	x, y (GRO)
10/28/2009	--		15.07	0.00	25.03	--	--	--	--	--	--	--	--	--	--	--	
3/23/2010	P		10.82	0.00	29.28	<50	--	<0.50	<0.50	<0.50	<1.0	84	--	--	0.63	6.39	
6/10/2010	--		12.67	0.00	27.43	--	--	--	--	--	--	--	--	--	--	--	
9/16/2010	P		15.72	0.00	24.38	120	--	<0.50	<0.50	<0.50	<1.0	72	--	--	1.01	6.11	
2/23/2011	P		11.43	0.00	28.67	<50	--	--	--	--	--	55	--	--	0.69	6.10	
9/28/2011	P		15.34	0.00	24.76	150	--	--	--	--	--	62	--	--	0.78	7.38	
<b>3/8/2012</b>	<b>P</b>		<b>15.03</b>	<b>0.00</b>	<b>25.07</b>	<b>120</b>	--	--	--	--	--	<b>42</b>	--	--	<b>0.85</b>	<b>7.15</b>	
<b>MW-5</b>																	
10/3/1991	--	39.55	18.08	0.00	21.47	79,000	--	13,000	7,400	1,400	6,200	--	--	--	--	--	
10/15/1991	--		18.55	0.00	21.00	--	--	--	--	--	--	--	--	--	--	--	
12/4/1991	--		18.44	0.13	20.98	--	--	--	--	--	--	--	--	--	--	--	a
12/16/1991	--		18.66	0.01	20.88	--	--	--	--	--	--	--	--	--	--	--	a
1/6/1992	--		19.12	0.11	20.32	--	--	--	--	--	--	--	--	--	--	--	a
1/22/1992	--		14.59	0.00	24.96	--	--	--	--	--	--	--	--	--	--	--	
1/28/1992	--		15.25	0.00	24.30	--	--	--	--	--	--	--	--	--	--	--	
2/5/1992	--		15.58	0.00	23.97	--	--	--	--	--	--	--	--	--	--	--	q
2/12/1992	--		15.54	0.01	24.00	--	--	--	--	--	--	--	--	--	--	--	a
2/17/1992	--		13.98	0.00	25.57	--	--	--	--	--	--	--	--	--	--	--	q
4/3/1992	--		13.63	0.04	25.88	--	--	--	--	--	--	--	--	--	--	--	a
4/8/1992	--		13.17	0.01	26.37	--	--	--	--	--	--	--	--	--	--	--	a

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Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
MW-5 Cont.																	
4/14/1992	--	39.55	13.45	0.01	26.09	--	--	--	--	--	--	--	--	--	--	--	a
4/29/1992	--		13.75	0.07	25.73	--	--	--	--	--	--	--	--	--	--	--	a
5/7/1992	--		16.15	0.04	23.36	--	--	--	--	--	--	--	--	--	--	--	a
7/3/1992	--		17.67	0.08	21.80	--	--	--	--	--	--	--	--	--	--	--	a
9/1/1992	--		17.83	0.50	21.22	--	--	--	--	--	--	--	--	--	--	--	a
10/8/1992	--		17.86	0.92	20.77	--	--	--	--	--	--	--	--	--	--	--	a
12/31/1992	--		15.20	0.00	24.35	--	--	--	--	--	--	--	--	--	--	--	q
4/21/1993	--		12.64	0.02	26.89	--	--	--	--	--	--	--	--	--	--	--	a
7/7/1993	--	39.14	12.68	0.82	25.64	--	--	--	--	--	--	--	--	--	--	--	a, i
9/21/1993	--		14.35	0.00	24.79	--	--	--	--	--	--	--	--	--	--	--	q
12/17/1993	--		12.61	0.41	26.12	--	--	--	--	--	--	--	--	--	--	--	a
4/7/1994	--		30.00	0.00	9.14	66,000	--	3,000	1,700	250	6,800	2,002	--	--	--	--	n
7/6/1994	--		--	--	--	29,000	--	1,900	330	63	2,700	1,141	--	--	--	--	n
10/7/1994	--		28.70	0.00	10.44	45,000	--	2,900	540	260	2,600	--	--	--	--	--	h
10/7/1994	--		28.70	0.00	10.44	250,000	--	2,600	660	830	5,200	37.7	--	--	4.2	--	n
1/27/1995	--		28.70	0.00	10.44	--	--	--	--	--	--	--	--	--	--	--	
3/30/1995	--		28.95	0.00	10.19	50,000	--	7,900	2,600	520	6,400	--	--	--	5.5	--	
3/30/1995	--		28.95	0.00	10.19	43,000	--	7,900	2,500	440	6,200	--	--	--	--	--	h
6/20/1995	--		22.54	0.00	16.60	26,000	--	3,500	290	<25	3,300	--	--	--	--	--	h
6/20/1995	--		22.54	0.00	16.60	34,000	--	5,100	1,900	300	3,700	--	--	--	--	--	
10/3/1995	--		18.84	0.00	20.30	12,000	--	46	39	10	1,600	320	--	--	--	--	h
10/3/1995	--		18.84	0.00	20.30	12,000	--	68	42	11	1,600	330	--	--	--	--	
12/6/1995	--		19.07	0.00	20.07	16,000	--	1,200	93	51	700	600	--	--	--	--	
3/21/1996	--		7.43	0.00	31.71	1,500	--	89	28	6	250	<10	--	--	7.2	--	
3/21/1996	--		7.43	0.00	31.71	1,900	--	92	30	7	270	<10	--	--	--	--	h
6/21/1996	--		9.87	0.00	29.27	3,500	--	740	150	19	400	<100	--	--	7.1	--	
6/21/1996	--		9.87	0.00	29.27	2,700	--	680	140	20	400	<50	--	--	--	--	h
9/6/1996	--		10.52	0.00	28.62	--	--	--	--	--	--	--	--	--	--	--	
9/9/1996	--		--	--	--	90,000	--	2,900	1,600	670	6,900	<2500	--	--	--	--	h
9/9/1996	--		--	--	--	82,000	--	3,100	1,700	850	9,100	<2500	--	--	7.5	--	

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Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
MW-5 Cont.																	
12/19/1996	--	39.14	8.62	0.00	30.52	26,000	--	490	430	63	1,140	<500	--	--	--	--	h
12/19/1996	--		8.62	0.00	30.52	41,000	--	790	820	120	2,040	<500	--	--	7.7	--	
3/17/1997	--		8.22	0.00	30.92	5,500	--	1.9	2.4	<1.0	<1.0	29	--	--	6.4	--	
3/17/1997	--		8.22	0.00	30.92	6,600	--	2.5	2.7	<1.0	<1.0	28	--	--	--	--	h
8/12/1997	--		12.18	0.22	26.74	33,000	--	6,400	2,400	680	4,400	<1000	--	--	6.8	--	a
8/12/1997	--		12.18	0.22	26.74	36,000	--	6,100	2,500	720	4,500	<500	--	--	--	--	h
12/10/1997	--		10.78	0.06	28.30	37,000	--	2,900	2,500	440	4,800	--	--	--	--	--	h
12/10/1997	--		10.78	0.06	28.30	31,000	--	3,000	2,500	560	5,100	500	--	--	1.8	--	a
3/12/1998	--		10.11	0.22	28.81	100,000	--	1,600	870	250	2,600	<250	--	--	6.1	--	a
6/23/1998	--		10.20	0.02	28.92	27,000	--	2,600	840	400	2,950	<500	--	--	--	--	h
6/23/1998	--		10.20	0.02	28.92	27,000	--	2,500	840	370	2,900	<250	--	--	2.1	--	a
3/31/1999	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	f
8/25/1999	--		14.69	0.38	24.07	180,000	--	2,700	400	830	2,800	26	--	--	--	--	a
3/9/2000	--		14.83	0.60	23.71	53,000	--	12,000	2,600	1,900	9,100	<5.0	--	--	--	--	a
3/8/2001	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	f
3/8/2002	--		11.45	1.50	26.19	33,000	--	8,240	1,080	1,010	2,900	34.3	--	--	--	--	a
3/18/2002	--		8.03	0.00	31.11	--	--	--	--	--	--	--	--	--	--	--	
3/11/2003	--		9.60	0.45	29.09	--	--	--	--	--	--	--	--	--	--	--	a
12/09/2003	--		11.44	0.03	27.72	--	--	--	--	--	--	--	--	--	--	--	a
03/09/2004	P		7.91	0.00	31.23	31,000	--	3,900	1,100	780	3,600	<50	--	--	6.6	--	
09/17/2004	--		12.13	0.15	27.13	--	--	--	--	--	--	--	--	--	--	--	a
03/07/2005	--		8.62	0.02	27.13	--	--	--	--	--	--	--	--	--	--	--	a
09/06/2005	--	41.98	11.16	0.18	30.96	--	--	--	--	--	--	--	--	--	--	--	a
03/06/2006	P		8.60	Sheen	33.38	32,000	--	7,500	810	1,200	2,300	<50	--	--	6.4	a, q	
9/5/2006	--		6.16	0.03	35.82	--	--	--	--	--	--	--	--	--	--	--	a
3/5/2007	P		8.34	Sheen	33.64	90,000	--	10,000	4,200	1,900	7,900	<50	--	--	1.30	6.91	q
9/7/2007	--		15.15	0.15	26.94	--	--	--	--	--	--	--	--	--	--	--	a
1/14/2008	--		10.30	0.49	32.05	--	--	--	--	--	--	--	--	--	--	--	a
2/27/2008	--		13.22	0.12	28.85	--	--	--	--	--	--	--	--	--	--	--	a
3/6/2008	--		12.90	0.14	29.19	--	--	--	--	--	--	--	--	--	--	--	a

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Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
<b>MW-5 Cont.</b>																	
9/3/2008	--	41.98	12.90	0.99	29.82	--	--	--	--	--	--	--	--	--	--	--	a
3/4/2009	--		8.45	0.16	33.65	--	--	--	--	--	--	--	--	--	--	--	a
4/8/2009	--		9.05	0.67	33.43	--	--	--	--	--	--	--	--	--	--	--	x
5/11/2009	--	39.14	9.10	0.32	30.28	--	--	--	--	--	--	--	--	--	--	--	
6/16/2009	--		9.15	0.02	30.01	--	--	--	--	--	--	--	--	--	--	--	
7/22/2009	--		9.33	0.12	29.90	--	--	--	--	--	--	--	--	--	--	--	
8/6/2009	--		10.05	0.01	29.10	--	--	--	--	--	--	--	--	--	--	--	
9/30/2009	--		10.55	0.06	28.64	--	--	--	--	--	--	--	--	--	--	--	
10/28/2009	--		10.48	0.00	28.66	--	--	--	--	--	--	--	--	--	--	--	
3/23/2010	P		7.10	0.00	32.04	71,000	--	1,400	380	620	1,800	<5.0	--	--	--	6.50	
6/10/2010	--		8.26	0.06	30.93	--	--	--	--	--	--	--	--	--	--	--	
9/16/2010	--		9.14	0.04	30.03	--	--	--	--	--	--	--	--	--	--	--	
2/23/2011	--		8.33	0.01	30.82	--	--	--	--	--	--	--	--	--	--	--	
9/28/2011	--		10.46	0.06	28.73	--	--	--	--	--	--	--	--	--	--	--	
3/8/2012	--		10.27	0.03	28.89	--	--	--	--	--	--	--	--	--	--	--	
<b>MW-6</b>																	
10/3/1991	--	41.59	20.73	0.00	20.86	<50	--	0.7	0.8	<0.3	1.3	--	--	--	--	--	
10/15/1991	--		21.20	0.00	20.39	--	--	--	--	--	--	--	--	--	--	--	
12/4/1991	--		21.26	0.00	20.33	--	--	--	--	--	--	--	--	--	--	--	
12/16/1991	--		21.12	0.00	20.47	--	--	--	--	--	--	--	--	--	--	--	
1/6/1992	--		20.29	0.00	21.30	<50	--	<0.5	<0.5	<0.5	1.6	--	--	--	--	--	
1/22/1992	--		20.12	0.00	21.47	--	--	--	--	--	--	--	--	--	--	--	
1/28/1992	--		20.20	0.00	21.39	--	--	--	--	--	--	--	--	--	--	--	
2/5/1992	--		20.09	0.00	21.50	--	--	--	--	--	--	--	--	--	--	--	
2/12/1992	--		19.15	0.00	22.44	--	--	--	--	--	--	--	--	--	--	--	
2/17/1992	--		18.02	0.00	23.57	--	--	--	--	--	--	--	--	--	--	--	
4/3/1992	--		16.62	0.00	24.97	--	--	--	--	--	--	--	--	--	--	--	
4/8/1992	--		17.06	0.00	24.53	<50	--	0.6	<0.5	0.8	<0.5	--	--	--	--	--	
4/14/1992	--		17.23	0.00	24.36	--	--	--	--	--	--	--	--	--	--	--	
4/29/1992	--		18.12	0.00	23.47	--	--	--	--	--	--	--	--	--	--	--	

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						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
MW-6 Cont.																	
5/7/1992	--	41.59	18.52	0.00	23.07	--	--	--	--	--	--	--	--	--	--	--	
7/3/1992	--		19.71	0.00	21.88	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
10/8/1992	--		21.22	0.00	20.37	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	h
10/8/1992	--		21.22	0.00	20.37	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
12/31/1992	--		21.33	0.00	20.26	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
4/21/1993	--		16.45	0.00	25.14	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	n
7/7/1993	--		18.68	0.00	22.91	<50	--	<0.5	<0.5	<0.5	<0.5	28.96	29	--	--	--	j, n
9/21/1993	--		19.64	0.00	21.95	<50	--	<0.5	<0.5	<0.5	1.6	--	--	--	--	--	n
12/17/1993	--		21.08	0.00	20.51	--	--	--	--	--	--	--	--	--	--	--	
12/23/1993	--		--	--	--	<50	--	<0.5	0.5	<0.5	0.6	13.95	--	--	--	--	n
4/7/1994	--		21.27	0.00	20.32	<50	--	<0.5	<0.5	<0.5	<0.5	35.1	--	--	6.1	--	n
7/6/1994	--		19.81	0.00	21.78	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	h
7/6/1994	--		19.81	0.00	21.78	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	4.0	--	n
10/7/1994	--		21.25	0.00	20.34	<50	--	<0.5	<0.5	<0.5	<0.5	24.3	24	--	3.5	--	j, n
1/27/1995	--		12.39	0.00	29.20	<50	--	<0.5	<0.5	<0.5	<1	--	--	--	4.2	--	
3/30/1995	--		11.34	0.00	30.25	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	6.1	--	
6/20/1995	--		15.12	0.00	26.47	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	
10/3/1995	--		20.68	0.00	20.91	<50	--	<0.50	<0.50	<0.50	<1.0	66	--	--	6.4	--	
12/6/1995	--		23.77	0.00	17.82	<50	--	<0.50	<0.50	<0.50	<1.0	45	--	--	5.7	--	
3/21/1996	--		11.55	0.00	30.04	<50	--	<0.5	<1	<1	<1	41	--	--	9.1	--	
6/21/1996	--		12.60	0.00	28.99	<50	--	<0.5	<1	<1	<1	<10	--	--	8.6	--	
9/6/1996	--		13.25	0.00	28.34	--	--	--	--	--	--	--	--	--	--	--	
9/9/1996	--		--	--	--	<50	--	<0.5	<1.0	<1.0	<1.0	22/22	--	--	7.9	--	k
12/19/1996	--		11.45	0.00	30.14	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	7.7	--	
3/17/1997	--		10.80	0.00	30.79	--	--	--	--	--	--	--	--	--	--	--	
8/12/1997	--		13.11	0.00	28.48	--	--	--	--	--	--	--	--	--	--	--	
12/10/1997	--		13.84	0.00	27.75	--	--	--	--	--	--	--	--	--	--	--	
3/12/1998	--		11.17	0.00	30.42	--	--	--	--	--	--	--	--	--	--	--	
6/23/1998	--		13.27	0.00	28.32	--	--	--	--	--	--	--	--	--	--	--	
3/31/1999	--		12.91	0.00	28.68	--	--	--	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOc			
<b>MW-6 Cont.</b>																	
8/25/1999	--	41.59	15.93	0.00	25.66	--	--	--	--	--	--	--	--	--	--	--	--
3/9/2000	--		11.49	0.00	30.10	--	--	--	--	--	--	--	--	--	--	--	
3/8/2001	--		10.81	0.00	30.78	--	--	--	--	--	--	--	--	--	--	--	
3/8/2002	--		14.28	0.00	27.31	--	--	--	--	--	--	--	--	--	--	--	
3/18/2002	--		13.10	0.00	28.49	--	--	--	--	--	--	--	--	--	--	--	
3/11/2003	--		13.63	0.00	27.96	--	--	--	--	--	--	--	--	--	--	--	
12/09/2003	P		14.26	0.00	27.33	<50	--	<0.50	<0.50	<0.50	<0.50	12			--	6.4	
03/09/2004	NP		11.87	0.00	29.72	<50	--	<0.50	<0.50	<0.50	<0.50	10			--	7.1	
09/17/2004	--		16.45	0.00	25.14	--	--	--	--	--	--	--	--	--	--	--	
03/07/2005	P		13.65	0.00	27.94	<50	--	<0.50	<0.50	<0.50	<0.50	5.8			--	6.7	
09/06/2005	--	44.37	14.23	0.00	30.14	--	--	--	--	--	--	--	--	--	--	--	
03/06/2006	P		12.89	0.00	31.48	<50	--	<0.50	<0.50	<0.50	<0.50	8.1			--	6.8	u
9/5/2006	--		14.10	0.00	30.27	--	--	--	--	--	--	--	--	--	--	--	
3/5/2007	P		11.43	0.00	32.94	<50	--	<0.50	<0.50	<0.50	<0.50	5.6	--	--	2.57	7.70	
9/7/2007	--		16.00	0.00	28.37	--	--	--	--	--	--	--	--	--	--	--	
3/6/2008	P		11.84	0.00	32.53	<50	--	<0.50	<0.50	<0.50	<0.50	1.9	--	--	2.34	6.81	
9/3/2008	--		16.24	0.00	28.13	--	--	--	--	--	--	--	--	--	--	--	
3/4/2009	P		11.68	0.00	32.69	<50	--	<0.50	<0.50	<0.50	<0.50	2.8	--	--	4.66	6.82	
9/30/2009	P	41.58	16.83	0.00	24.75	<50	--	<0.50	<0.50	<0.50	<0.50	4.4	--	--	0.10	7.00	x
10/28/2009	--		15.63	0.00	25.95	--	--	--	--	--	--	--	--	--	--	--	
3/23/2010	P		11.48	0.00	30.10	<50	--	<0.50	<0.50	<0.50	<1.0	1.0	--	--	--	6.57	
6/10/2010	--		12.54	0.00	29.04	--	--	--	--	--	--	--	--	--	--	--	
9/16/2010	P		15.95	0.00	25.63	<50	--	<0.50	<0.50	<0.50	<1.0	0.80	--	--	--	6.38	
2/23/2011	P		12.34	0.00	29.24	--	--	--	--	--	--	<0.50	--	--	1.60	6.42	
9/28/2011	P		15.81	0.00	25.77	--	--	--	--	--	--	3.4	--	--	1.41	8.07	
<b>3/8/2012</b>	<b>P</b>		<b>15.51</b>	<b>0.00</b>	<b>26.07</b>	--	--	--	--	--	--	<b>0.58</b>	--	--	<b>2.24</b>	<b>7.45</b>	
<b>MW-7</b>																	
10/3/1991	--	40.64	14.93	0.00	25.71	360	--	62	13	3.4	20	--	--	--	--	--	
10/15/1991	--		15.16	0.00	25.48	--	--	--	--	--	--	--	--	--	--	--	
12/4/1991	--		15.41	0.00	25.23	--	--	--	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
MW-7 Cont.																	
12/16/1991	--	40.64	15.21	0.00	25.43	--	--	--	--	--	--	--	--	--	--	--	
1/6/1992	--		14.56	0.00	26.08	1,100	--	170	<0.5	24	23	--	--	--	--	--	
1/22/1992	--		14.63	0.00	26.01	--	--	--	--	--	--	--	--	--	--	--	
1/28/1992	--		14.73	0.00	25.91	--	--	--	--	--	--	--	--	--	--	--	
2/5/1992	--		14.58	0.00	26.06	--	--	--	--	--	--	--	--	--	--	--	
2/12/1992	--		13.94	0.00	26.70	--	--	--	--	--	--	--	--	--	--	--	
2/17/1992	--		13.10	0.00	27.54	--	--	--	--	--	--	--	--	--	--	--	
4/3/1992	--		12.66	0.00	27.98	--	--	--	--	--	--	--	--	--	--	--	
4/8/1992	--		12.77	0.00	27.87	750	--	150	<0.5	23	9.9	--	--	--	--	--	
4/14/1992	--		13.02	0.00	27.62	--	--	--	--	--	--	--	--	--	--	--	
4/29/1992	--		13.59	0.00	27.05	--	--	--	--	--	--	--	--	--	--	--	
5/7/1992	--		13.95	0.00	26.69	--	--	--	--	--	--	--	--	--	--	--	
7/3/1992	--		14.73	0.00	25.91	660	--	210	<2.5	33	8	--	--	--	--	--	
10/8/1992	--		15.75	0.00	24.89	320	--	49	1.4	13	6.2	--	--	--	--	--	
12/31/1992	--		13.57	0.00	27.07	900	--	100	<2.5	28	4.3	--	--	--	--	--	
4/21/1993	--		14.56	0.00	26.08	510	--	83	1.2	10	5.8	--	--	--	--	--	n
7/7/1993	--	40.32	13.40	0.00	26.92	1,100	--	170	1.9	29	2.84	9.84	--	--	--	--	h, n
7/7/1993	--		13.40	0.00	26.92	1,100	--	160	2	27	4	10.84	--	--	--	--	i, n
9/21/1993	--		14.40	0.00	25.92	690	--	150	3.1	26	5.7	--	--	--	--	--	n
9/21/1993	--		14.40	0.00	25.92	640	--	140	1.7	23	2.4	--	--	--	--	--	h, n
12/17/1993	--		13.65	0.00	26.67	--	--	--	--	--	--	--	--	--	--	--	
12/23/1993	--		--	--	--	250	--	64	1.2	9	1.8	7.81	--	--	--	--	n
4/7/1994	--		30.62	0.00	9.70	140	--	32	1.4	<0.5	<0.5	6.32	--	--	--	--	n
7/6/1994	--		16.88	0.00	23.44	410	--	94	1.3	10	3.5	<5.0	--	--	4.4	--	n
10/7/1994	--		25.59	0.00	14.73	<50	--	9.2	<0.5	<0.5	<0.5	<5.0	--	--	4.9	--	n
1/27/1995	--		9.82	0.00	30.50	930	--	620	4	77	21	--	--	--	--	--	h
1/27/1995	--		9.82	0.00	30.50	810	--	570	3	60	17	--	--	--	0.0	--	
3/30/1995	--		9.15	0.00	31.17	180	--	65	0.53	2	<1.0	--	--	--	7.8	--	
6/20/1995	--		11.38	0.00	28.94	2,800	--	980	<5.0	<5.0	43	--	--	--	--	--	
10/3/1995	--		29.95	0.00	10.37	<50	--	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
MW-7 Cont.																	
12/6/1995	--	40.32	29.85	0.00	10.47	<50	--	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	
3/21/1996	--		9.76	0.00	30.56	1,000	--	390	2	40	13	<10	--	--	7.4	--	
6/21/1996	--		11.01	0.00	29.31	<250	--	40	<5	<5	<5	<50	--	--	7.4	--	
9/6/1996	--		11.68	0.00	28.64	--	--	--	--	--	--	--	--	--	--	--	
9/9/1996	--		--	--	--	<250	--	13	<5.0	<5.0	<5.0	<50	--	--	7.2	--	
12/19/1996	--		10.78	0.00	29.54	70	--	1.2	<1.0	1	<1.0	<10	--	--	8.3	--	
3/17/1997	--		9.96	0.00	30.36	--	--	--	--	--	--	--	--	--	--	--	
8/12/1997	--		11.44	0.00	28.88	--	--	--	--	--	--	--	--	--	--	--	
12/10/1997	--		10.42	0.00	29.90	--	--	--	--	--	--	--	--	--	--	--	
3/12/1998	--		9.51	0.00	30.81	--	--	--	--	--	--	--	--	--	--	--	
6/23/1998	--		9.98	0.00	30.34	--	--	--	--	--	--	--	--	--	--	--	
3/31/1999	--		10.38	0.00	29.94	--	--	--	--	--	--	--	--	--	--	--	
8/25/1999	--		12.38	0.00	27.94	--	--	--	--	--	--	--	--	--	--	--	
3/9/2000	--		8.48	0.00	31.84	--	--	--	--	--	--	--	--	--	--	--	
3/8/2001	--		8.37	0.00	31.95	--	--	--	--	--	--	--	--	--	--	--	
3/8/2002	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	f
3/18/2002	--		9.94	0.00	30.38	--	--	--	--	--	--	--	--	--	--	--	
3/11/2003	--		11.26	0.00	29.06	--	--	--	--	--	--	--	--	--	--	--	
12/09/2003	P		12.76	0.00	27.56	270	--	26	<0.50	<0.50	<0.50	8.7			--	6.1	
03/09/2004	P		10.91	0.00	29.41	320	--	49	0.73	1.8	0.59	6.9			--	6.2	
09/17/2004	P		13.20	0.00	27.12	330	--	17	<0.50	<0.50	<0.50	7.0			--	6.6	
03/07/2005	P		8.18	0.00	32.14	340	--	41	0.79	0.79	0.73	7.2			--	6.9	
09/06/2005	P	43.10	11.80	0.00	31.30	1,100	--	130	1.2	1.8	<1.5	16			--	6.7	
03/06/2006	P		8.39	0.00	34.71	440	--	31	0.78	0.74	0.81	8.3			--	7.1	
9/5/2006	--		11.45	0.00	31.65	2,000	--	260	3.1	5.9	<2.5	12	--	--	--	6.6	
3/5/2007	P		9.31	0.00	33.79	2,200	--	110	2.2	4.0	1.8	7.6	--	--	1.06	7.26	
9/7/2007	P		12.18	0.00	30.92	220	--	8.4	<0.50	<0.50	<0.50	1.2	--	--	0.98	6.89	
3/6/2008	P		10.05	0.00	33.05	1,800	--	54	1.2	1.1	<1.0	<1.0	--	--	--	7.02	
9/3/2008	P		13.17	0.00	29.93	540	--	13	0.69	<0.50	<0.50	5.5	--	--	4.77	6.88	
3/4/2009	P		8.25	0.00	34.85	720	--	15	0.59	0.53	<0.50	3.4	--	--	1.29	6.93	

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						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
<b>MW-7 Cont.</b>																	
9/30/2009	P	40.40	12.70	0.00	27.70	1,200	--	44	1.0	0.74	0.79	3.3	--	--	0.11	6.94	x
10/28/2009	--		11.17	0.00	29.23	--	--	--	--	--	--	--	--	--	--	--	--
3/23/2010	P		9.28	0.00	31.12	480	--	11	<0.50	<0.50	<1.0	<0.50	--	--	0.38	6.57	
6/10/2010	--		10.24	0.00	30.16	--	--	--	--	--	--	--	--	--	--	--	--
9/16/2010	P		12.16	0.00	28.24	4,700	--	130	<5.0	7.4	<10	<5.0	--	--	0.98	6.36	
2/23/2011	P		9.62	0.00	30.78	2,200	--	26	1.1	1.4	1.6	4.0	--	--	0.72	6.56	
9/28/2011	P		11.80	0.00	28.60	3,800	--	380	4.8	28	4.3	9.5	--	--	0.98	7.08	
<b>3/8/2012</b>	<b>P</b>		<b>11.69</b>	<b>0.00</b>	<b>28.71</b>	<b>550</b>	--	<b>1.4</b>	<b>&lt;0.50</b>	<b>&lt;0.50</b>	<b>&lt;1.0</b>	<b>2.3</b>	--	--	<b>0.87</b>	<b>7.27</b>	
<b>MW-8</b>																	
10/3/1991	--	38.18	22.37	0.00	15.81	<50	--	<0.3	0.6	<0.3	0.9	--	--	--	--	--	
10/15/1991	--		22.70	0.00	15.48	--	--	--	--	--	--	--	--	--	--	--	
12/4/1991	--		22.44	0.00	15.74	--	--	--	--	--	--	--	--	--	--	--	
12/16/1991	--		22.47	0.00	15.71	--	--	--	--	--	--	--	--	--	--	--	
1/6/1992	--		21.94	0.00	16.24	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
1/22/1992	--		21.44	0.00	16.74	--	--	--	--	--	--	--	--	--	--	--	
1/28/1992	--		21.20	0.00	16.98	--	--	--	--	--	--	--	--	--	--	--	
2/5/1992	--		20.88	0.00	17.30	--	--	--	--	--	--	--	--	--	--	--	
2/12/1992	--		20.54	0.00	17.64	--	--	--	--	--	--	--	--	--	--	--	
2/17/1992	--		19.99	0.00	18.19	--	--	--	--	--	--	--	--	--	--	--	
4/3/1992	--		16.75	0.00	21.43	--	--	--	--	--	--	--	--	--	--	--	
4/8/1992	--		16.57	0.00	21.61	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
4/14/1992	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	f
4/29/1992	--		18.61	0.00	19.57	--	--	--	--	--	--	--	--	--	--	--	
5/7/1992	--		18.41	0.00	19.77	--	--	--	--	--	--	--	--	--	--	--	
7/3/1992	--		20.35	0.00	17.83	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
10/8/1992	--		21.74	0.00	16.44	--	--	--	--	--	--	--	--	--	--	--	f
12/31/1992	--		19.09	0.00	19.09	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
4/21/1993	--		18.92	0.00	19.26	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	n
7/7/1993	--		17.76	0.00	20.42	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	n
9/21/1993	--		19.71	0.00	18.47	<50	--	2.9	2.2	2.2	7.1	--	--	--	--	--	n

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						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
MW-8 Cont.						--	--	--	--	--	--	--	--	--	--	--	
12/17/1993	--	38.18	21.33	0.00	16.85	--	--	--	--	--	--	--	--	--	--	--	
12/23/1993	--		--	--	--	<50	--	<0.5	<0.5	<0.5	0.6	<5.0	--	--	--	--	n
4/7/1994	--		21.51	0.00	16.67	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	6.6	--	n
7/6/1994	--		17.41	0.00	20.77	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	4.4	--	n
10/7/1994	--		19.20	0.00	18.98	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	3.7	--	n
1/27/1995	--		12.25	0.00	25.93	<50	--	<0.5	<0.5	<0.5	<1	--	--	--	2.9	--	
3/30/1995	--		10.35	0.00	27.83	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	8.3	--	
6/20/1995	--		13.37	0.00	24.81	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	6.9	--	
10/3/1995	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	f
12/6/1995	--		18.42	0.00	19.76	<50	--	<0.50	<0.50	<0.50	<1.0	47	--	--	5.3	--	
3/21/1996	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	f
6/21/1996	--		13.03	0.00	25.15	<50	--	<0.5	<1	<1	<1	<10	--	--	7.0	--	
9/6/1996	--		13.70	0.00	24.48	--	--	--	--	--	--	--	--	--	--	--	
9/9/1996	--		--	--	--	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	7.0	--	
12/19/1996	--		11.93	0.00	26.25	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	7.6	--	
3/17/1997	--		11.29	0.00	26.89	--	--	--	--	--	--	--	--	--	--	--	
8/12/1997	--		13.73	0.00	24.45	--	--	--	--	--	--	--	--	--	--	--	
12/10/1997	--		11.88	0.00	26.30	--	--	--	--	--	--	--	--	--	--	--	
3/12/1998	--		11.89	0.00	26.29	--	--	--	--	--	--	--	--	--	--	--	
6/23/1998	--		11.33	0.00	26.85	--	--	--	--	--	--	--	--	--	--	--	
3/31/1999	--		12.68	0.00	25.50	--	--	--	--	--	--	--	--	--	--	--	
8/25/1999	--		14.93	0.00	23.25	--	--	--	--	--	--	--	--	--	--	--	
3/9/2000	--		9.14	0.00	29.04	--	--	--	--	--	--	--	--	--	--	--	
3/8/2001	--		8.41	0.00	29.77	--	--	--	--	--	--	--	--	--	--	--	
3/8/2002	--		11.18	0.00	27.00	--	--	--	--	--	--	--	--	--	--	--	
3/18/2002	--		10.72	0.00	27.46	--	--	--	--	--	--	--	--	--	--	--	
3/11/2003	--		10.46	0.00	27.72	--	--	--	--	--	--	--	--	--	--	--	
03/09/2004	P		9.79	0.00	28.39	<50	--	<0.50	<0.50	<0.50	<0.50	0.50	--	--	--	7.2	
09/17/2004	--		15.35	0.00	22.83	--	--	--	--	--	--	--	--	--	--	--	
03/07/2005	P		7.94	0.00	30.24	<50	--	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	--	6.7	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOc			
<b>MW-8 Cont.</b>																	
09/06/2005	--	40.95	13.06	0.00	27.89	--	--	--	--	--	--	--	--	--	--	--	--
03/06/2006	P		9.26	0.00	31.69	<50	--	<0.50	<0.50	<0.50	<0.50	0.59			--	7.2	u
9/5/2006	--		12.61	0.00	28.34	--	--	--	--	--	--	--	--	--	--	--	--
3/5/2007	P		9.12	0.00	31.83	<50	--	<0.50	<0.50	<0.50	0.53	<0.50	--	--	6.79	7.17	
9/7/2007	--		13.56	0.00	27.39	--	--	--	--	--	--	--	--	--	--	--	--
3/6/2008	P		9.80	0.00	31.15	<50	--	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	4.14	6.86	
9/3/2008	--		14.20	0.00	26.75	--	--	--	--	--	--	--	--	--	--	--	--
3/4/2009	P		9.51	0.00	31.44	<50	--	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	2.62	6.96	
9/30/2009	--	38.19	14.92	0.00	23.27	--	--	--	--	--	--	--	--	--	--	--	x
10/28/2009	--		13.56	0.00	24.63	--	--	--	--	--	--	--	--	--	--	--	--
3/23/2010	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	f
6/10/2010	--		11.06	0.00	27.13	--	--	--	--	--	--	--	--	--	--	--	--
9/16/2010	P		14.41	0.00	23.78	<50	--	<0.50	<0.50	<0.50	<1.0	<0.50	--	--	1.14	6.68	
2/23/2011	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	f, car parked on well
9/28/2011	--		13.87	0.00	24.32	--	--	--	--	--	--	--	--	--	--	--	
3/8/2012	--		13.27	0.00	24.92	--	--	--	--	--	--	--	--	--	--	--	
<b>MW-9</b>																	
10/3/1991	--	41.25	14.12	0.00	27.13	<50	--	<0.3	0.4	<0.3	<0.3	--	--	--	--	--	--
10/15/1991	--		14.27	0.00	26.98	--	--	--	--	--	--	--	--	--	--	--	
12/4/1991	--		13.84	0.00	27.41	--	--	--	--	--	--	--	--	--	--	--	
12/16/1991	--		14.18	0.00	27.07	--	--	--	--	--	--	--	--	--	--	--	
1/6/1992	--		13.42	0.00	27.83	<50	--	<0.5	<0.5	<0.5	0.9	--	--	--	--	--	
1/22/1992	--		13.75	0.00	27.50	--	--	--	--	--	--	--	--	--	--	--	
1/28/1992	--		14.76	0.00	26.49	--	--	--	--	--	--	--	--	--	--	--	
2/5/1992	--		13.38	0.00	27.87	--	--	--	--	--	--	--	--	--	--	--	
2/12/1992	--		11.86	0.00	29.39	--	--	--	--	--	--	--	--	--	--	--	
2/17/1992	--		10.78	0.00	30.47	--	--	--	--	--	--	--	--	--	--	--	
4/3/1992	--		11.63	0.00	29.62	--	--	--	--	--	--	--	--	--	--	--	
4/8/1992	--		12.25	0.00	29.00	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	
4/14/1992	--		12.32	0.00	28.93	--	--	--	--	--	--	--	--	--	--	--	

Table 1. Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses

Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA

Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
MW-9 Cont.																	
4/29/1992	--	41.25	13.07	0.00	28.18	--	--	--	--	--	--	--	--	--	--	--	--
5/7/1992	--		14.43	0.00	26.82	--	--	--	--	--	--	--	--	--	--	--	--
7/3/1992	--		13.85	0.00	27.40	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--
10/8/1992	--		14.89	0.00	26.36	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--
12/31/1992	--		11.90	0.00	29.35	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--
4/21/1993	--		13.68	0.00	27.57	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	n
7/7/1993	--		13.12	0.00	28.13	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	--	n
9/21/1993	--		14.00	0.00	27.25	<50	--	<0.5	<0.5	<0.5	0.9	--	--	--	--	--	n
12/17/1993	--		12.98	0.00	28.27	--	--	--	--	--	--	--	--	--	--	--	
12/23/1993	--		--	--	--	<50	--	<0.5	<0.5	<0.5	0.9	<5.0	--	--	--	--	n
4/7/1994	--		13.24	0.00	28.01	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	4.7	--
7/6/1994	--		13.77	0.00	27.48	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	3.9	--
10/7/1994	--		14.60	0.00	26.65	<50	--	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--	3.0	--
1/27/1995	--		8.47	0.00	32.78	<50	--	<0.5	<0.5	<0.5	<1	--	--	--	--	2.5	--
3/30/1995	--		8.19	0.00	33.06	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	--	8.4	--
6/20/1995	--		11.25	0.00	30.00	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	--	8.1	--
10/3/1995	--		14.68	0.00	26.57	<50	--	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	6.0	--
12/6/1995	--		16.07	0.00	25.18	<50	--	<0.50	<0.50	<0.50	<1.0	46	--	--	--	5.4	--
3/21/1996	--		9.60	0.00	31.65	<50	--	<0.5	<1	<1	<1	<10	--	--	--	8.0	--
6/21/1996	--		10.86	0.00	30.39	<50	--	<0.5	<1	<1	<1	<10	--	--	--	7.8	--
9/6/1996	--		11.52	0.00	29.73	--	--	--	--	--	--	--	--	--	--	--	
9/9/1996	--		--	--	--	<50	--	<0.5	<1.0	<1.0	<1.0	20/21	--	--	--	7.3	--
12/19/1996	--		10.43	0.00	30.82	<50	--	<0.5	<1.0	<1.0	<1.0	<10	--	--	--	7.3	--
3/17/1997	--		9.87	0.00	31.38	--	--	--	--	--	--	--	--	--	--	--	
8/12/1997	--		11.44	0.00	29.81	--	--	--	--	--	--	--	--	--	--	--	
12/10/1997	--		10.44	0.00	30.81	--	--	--	--	--	--	--	--	--	--	--	
3/12/1998	--		9.50	0.00	31.75	--	--	--	--	--	--	--	--	--	--	--	
6/23/1998	--		10.06	0.00	31.19	--	--	--	--	--	--	--	--	--	--	--	
3/31/1999	--		9.06	0.00	32.19	--	--	--	--	--	--	--	--	--	--	--	
8/25/1999	--		12.00	0.00	29.25	--	--	--	--	--	--	--	--	--	--	--	

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Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOCl			
<b>MW-9 Cont.</b>																	
3/9/2000	--	41.25	10.57	0.00	30.68	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2001	--		9.73	0.00	31.52	--	--	--	--	--	--	--	--	--	--	--	--
3/8/2002	--		11.89	0.00	29.36	--	--	--	--	--	--	--	--	--	--	--	--
3/18/2002	--		9.68	0.00	31.57	--	--	--	--	--	--	--	--	--	--	--	--
3/11/2003	--		9.21	0.00	32.04	--	--	--	--	--	--	--	--	--	--	--	--
03/09/2004	--		10.99	0.00	30.26	<50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			--	6.6
09/17/2004	--		13.35	0.00	27.90	--	--	--	--	--	--	--	--		--	--	--
03/07/2005	P		8.94	0.00	32.31	<50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		--	6.9	
09/06/2005	--	44.06	11.99	0.00	32.07	--	--	--	--	--	--	--	--		--	--	
03/06/2006	P		8.26	0.00	35.80	<50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		--	6.9	u
9/5/2006	--		11.63	0.00	32.43	--	--	--	--	--	--	--	--		--	--	--
3/5/2007	P		9.33	0.00	34.73	<50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		--	2.22	7.03
9/7/2007	--		12.28	0.00	31.78	--	--	--	--	--	--	--	--		--	--	--
3/6/2008	P		10.11	0.00	33.95	<50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		--	3.72	6.90
9/3/2008	--		13.49	0.00	30.57	--	--	--	--	--	--	--	--		--	--	--
3/4/2009	P		8.15	0.00	35.91	<50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50		--	4.03	6.84
9/30/2009	--	41.25	12.98	0.00	28.27	--	--	--	--	--	--	--	--		--	--	x
10/28/2009	--		11.98	0.00	29.27	--	--	--	--	--	--	--	--		--	--	--
3/23/2010	P		10.59	0.00	30.66	<50	--	<0.50	<0.50	<0.50	<1.0	<0.50	--	--	0.86	6.54	
6/10/2010	--		10.25	0.00	31.00	--	--	--	--	--	--	--	--		--	--	--
9/16/2010	--		--	--	--	--	--	--	--	--	--	--	--		--	--	f
2/23/2011	--		9.71	0.00	31.54	--	--	--	--	--	--	--	--		--	--	--
9/28/2011	--		11.66	0.00	29.59	--	--	--	--	--	--	--	--		--	--	
3/8/2012	--		11.56	0.00	29.69	--	--	--	--	--	--	--	--		--	--	
<b>MW-10</b>																	
6/16/2009	--	39.78	8.60	0.01	31.19	--	--	--	--	--	--	--	--		--	--	x
7/22/2009	--		9.68	0.01	30.11	--	--	--	--	--	--	--	--		--	--	
8/6/2009	--		9.48	0.00	30.30	--	--	--	--	--	--	--	--		--	--	
9/30/2009	--		9.69	0.01	30.10	--	--	--	--	--	--	--	--		--	--	
10/28/2009	P		8.53	0.00	31.25	62,000	--	8,300	5,300	3,100	12,000	<50	--	--	1.14	6.9	z

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Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOc			
<b>MW-10 Cont.</b>																	
3/23/2010	P	39.78	7.70	Sheen	32.08	58,000	--	6,500	4,800	2,300	9,700	<100	--	--	0.71	6.69	
6/10/2010	--		8.93	0.01	30.86	--	--	--	--	--	--	--	--	--	--	--	
9/16/2010	--		9.69	0.01	30.10	--	--	--	--	--	--	--	--	--	--	--	
2/23/2011	P		7.99	0.00	31.79	61,000	--	7,000	5,300	2,800	12,000	<100	--	--	0.79	6.68	cc
9/28/2011	--		10.36	0.29	29.64	--	--	--	--	--	--	--	--	--	--	--	
<b>3/8/2012</b>	--		<b>10.51</b>	<b>0.32</b>	<b>29.51</b>	--	--	--	--	--	--	--	--	--	--	--	
<b>MW-11</b>																	
9/30/2009	P	40.04	10.55	0.00	29.49	30,000	--	850	1,400	1,000	3,700	27	--	--	--	7.09	x
10/28/2009	P		8.00	0.00	32.04	27,000	--	1,100	2,300	1,500	5,800	<50	--	--	0.82	6.74	
3/23/2010	P		7.25	0.00	32.79	19,000	--	530	830	790	2,200	<25	--	--	0.66	6.64	
6/10/2010	--		9.65	Sheen	30.39	--	--	--	--	--	--	--	--	--	--	--	
9/16/2010	P		9.42	0.00	30.62	5,500	--	400	250	320	410	11	--	--	0.62	6.36	aa
2/23/2011	P		7.60	0.00	32.44	10,000	--	380	260	330	540	7.2	--	--	0.80	6.62	
9/28/2011	P		9.88	0.00	30.16	5,900	--	230	92	260	370	6.4	--	--	0.70	7.02	
<b>3/8/2012</b>	P		<b>9.71</b>	<b>0.00</b>	<b>30.33</b>	<b>5,000</b>	--	<b>280</b>	<b>170</b>	<b>250</b>	<b>380</b>	<b>&lt;5.0</b>	--	--	<b>0.89</b>	<b>7.01</b>	
<b>MW-12</b>																	
9/30/2009	--	40.32	11.02	0.02	29.32	--	--	--	--	--	--	--	--	--	--	--	x
10/28/2009	P		10.40	0.00	29.92	43,000	--	5,800	800	2,900	6,800	<50	--	--	0.73	6.7	z
3/23/2010	P		11.46	Sheen	28.86	39,000	--	4,800	1,000	3,100	6,400	<25	--	--	1.06	6.60	
6/10/2010	--		11.35	Sheen	28.97	--	--	--	--	--	--	--	--	--	--	--	
9/16/2010	--		11.54	0.02	28.80	--	--	--	--	--	--	--	--	--	--	--	
2/23/2011	--		10.80	0.10	29.60	--	--	--	--	--	--	--	--	--	--	--	bb
9/28/2011	--		11.48	0.20	28.99	--	--	--	--	--	--	--	--	--	--	--	
<b>3/8/2012</b>	--		<b>11.92</b>	<b>0.32</b>	<b>28.64</b>	--	--	--	--	--	--	--	--	--	--	--	
<b>QC-2</b>																	
10/8/1992	--	41.25	--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	1
12/31/1992	--		--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	1
4/21/1993	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--	l, n
7/7/1993	--		--	--	--	<50	--	<0.5	<0.5	<0.5	0.6	--	--	--	--	--	l, n

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Well ID and Date Monitored	P/NP	TOC Elevation (feet)	DTW (feet)	Product Thickness (feet)	Water Level Elevation (feet)	Concentrations in µg/L									DO (mg/L)	pH	Footnote
						GRO/TPHg	DRO/TPHd	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MtBE	TOG	HVOC			
<b>QC-2 Cont.</b>																	
9/21/1993	--	41.25	--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	1, n
12/23/1993	--		--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	1
4/7/1994	--		--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	1
7/6/1994	--		--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	1
10/7/1994	--		--	--	--	<50	--	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	1
1/27/1995	--		--	--	--	<50	--	<0.5	0.5	<0.5	<1	--	--	--	--	--	1
3/30/1995	--		--	--	--	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	1
6/20/1995	--		--	--	--	<50	--	<0.50	<0.50	<0.50	<1.0	--	--	--	--	--	1
10/3/1995	--		--	--	--	<50	--	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	1
12/6/1995	--		--	--	--	<50	--	<0.50	<0.50	<0.50	<1.0	<5.0	--	--	--	--	1
3/21/1996	--		--	--	--	<50	--	<0.5	<1	<1	<1	<10	--	--	--	--	1
6/21/1996	--		--	--	--	<50	--	<0.5	<1	<1	<1	<10	--	--	--	--	1

Symbols & Abbreviations:

--/--- = Not analyzed/applicable/measured/available

< = Not detected at or above specified laboratory reporting limit

DO = Dissolved oxygen

DTW = Depth to water in ft bgs

ft bgs = Feet below ground surface

GRO = Gasoline range organics, range C4-C12

GWE = Groundwater elevation in ft

mg/L = Milligrams per liter

MTBE = Methyl tert-butyl ether

ND = Not detected

NP = Well not purged prior to sampling

P = Well purged prior to sampling

TOC = Top of casing elevation in ft

TPH-g = Total petroleum hydrocarbons as gasoline

µg/L = Micrograms per liter

ANA = Anametrix, Inc.

PACE = Pace, Inc.

ATI = Analytical Technologies, Inc.

CEI = Ceimic Corporation

SPL = Southern Petroleum Laboratories

SEQ/SEQM= Sequoia Analytical/Sequoia Analytical - Morgan Hill (Laboratories)

SUP = Superior Analytical Laboratory

Footnotes:

a = Free product in well

c = Well destroyed during tank removal in November 1990

d = Methylene chloride

e = 1,2-Dichloroethane

f = Well inaccessible

g = Sample collected from MW-2 for TPH-d analysis received in laboratory 7 days after collection; sample exceeded EPA recommended holding time for TPH-d on a water matrix

h = Blind duplicate

i = TOC lowered

j = A copy of the documentation for this data is included in Appendix C of Alisto report 10-014-07-001

k = EPA Methods 8020/8260 used

l = Travel blank

n = A copy of the documentation for this data is included in the Blaine Tech Services, Inc. report 020308-DW-2. The data for samples taken on April 21, 1993, have been destroyed. No chromatograms could be located for the samples taken on: July 7, 1993, for well MW-2 and TB; September 21, 1993, for all wells MW-3, MW-4, MW-6, MW-7, MW-8, MW-9, the DUP and TB; December 23, 1993, for wells MW-2 and MW-3; and July 6, 1994, for wells MW-2, MW-4, MW-6, and MW-9

p = Well not sampled due to damage during site construction

q = Sheen in well

r = Well dry

s = The hydrocarbon result for GRO was partly due to individual peaks in the quantification range

t = MS and/or MSD were below the acceptance limits for MTBE. Matrix interference was suspected

u = Possible high bias for benzene due to CCV falling outside acceptance criteria

v = The sample concentration is greater than four times the spike concentration

w = Insufficient water to sample

x = Well surveyed 4/13/2009

y = Quantitation of unknown hydrocarbon(s) in sample based on gasoline

z = Free product not observed during initial gauging activities, but was observed following or during purge

aa = Strong Hydrocarbon Odor

bb = Not bailed, on site drum is full

cc = Sheen during purge

Notes:

GWE adjusted assuming a specific gravity of 0.75 for free product

Beginning in the fourth quarter 2003, the laboratory modified the reported analyte list. TPH-g has been changed to GRO. The resulting data may be impacted by the potential inclusion of non-TPHg analytes within the requested fuel range resulting in a higher concentration being reported

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 September 30, 2009. GRO analysis was changed to EPA method 8260B (C6-C12) for the time period October 1, 2009 through the present

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

**Table 2. Summary of Fuel Additives Analytical Data**  
**Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA**

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-1</b>									
<b>MW-2</b>									
9/21/1993	--	--	21.54	--	--	--	--	--	
4/7/1994	--	--	12.2	--	--	--	--	--	
10/7/1994	--	--	15.2	--	--	--	--	--	
10/3/1995	--	--	<5.0	--	--	--	--	--	
12/6/1995	--	--	46	--	--	--	--	--	
3/21/1996	--	--	<1.0	--	--	--	--	--	
6/21/1996	--	--	<10	--	--	--	--	--	
9/9/1996	--	--	<10	--	--	--	--	--	
12/19/1996	--	--	<10	--	--	--	--	--	
12/09/2003	<100	<20	24	<0.50	<0.50	<0.50	--	--	
03/09/2004	<100	<20	27	<0.50	<0.50	<0.50	<0.50	<0.50	
09/17/2004	<100	<20	21	<0.50	<0.50	<0.50	<0.50	<0.50	
9/5/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>MW-3</b>									
7/7/1993	--	--	12.68	--	--	--	--	--	
4/7/1994	--	--	18.2	--	--	--	--	--	
7/6/1994	--	--	5.54	--	--	--	--	--	
10/7/1994	--	--	31.4	--	--	--	--	--	
10/3/1995	--	--	6.7	--	--	--	--	--	
12/6/1995	--	--	53	--	--	--	--	--	
12/6/1995	--	--	64	--	--	--	--	--	
3/21/1996	--	--	<10	--	--	--	--	--	
6/21/1996	--	--	12	--	--	--	--	--	
9/9/1996	--	--	<50	--	--	--	--	--	
12/19/1996	--	--	<10	--	--	--	--	--	
3/17/1997	--	--	<10	--	--	--	--	--	
8/12/1997	--	--	10	--	--	--	--	--	
12/10/1997	--	--	<10	--	--	--	--	--	
3/12/1998	--	--	<10	--	--	--	--	--	

**Table 2. Summary of Fuel Additives Analytical Data**  
**Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA**

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-3 Cont.</b>									
3/12/1998	--	--	<10	--	--	--	--	--	
6/23/1998	--	--	<10	--	--	--	--	--	
3/31/1999	--	--	6.2	--	--	--	--	--	
8/25/1999	--	--	7.7	--	--	--	--	--	
3/9/2000	--	--	6.3	--	--	--	--	--	
3/8/2001	--	--	7.7	--	--	--	--	--	
3/8/2002	--	--	11.6	--	--	--	--	--	
3/11/2003	--	--	6.7	--	--	--	--	--	
12/09/2003	<100	<20	6.4	<0.50	<0.50	<0.50	--	--	
03/09/2004	<100	<20	6.9	<0.50	<0.50	<0.50	<0.50	<0.50	
03/07/2005	<100	<20	5.1	<0.50	<0.50	<0.50	<0.50	<0.50	
03/06/2006	<300	<20	6.9	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2007	<300	<20	5.4	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2008	<300	<10	4.2	<0.50	<0.50	<0.50	<0.50	<0.50	
3/4/2009	<300	<10	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
9/30/2009	<300	<10	6.8	<0.50	<0.50	<0.50	<0.50	<0.50	
3/23/2010	<100	<4.0	3.2	<0.50	<0.50	<0.50	<0.50	<0.50	
9/16/2010	<100	<4.0	5.9	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2011	--	--	0.58	--	--	--	--	--	
9/28/2011	--	--	3.2	--	--	--	--	--	
<b>3/8/2012</b>	<b>--</b>	<b>--</b>	<b>&lt;0.50</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	<b>--</b>	
<b>MW-4</b>									
7/7/1993	--	--	5.51	--	--	--	--	--	
12/23/1993	--	--	5.7	--	--	--	--	--	
4/7/1994	--	--	11.7	--	--	--	--	--	
10/7/1994	--	--	7.38	--	--	--	--	--	
10/3/1995	--	--	5	--	--	--	--	--	
12/6/1995	--	--	47	--	--	--	--	--	
3/21/1996	--	--	<10	--	--	--	--	--	
6/21/1996	--	--	<10	--	--	--	--	--	
9/9/1996	--	--	<10	--	--	--	--	--	

**Table 2. Summary of Fuel Additives Analytical Data**  
**Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA**

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-4 Cont.</b>									
12/19/1996	--	--	<10	--	--	--	--	--	
12/09/2003	<500	<100	130	<2.5	<2.5	2.7	--	--	
03/09/2004	<100	<20	35	<0.50	<0.50	<0.50	<0.50	<0.50	
09/17/2004	<500	<100	140	<2.5	<2.5	2.6	<2.5	<2.5	
03/07/2005	<100	<20	42	<0.50	<0.50	0.56	<0.50	<0.50	
09/06/2005	<150	<10	180	<0.50	<0.50	2.8	<0.50	<0.50	a
03/06/2006	<600	<40	110	<1.0	<1.0	1.4	<1.0	<1.0	
9/5/2006	<600	<40	190	<1.0	<1.0	1.7	<1.0	<1.0	
3/5/2007	<300	<20	13	<0.50	<0.50	<0.50	<0.50	<0.50	
9/7/2007	<300	<20	130	<0.50	<0.50	1.7	<0.50	<0.50	b (MTBE)
3/6/2008	<300	14	170	<0.50	<0.50	2.1	<0.50	<0.50	
9/3/2008	<3,000	<100	150	<5.0	<5.0	<5.0	<5.0	<5.0	
3/4/2009	<3,000	<100	110	<5.0	<5.0	<5.0	<5.0	<5.0	
9/30/2009	<1,200	<40	140	<2.0	<2.0	<2.0	<2.0	<2.0	
3/23/2010	<100	18	84	<0.50	<0.50	0.88	<0.50	<0.50	
9/16/2010	<100	8.0	72	<0.50	<0.50	0.82	<0.50	<0.50	
2/23/2011	--	--	55	--	--	--	--	--	
9/28/2011	--	--	62	--	--	--	--	--	
<b>3/8/2012</b>	--	--	<b>42</b>	--	--	--	--	--	
<b>MW-5</b>									
4/7/1994	--	--	2,002	--	--	--	--	--	
7/6/1994	--	--	1,141	--	--	--	--	--	
10/7/1994	--	--	37.7	--	--	--	--	--	
10/3/1995	--	--	320	--	--	--	--	--	
10/3/1995	--	--	330	--	--	--	--	--	
12/6/1995	--	--	600	--	--	--	--	--	
3/21/1996	--	--	<10	--	--	--	--	--	
3/21/1996	--	--	<10	--	--	--	--	--	
6/21/1996	--	--	<100	--	--	--	--	--	
6/21/1996	--	--	<50	--	--	--	--	--	
9/9/1996	--	--	<2500	--	--	--	--	--	

**Table 2. Summary of Fuel Additives Analytical Data**  
**Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA**

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-5 Cont.</b>									
9/9/1996	--	--	<2500	--	--	--	--	--	
12/19/1996	--	--	<500	--	--	--	--	--	
12/19/1996	--	--	<500	--	--	--	--	--	
3/17/1997	--	--	29	--	--	--	--	--	
3/17/1997	--	--	28	--	--	--	--	--	
8/12/1997	--	--	<1000	--	--	--	--	--	
8/12/1997	--	--	<500	--	--	--	--	--	
12/10/1997	--	--	500	--	--	--	--	--	
3/12/1998	--	--	<250	--	--	--	--	--	
6/23/1998	--	--	<500	--	--	--	--	--	
6/23/1998	--	--	<250	--	--	--	--	--	
8/25/1999	--	--	26	--	--	--	--	--	
3/9/2000	--	--	<5.0	--	--	--	--	--	
3/8/2002	--	--	34.3	--	--	--	--	--	
03/09/2004	<10,000	<2,000	<50	<50	<50	<50	96	<50	
03/06/2006	<30,000	<2,000	<50	60	<50	<50	<50	<50	
3/5/2007	<30,000	<2,000	<50	57	<50	<50	<50	<50	
3/23/2010	<1,000	<40	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
<b>MW-6</b>									
7/7/1993	--	--	28.96	--	--	--	--	--	
12/23/1993	--	--	13.95	--	--	--	--	--	
4/7/1994	--	--	35.1	--	--	--	--	--	
10/7/1994	--	--	24.3	--	--	--	--	--	
10/3/1995	--	--	66	--	--	--	--	--	
12/6/1995	--	--	45	--	--	--	--	--	
3/21/1996	--	--	41	--	--	--	--	--	
6/21/1996	--	--	<10	--	--	--	--	--	
9/9/1996	--	--	22/22	--	--	--	--	--	
12/19/1996	--	--	<10	--	--	--	--	--	
12/09/2003	<100	<20	12	<0.50	<0.50	<0.50	--	--	
03/09/2004	<100	<20	10	<0.50	<0.50	<0.50	0.58	<0.50	

**Table 2. Summary of Fuel Additives Analytical Data**  
**Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA**

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-6 Cont.</b>									
03/07/2005	<100	<20	5.8	<0.50	<0.50	<0.50	<0.50	<0.50	
03/06/2006	<300	<20	8.1	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2007	<300	<20	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2008	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
3/4/2009	<300	<10	2.8	<0.50	<0.50	<0.50	<0.50	<0.50	
9/30/2009	<300	<10	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
3/23/2010	<100	<4.0	1.0	<0.50	<0.50	<0.50	<0.50	<0.50	
9/16/2010	<100	<4.0	0.80	<0.50	<0.50	<0.50	<0.50	<0.50	
2/23/2011	--	--	<0.50	--	--	--	--	--	
9/28/2011	--	--	3.4	--	--	--	--	--	
3/8/2012	--	--	<b>0.58</b>	--	--	--	--	--	
<b>MW-7</b>									
7/7/1993	--	--	9.84	--	--	--	--	--	
7/7/1993	--	--	10.84	--	--	--	--	--	
12/23/1993	--	--	7.81	--	--	--	--	--	
4/7/1994	--	--	6.32	--	--	--	--	--	
7/6/1994	--	--	<5.0	--	--	--	--	--	
10/7/1994	--	--	<5.0	--	--	--	--	--	
10/3/1995	--	--	<5.0	--	--	--	--	--	
12/6/1995	--	--	<5.0	--	--	--	--	--	
3/21/1996	--	--	<10	--	--	--	--	--	
6/21/1996	--	--	<50	--	--	--	--	--	
9/9/1996	--	--	<50	--	--	--	--	--	
12/19/1996	--	--	<10	--	--	--	--	--	
12/09/2003	<100	<20	8.7	<0.50	<0.50	<0.50	--	--	
03/09/2004	<100	<20	6.9	<0.50	<0.50	<0.50	1.2	<0.50	
09/17/2004	<100	<20	7.0	<0.50	<0.50	<0.50	<0.50	<0.50	
03/07/2005	<100	<20	7.2	<0.50	<0.50	<0.50	<0.50	<0.50	
09/06/2005	<150	30	16	0.60	<0.50	<0.50	<0.50	<0.50	
03/06/2006	<300	<20	8.3	<0.50	<0.50	<0.50	<0.50	<0.50	
9/5/2006	<1,500	<100	12	<2.5	<2.5	<2.5	<2.5	<2.5	

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**Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA**

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-7 Cont.</b>									
3/5/2007	<600	<40	7.6	<1.0	<1.0	<1.0	<1.0	<1.0	
9/7/2007	<300	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2008	<600	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
9/3/2008	<300	17	5.5	<0.50	<0.50	<0.50	<0.50	<0.50	
3/4/2009	<300	12	3.4	<0.50	<0.50	<0.50	<0.50	<0.50	
9/30/2009	<300	<10	3.3	<0.50	<0.50	<0.50	<0.50	<0.50	
3/23/2010	<100	12	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/16/2010	<1,000	<40	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
2/23/2011	<250	<4.0	4.0	<0.50	<0.50	<0.50	<0.50	<0.50	
9/28/2011	<250	13	9.5	<0.50	<0.50	<0.50	<0.50	<0.50	
3/8/2012	<250	<4.0	2.3	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>MW-8</b>									
7/7/1993	--	--	<5.0	--	--	--	--	--	
12/23/1993	--	--	<5.0	--	--	--	--	--	
4/7/1994	--	--	<5.0	--	--	--	--	--	
7/6/1994	--	--	<5.0	--	--	--	--	--	
10/7/1994	--	--	<5.0	--	--	--	--	--	
12/6/1995	--	--	47	--	--	--	--	--	
6/21/1996	--	--	<10	--	--	--	--	--	
9/9/1996	--	--	<10	--	--	--	--	--	
12/19/1996	--	--	<10	--	--	--	--	--	
03/09/2004	<100	<20	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
03/07/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
03/06/2006	<300	<20	0.59	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/16/2010	<100	<4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>MW-9</b>									
7/7/1993	--	--	<5.0	--	--	--	--	--	

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Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-9 Cont.</b>									
12/23/1993	--	--	<5.0	--	--	--	--	--	
4/7/1994	--	--	<5.0	--	--	--	--	--	
10/7/1994	--	--	<5.0	--	--	--	--	--	
10/3/1995	--	--	<5.0	--	--	--	--	--	
12/6/1995	--	--	46	--	--	--	--	--	
3/21/1996	--	--	<10	--	--	--	--	--	
6/21/1996	--	--	<10	--	--	--	--	--	
9/9/1996	--	--	20/21	--	--	--	--	--	
12/19/1996	--	--	<10	--	--	--	--	--	
03/09/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
03/07/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
03/06/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/6/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/23/2010	<100	<4.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
<b>MW-10</b>									
10/28/2009	<10,000	<400	<50	<50	<50	<50	<50	<50	
3/23/2010	<20,000	<800	<100	<100	<100	<100	<100	<100	
2/23/2011	<50,000	<800	<100	<100	<100	<100	<100	<100	
<b>MW-11</b>									
9/30/2009	<6,000	<200	27	<10	<10	<10	<10	<10	
10/28/2009	<10,000	<400	<50	<50	<50	<50	<50	<50	
3/23/2010	<5,000	<200	<25	<25	<25	<25	<25	<25	
9/16/2010	<500	<20	11	<2.5	<2.5	<2.5	<2.5	<2.5	
2/23/2011	<2,500	<40	7.2	<5.0	<5.0	<5.0	<5.0	<5.0	
9/28/2011	<1,300	26	6.4	<2.5	<2.5	<2.5	<2.5	<2.5	
3/8/2012	<b>&lt;2,500</b>	<b>&lt;40</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	<b>&lt;5.0</b>	
<b>MW-12</b>									
10/28/2009	<10,000	<400	<50	<50	<50	<50	<50	<50	

**Table 2. Summary of Fuel Additives Analytical Data**  
**Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA**

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
<b>MW-12 Cont.</b>									
3/23/2010	<5,000	<200	<25	<25	<25	<25	<25	<25	
<b>QC-2</b>									
10/3/1995	--	--	<5.0	--	--	--	--	--	
12/6/1995	--	--	<5.0	--	--	--	--	--	
3/21/1996	--	--	<10	--	--	--	--	--	
6/21/1996	--	--	<10	--	--	--	--	--	

Symbols & Abbreviations:

TBA = tert-Butyl alcohol

MTBE = Methyl tert-butyl ether

DIPE = Diisopropyl ether

ETBE = Ethyl tert-butyl ether

TAME = tert-Amyl methyl ether

1,2-DCA = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

µg/L = micrograms per liter

< = Not detected at or above specified laboratory reporting limit

-- = Data not available, not analyzed, or not applicable

Footnotes:

a = MS and/or MSD below acceptance limits for MTBE. Matrix interference suspected

b = The sample concentration is greater than four times the spike concentration

Notes:

All fuel oxygenate compounds analyzed using EPA Method 8260B

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

**Table 3. Historical Groundwater Gradient - Direction and Magnitude****Former BP Station #11109, 4280 Foothill Blvd., Oakland, CA**

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
<b>3/8/2012</b>	<b>Northwest</b>	<b>0.06</b>

## Notes:

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

**Table 4**  
**Summary of LNAPL Removal**  
Former BP Service Station #11109  
4280 Foothill Boulevard, Oakland, California

Well ID	Date of Removal Event	DTW (feet)	Product Thickness (feet)	Product Removed (gallons)	Cumulative Product Removed (gallons)
MW-5	11/5/1992	--	--	0.200	0.200
MW-5	2/25/1993	--	--	0.100	0.300
MW-5	3/18/1993	--	--	0.100	0.400
MW-5	4/13/1993	--	--	0.100	0.500
MW-5	4/23/1993	--	--	13.0*	13.500
MW-5	5/24/1993	--	--	0.100	13.600
MW-5	10/14/1993	--	--	0.300	13.900
MW-5	11/10/1993	--	--	0.400	14.300
MW-5	12/23/1993	--	--	0.400	14.700
MW-5	8/12/1997	12.18	0.22	--	14.700
MW-5	12/10/1997	10.78	0.06	--	14.700
MW-5	3/12/1998	10.11	0.22	0.200	14.900
MW-5	6/23/1998	10.20	0.02	<0.050	14.900
MW-5	9/11/1998	11.61	0.04	0.100	15.000
MW-5	8/25/1999	14.69	0.38	0.070	15.070
MW-5	3/9/2000	14.83	0.60	0.400	15.470
MW-5	7/14/2003	12.72	0.03	0.019	15.489
MW-5	8/25/2003	14.04	0.00	0.000	15.489
MW-5	9/25/2003	14.38	0.08	0.052	15.542
MW-5	10/3/2003	12.15	0.06	0.040	15.582
MW-5	11/12/2003	12.74	0.19	0.120	15.702
MW-5	12/9/2003	11.44	0.03	0.040	15.742
MW-5	2/2/2004	6.47	0.04	0.030	15.772
MW-5	2/9/2004	10.61	0.04	0.030	15.802
MW-5	3/9/2004	7.91	--	--	15.802
MW-5	4/13/2004	9.68	0.28	0.200	16.002
MW-5	5/5/2004	11.93	Sheen	--	16.002
MW-5	6/3/2004	12.60	Sheen	--	16.002
MW-5	7/2/2004	11.11	0.10	0.060	16.062
MW-5	8/31/2004	12.80	0.05	0.132	16.194
MW-5	9/17/2004	12.13	0.15	--	16.194
MW-5	10/25/2004	10.66	0.26	0.170	16.364
MW-5	11/8/2004	9.98	0.02	0.020	16.384
MW-5	12/15/2004	8.76	0.01	0.010	16.394
MW-5	1/13/2005	7.12	--	--	16.394
MW-5	2/1/2005	8.10	0.01	0.007	16.400
MW-5	3/7/2005	8.62	0.02	0.013	16.413
MW-5	4/29/2005	9.39	--	--	16.413
MW-5	5/12/2005	7.51	0.01	0.007	16.420
MW-5	6/23/2005	7.70	--	--	16.420
MW-5	7/2/2005	10.81	--	--	16.420
MW-5	8/24/2005	10.53	--	--	16.420
MW-5	9/6/2005	11.16	0.18	0.119	16.539
MW-5	1/27/2006	9.02	0.02	0.013	16.433
MW-5	2/15/2006	8.38	0.02	0.013	16.446
MW-5	3/6/2006	8.60	Sheen	--	16.446

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**Summary of LNAPL Removal**  
Former BP Service Station #11109  
4280 Foothill Boulevard, Oakland, California

Well ID	Date of Removal Event	DTW (feet)	Product Thickness (feet)	Product Removed (gallons)	Cumulative Product Removed (gallons)
MW-5	4/21/2006	8.02	0.27	0.251	16.697
MW-5	5/30/2006	9.13	0.07	0.045	16.742
MW-5	6/27/2006	9.49	0.09	0.058	16.801
MW-5	7/31/2006	10.08	0.08	0.052	16.853
MW-5	8/28/2006	10.75	0.09	0.059	16.911
MW-5	9/5/2006	6.16	0.03	0.020	16.931
MW-5	10/1/2006	--	--	--	16.931
MW-5	11/1/2006	--	--	--	16.931
MW-5	12/1/2006	--	--	--	16.931
MW-5	1/1/2007	--	--	--	16.931
MW-5	2/1/2007	--	--	--	16.931
MW-5	3/5/2007	8.34	Sheen	--	16.931
MW-5	4/1/2007	--	--	--	16.931
MW-5	5/1/2007	--	--	--	16.931
MW-5	6/1/2007	--	--	--	16.931
MW-5	7/1/2007	--	--	--	16.931
MW-5	8/1/2007	--	--	--	16.931
MW-5	9/7/2007	15.15	0.15	--	16.931
MW-5	9/18/2007	15.42	0.02	4.00*	20.931
MW-5	10/17/2007	12.50	0.35	5.5*	26.431
MW-5	11/8/2007	13.20	0.40	5.0*	31.431
MW-5	12/12/2007	12.25	0.52	3.5*	34.931
MW-5	1/14/2008	10.30	0.49	5.0*	39.931
MW-5	2/27/2008	13.22	0.12	4.0*	43.931
MW-5	3/6/2008	12.90	0.14	3.0*	46.931
MW-5	4/1/2008	9.52	0.07	4.0*	50.931
MW-5	5/20/2008	8.68	0.07	7.0*	57.931
MW-5	6/18/2008	10.46	0.18	0.00	57.931
MW-5	7/16/2008	11.25	0.00	0.0375	57.968
MW-5	8/13/2008	--	--	2.125*	60.093
MW-5	9/3/2008	12.90	0.99	3.0*	63.093
MW-5	9/15/2008	12.75	0.15	4.0*	67.093
MW-5	10/15/2008	13.43	0.50	5.0*	72.093
MW-5	11/20/2008	13.55	0.63	2.625*	74.718
MW-5	12/18/2008	12.62	0.37	3.625*	78.343
MW-5	1/14/2009	12.43	0.11	4.0*	82.343
MW-5	2/17/2009	8.80	0.33	4.0*	86.343
MW-5	3/4/2009	8.45	0.16	4.0*	90.343
MW-5	4/8/2009	9.05	0.22	6.0*	96.343
MW-5	5/11/2009	9.10	0.32	8.0*	104.343
MW-5	6/16/2009	9.15	0.02	5.5*	109.843
MW-5	7/22/2009	9.33	0.12	6.0*	115.843
MW-5	8/6/2009	10.05	0.01	5.0*	120.843
MW-5	9/30/2009	10.55	0.06	8.0*	128.843
MW-5	10/28/2009	10.48	0.00	0.00	128.843
MW-5	11/13/2009	8.61	0.01	0.5*	129.343

**Table 4**  
**Summary of LNAPL Removal**  
Former BP Service Station #11109  
4280 Foothill Boulevard, Oakland, California

Well ID	Date of Removal Event	DTW (feet)	Product Thickness (feet)	Product Removed (gallons)	Cumulative Product Removed (gallons)
MW-5	12/11/2009	7.83	0.01	1.0*	130.343
MW-5	1/26/2010	6.43	0.02	1.5*	131.843
MW-5	2/24/2010	6.72	0.02	2.0*	133.843
MW-5	3/23/2010	7.10	0.00	0.00	133.843
MW-5	4/19/2010	7.53	Sheen	0.00	133.843
MW-5	5/18/2010	8.96	Sheen	0.00	133.843
MW-5	6/10/2010	8.26	0.06	2.0*	135.843
MW-5	7/27/2010	8.60	0.09	1.5*	137.343
MW-5	8/31/2010	8.99	0.01	0.00	137.343
MW-5	9/16/2010	9.14	0.04	0.00	137.343
MW-5	10/26/2010	9.40	0.05	2.0*	139.343
MW-5	11/15/2010	9.50	0.01	0.5*	139.843
MW-5	12/15/2011	6.52	0.00	0.00	139.843
MW-5	1/31/2011	9.31	0.01	0.5*	140.343
MW-5	2/23/2011	8.33	0.01	0.00	140.343
MW-5	3/18/2011	7.65	Sheen	0.00	140.343
MW-5	9/28/2011	10.46	0.06	0.00	140.343
<b>MW-5</b>	<b>3/8/2012</b>	<b>10.27</b>	<b>0.03</b>	<b>2.50</b>	<b>142.843</b>
MW-10	6/16/2009	8.60	0.01	2.5*	2.500
MW-10	7/22/2009	9.68	0.01	3.0*	5.500
MW-10	8/6/2009	9.48	0.00	0.00	5.500
MW-10	9/30/2009	9.69	0.01	3.0*	8.500
MW-10	10/28/2009	8.53	0.00	0.00	8.500
MW-10	11/13/2009	9.11	0.00	0.00	8.500
MW-10	12/11/2009	8.81	0.00	0.00	8.500
MW-10	1/26/2010	7.86	0.01	0.5*	9.000
MW-10	2/24/2010	7.28	0.00	0.00	9.000
MW-10	3/23/2010	7.70	0.00	0.00	9.000
MW-10	4/19/2010	8.10	0.00	0.00	9.000
MW-10	5/18/2010	8.83	0.00	0.00	9.000
MW-10	6/10/2010	8.93	0.01	2.0*	11.000
MW-10	7/27/2010	8.81	0.00	0.00	11.000
MW-10	8/31/2010	9.41	0.00	0.00	11.000
MW-10	9/16/2010	9.69	0.01	0.00	11.000
MW-10	10/26/2010	9.98	0.03	1.0*	12.000
MW-10	11/15/2010	10.15	0.00	0.00	12.000
MW-10	12/15/2010	8.71	0.00	0.00	12.000
MW-10	1/31/2011	9.05	0.00	0.00	12.000
MW-10	2/23/2011	7.99	0.00	0.00	12.000
MW-10	3/18/2011	8.10	0.00	0.00	12.000
MW-10	9/28/2011	10.36	0.29	0.00	12.000
<b>MW-10</b>	<b>3/8/2012</b>	<b>10.51</b>	<b>0.32</b>	<b>4.50</b>	<b>16.500</b>
MW-11	10/28/2009	8.00	0.00	0.00	0.000
MW-11	11/13/2009	9.24	0.00	0.00	0.000
MW-11	12/11/2009	9.06	0.00	0.00	0.000
MW-11	1/26/2010	6.98	0.00	0.00	0.000

**Table 4**  
**Summary of LNAPL Removal**  
Former BP Service Station #11109  
4280 Foothill Boulevard, Oakland, California

Well ID	Date of Removal Event	DTW (feet)	Product Thickness (feet)	Product Removed (gallons)	Cumulative Product Removed (gallons)
MW-11	2/24/2010	7.07	0.00	0.00	0.000
MW-11	3/23/2010	7.25	0.00	0.00	0.000
MW-11	4/19/2010	7.95	0.00	0.00	0.000
MW-11	5/18/2010	8.26	0.00	0.00	0.000
MW-11	6/10/2010	9.65	Sheen	2.0*	2.000
MW-11	7/27/2010	8.61	0.00	0.00	2.000
MW-11	8/31/2010	9.35	0.00	0.00	2.000
MW-11	9/16/2010	9.42	0.00	0.00	2.000
MW-11	10/26/2010	9.90	0.00	0.00	2.000
MW-11	11/15/2010	10.00	0.00	0.00	2.000
MW-11	12/15/2010	8.51	0.00	0.00	2.000
MW-11	1/31/2011	9.07	0.00	0.00	2.000
MW-11	2/23/2011	7.60	0.00	0.00	2.000
MW-11	3/18/2011	7.01	0.00	0.00	2.000
MW-11	9/28/2011	9.88	0.00	0.00	2.000
<b>MW-11</b>	<b>3/8/2012</b>	<b>9.71</b>	<b>0.00</b>	<b>0.00</b>	<b>2.000</b>
MW-12	9/30/2009	11.01	0.02	4.0*	4.000
MW-12	10/28/2009	10.40	0.00	0.00	4.000
MW-12	11/13/2009	10.13	0.00	0.00	4.000
MW-12	12/11/2009	10.22	0.00	0.00	4.000
MW-12	1/26/2010	8.67	0.00	0.00	4.000
MW-12	2/24/2010	10.21	0.00	0.00	4.000
MW-12	3/23/2010	11.16	Sheen	0.00	4.000
MW-12	4/19/2010	11.52	Sheen	0.5*	4.500
MW-12	5/18/2010	11.5	0.00	0.00	4.500
MW-12	6/10/2010	11.35	Sheen	1.0*	5.500
MW-12	7/27/2010	10.65	0.01	0.5*	6.000
MW-12	8/31/2010	10.71	0.10	1.00	7.000
MW-12	9/16/2010	11.54	0.02	0.00	7.000
MW-12	10/26/2010	11.35	0.02	1.0*	8.000
MW-12	11/15/2010	11.48	0.02	0.5*	8.500
MW-12	12/15/2010	12.78	0.00	0.00	8.500
MW-12	1/31/2011	11.45	0.01	0.5*	9.000
MW-12	2/23/2011	10.80	0.10	0.00	9.000
MW-12	3/18/2011	11.40	Sheen	0.00	9.000
MW-12	9/28/2011	11.48	0.20	0.00	9.000
<b>MW-12</b>	<b>3/8/2012</b>	<b>11.92</b>	<b>0.32</b>	<b>4.50</b>	<b>13.500</b>
<b>Free Product Removed this Quarter:</b>					<b>11.5</b>
<b>Total Free Product Removed:</b>					<b>174.84</b>

**ABBREVIATIONS & SYMBOLS:**

-- = Not available/applicable/measured/calculated  
\* = FP/water mixture

**NOTES:**

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information.

**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<sup>1</sup>. 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	$\pm 0.2^{\circ}\text{C}$ ( $\pm 0.36^{\circ}\text{F}$ )
pH	$\pm 0.1$ standard units
Conductivity	$\pm 3\%$
Dissolved oxygen	$\pm 10\%$
Oxidation reduction potential	$\pm 10 \text{ mV}$
Turbidity <sup>1</sup>	$\pm 10\%$ 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.

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<sup>1</sup> 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)<sup>2</sup>, 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<sup>1</sup>. 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)<sup>2</sup>, 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.

---

<sup>2</sup> 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.

**APPENDIX B**

**FIELD DATA SHEETS AND NON-HAZARDOUS WASTE DATA FORM**



Project: Arcadis 11109 Project No.: 04-88-646 Date: 3-8-12

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					0953			DRY	12.81			
MW - 3					1028			11.01	31.42			
MW - 4					1001			15.03	26.74			
MW - 5					1301	10.24	0.03	10.27	32.07			
MW - 6					0927			15.51	34.49			
MW - 7					1055			11.69	33.32			
MW - 8					1423			13.27	29.45			
MW - 9					1414			11.56	29.47			
MW - 10					1219	10.19	0.32	10.51	30.00			
MW - 11					1120			9.71	30.00			
MW - 12					1330	11.60	0.32	11.92	30.00			
* Device used to measure LNAPL thickness:					Bailer	Oil/Water Interface Meter			(circle one)			
If bailer used, note bailer dimensions (inches):					Entry Diameter				Chamber Diameter			

\* Device used to measure LNAPL thickness:

If bailer used, note bailer dimensions (inches):

Bailer

Entry Diameter

Oil/Water Interface Meter

Chamber Diameter

Signature:



Revision: 8/19/11

Project: Arcadis 11109 Project No.: 09-86-646 Date: 3-8-12

Field Representative: JR

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

Disp. Bailer       120V Pump       Flow Cell  
 Disp. Tubing       12V Pump      Peristaltic Pump      Other/ID#:

**WELL HEAD INTEGRITY** (cap, lock, vault, etc.)      Comments: \_\_\_\_\_

Good	Improvement Needed	(circle one)
------	--------------------	--------------

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

**PREDETERMINED WELL VOLUME**      **LOW-FLOW**

Casing Diameter   Unit Volume (gal/R) (circle one)	Previous Low-Flow Pulse Rate: _____ (cpm)
--	---

Total Well Depth (a): (ft) (m)

**b** Initial Depth to Water (b): \_\_\_\_\_ (ft)

$$\text{Pump In-take Depth} = b + (a-b)/2; \quad \text{ft}$$

Initial Depth to Water (b): 11.01 (ft) Maximum Allowable Drawdown = (a-b)/8: \_\_\_\_\_ (ft)

Water Column Height (WCH) = (a - b): 13.43 (ft) Water Column Volume (WCV) = WCH x Unit Volume: 13.43 (gal)

Comments: \_\_\_\_\_

\*Low-flow purge rate should be within range of instruments used but should not exceed 67.35 (gal) per minute.

Pump Depth (if pump used): \_\_\_\_\_ (ft) \_\_\_\_\_ □ exceed 0.25 gpm. Drawdown should not exceed Maximum Allowable Drawdown.

**GROUNDWATER STABILIZATION PARAMETER RECORD**

## GROUNDWATER STABILIZATION PARAMETER RECORD

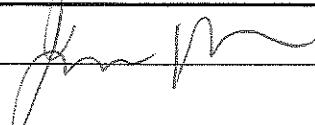
### Previous Stabilized Parameters

PURGE COMPLETION RECORD      Low Flow & Parameters Stable      3 Casing Volumes & Parameters Stable      5 Casing Volumes

Other: until stable

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS		
Parameter	Time	Measure		
Depth to Water at Sampling: _____ (ft)				
Sample Collected Via: <input checked="" type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing	DO (mg/L)	1032	3.10	
Disp. Pump Tubing Other:	Ferrous Iron (mg/L)			
Sample ID: NW-3 (3/8/12) Sample Collection Time: 1040 (24:00)	Redox Potential (mV)	1032	160	
Containers (#): 3 VOA ( <input checked="" type="checkbox"/> preserved or <input type="checkbox"/> unpreserved) Liter Amber	Alkalinity (mg/L)			
Other: _____	Other: _____			
Other: _____	Other: _____			

Signature:



Revision: 8/19/11

Project: Arcadis 11109 Project No.: 04-86-646 Date: 3-8-12

Field Representative: JR

Project No.: 09-88-646

Date: 3-8-12

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

PURGE EQUIPMENT D-1000P B-1000P E-1000P

Disp. Tubing      12V Pump      Peristaltic Pump      Other/ID#:

WELL HEAD INTEGRITY (cap, lock, vault, etc.)      Comments: metallic cover req. screw driver to open  
Good      Improvement Needed      (circle one)

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

Casing Diameter | Unit Volume (gal/R) (circle one)      Previous Low-Flow Purge Rate: \_\_\_\_\_ (gpm)

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other: \_\_\_\_\_ Total Well Depth (a): \_\_\_\_\_ (ft)  
~~4"~~ | (0.6) 6" | (1.50) 8" | (2.00) 12" | (3.81) " | ( )' Vertical Depth (b): \_\_\_\_\_ (ft)

Total Well Depth (a): **26.74** (ft)      Initial Depth to water (b): \_\_\_\_\_ (ft)

Initial Depth to Water (b): 15.03 (ft) Maximum Allowable Drawdown = (a-b)/8: \_\_\_\_\_ (ft)

Water Column Height (WCH) = (a + b): \_\_\_\_\_ (ft)      Low-Flow Purge Rate: \_\_\_\_\_ (gpm)

Water Column Volume (WCV) = WCH x Unit Volume: 1.44 (gal)      Comments: \_\_\_\_\_

\*Low-flow purge rate should be within range of instruments used but should not exceed 100 ml/min.

Pump Depth (if pump used): \_\_\_\_\_ (ft) \_\_\_\_\_

GROUNDWATER STABILIZATION PARAMETER RECORD

## GROUNDWATER STABILIZATION PARAMETER RECORD

Previous Stabilized Parameters

**PURGE COMPLETION RECORD**      Low Flow & Parameters Stable      3 Casing Volumes & Parameters Stable      5 Casing Volumes

Other: until stable

SAMPLE COLLECTION RECORD		GEOCHEMICAL PARAMETERS		
Parameter	Time	Measure		
Depth to Water at Sampling: _____ (ft)				
Sample Collected Via: <input checked="" type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing	DO (mg/L)	1005	0.8	
<input type="checkbox"/> Disp. Pump Tubing <input checked="" type="checkbox"/> Other:	Ferrous Iron (mg/L)			
Sample ID: MW-4(3/8/12) Sample Collection Time: 1015 (24:00)	Redox Potential (mV)	1005	168	
Containers (#): 3 VOA ( <input checked="" type="checkbox"/> preserved or <input type="checkbox"/> unpreserved) <input type="checkbox"/> Liter Amber	Alkalinity (mg/L)			
<input type="checkbox"/> Other: _____	Other:			
<input type="checkbox"/> Other: _____	Other:			

**Signature:**

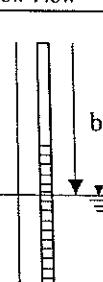


Revision: 8/19/11

Project: Arzadis 11109 Project No.: 69-88-006 Date: 3/5/12

Field Representative: JR

Well ID: MW-5 Start Time: End Time: Total Time (minutes):

PURGE EQUIPMENT	<input checked="" type="checkbox"/> Disp. Bailer	<input type="checkbox"/> 120V Pump	<input type="checkbox"/> Flow Cell
<input type="checkbox"/> Disp. Tubing	<input type="checkbox"/> 12V Pump	<input type="checkbox"/> Peristaltic Pump	Other/ID#:
WELL HEAD INTEGRITY (cap, lock, vault, etc.)		Comments:	
<input checked="" type="checkbox"/> Good	Improvement Needed (circle one)		
PURGING/SAMPLING METHOD		Predetermined Well Volume	Low-Flow Other: (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: _____ (gpm)			
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: _____ (gpm)*			
Comments: _____			

PURGE COMPLETION RECORD		<input type="checkbox"/> Low Flow & Parameters Stable	<input type="checkbox"/> 3 Casing Volumes & Parameters Stable	<input type="checkbox"/> 5 Casing Volumes
Other:				
SAMPLE COLLECTION RECORD			GEOCHEMICAL PARAMETERS	
Depth to Water at Sampling:	(ft)		Parameter	Time
Sample Collected Via: <input checked="" type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing			DO (mg/L)	
<input type="checkbox"/> Disp. Pump Tubing Other:			Ferrous Iron (mg/L)	
Sample ID: _____ Sample Collection Time: _____ (24:00)			Redox Potential (mV)	
Containers (#): <input type="checkbox"/> VOA ( <input type="checkbox"/> preserved or <input type="checkbox"/> unpreserved) <input type="checkbox"/> Liter Amber			Alkalinity (mg/L)	
<input type="checkbox"/> Other: _____ Other: _____			Other:	
<input type="checkbox"/> Other: _____ Other: _____			Other:	

Signature:

Revision: 8/19/11



## GROUNDWATER SAMPLING DATA SHEET

Page 6 of 9

Project: Aracatis 11109 Project No.: 09-88-646 Date: 3/8/12  
Field Representative: JR  
Well ID: 111-7

PURGE EQUIPMENT	<input checked="" type="checkbox"/> Disp. Bailer	<input type="checkbox"/> 120V Pump	<input type="checkbox"/> Flow Cell
Disp. Tubing	<input type="checkbox"/> 12V Pump	<input type="checkbox"/> Peristaltic Pump	Other/ID#:
WELL HEAD INTEGRITY (cap, lock, vault, etc.)		Comments: _____	
<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Improvement Needed	(circle one)	
PURGING/SAMPLING METHOD		Predetermined Well Volume	Low-Flow Other: _____ (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):		33.32 (ft)	
Initial Depth to Water (b):		11.69 (ft)	
Water Column Height (WCH) = (a - b):		21.63 (ft)	
Water Column Volume (WCV) = WCH x Unit Volume:		32.44 (gal)	
Three Casing Volumes = WCV x 3:		97.32 (gal)	
Five Casing Volumes = WCV x 5:		162.20 (gal)	
Pump Depth (if pump used):		(ft)	
LOW-FLOW			
Previous Low-Flow Purge Rate: _____ (gpm)			
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: _____ (gpm)*			
Comments: _____			

### Previous Stabilized Parameters

PURGE COMPLETION RECORD		<input type="checkbox"/> Low Flow & Parameters Stable	<input type="checkbox"/> 3 Casing Volumes & Parameters Stable	<input type="checkbox"/> 5 Casing Volumes
		<del>X Other: Until stable</del>		
SAMPLE COLLECTION RECORD			GEOCHEMICAL PARAMETERS	
Depth to Water at Sampling: _____ (ft)			Parameter	Time
Sample Collected Via: <input checked="" type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing <input type="checkbox"/> Disp. Pump Tubing <input type="checkbox"/> Other:			DO (mg/L)	1100
			Ferrous Iron (mg/L)	0.87
Sample ID: MW-7 (3/8/12) Sample Collection Time: 1110 (24:00)			Redox Potential (mV)	1100
Containers (#): 3 VOA ( <input checked="" type="checkbox"/> preserved or <input type="checkbox"/> unpreserved) <input type="checkbox"/> Liter Amber <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____			Alkalinity (mg/L)	158
			Other:	
			Other:	

Signature:

Revision: 8/19/11

Project: Aracdis 11109 Project No.: 04-88-646 Date: 3/8/12

Field Representative: JR

Well ID: MW-10 Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_ Total Time (minutes): \_\_\_\_\_

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

**WELL HEAD INTEGRITY (cap, lock, vault, etc.)**      **Comments:**

Good      Improvement Needed      *(circle one)*

PURGING/SAMPLING METHOD	Predetermined Well Volume	Low-Flow	Other:	(circle one)
<b>PREDETERMINED WELL VOLUME</b>				
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)
				
<b>LOW-FLOW</b>				
Previous Low-Flow Purge Rate:				(gpm)
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:				(gpm)
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

### Previous Stabilized Parameters

## SAMPLE COLLECTION RECORD

Depth to Water at Sampling:	(ft)	Parameter	Time	Measurement
Sample Collected Via:	<input type="checkbox"/> Disp. Bailer <input type="checkbox"/> Dedicated Pump Tubing	DO (mg/L)		
<input type="checkbox"/> Disp. Pump Tubing    Other:		Ferrous Iron (mg/L)		
Sample ID:	Sample Collection Time: (24:00)	Redox Potential (mV)		
Containers (#):	<input type="checkbox"/> VOA ( <input type="checkbox"/> preserved or <input type="checkbox"/> unpreserved) <input type="checkbox"/> Liter Amber <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____ <input type="checkbox"/> Other: _____	Alkalinity (mg/L)		
		Other:		
		Other:		

Signature:

Revision: 8/19/11



## GROUNDWATER SAMPLING DATA SHEET

Page 9 of 9

Project: ArCAD 5 11169 Project No.: 09-88-646 Date: 3/8/12  
Field Representative: JR  
Well ID: MW-12 Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_ Total Time (minutes): \_\_\_\_\_

PURGE EQUIPMENT	<input checked="" type="checkbox"/> Disp. Bailer	<input type="checkbox"/> 120V Pump	<input type="checkbox"/> Flow Cell
<input type="checkbox"/> Disp. Tubing	<input type="checkbox"/> 12V Pump	<input type="checkbox"/> Peristaltic Pump	Other/ID#:
WELL HEAD INTEGRITY (cap, lock, vault, etc.)		Comments: _____	
<input checked="" type="checkbox"/> Good	Improvement Needed	(circle one)	
PURGING/SAMPLING METHOD		Predetermined Well Volume	Low-Flow Other: _____ (circle one)
<b>PREDETERMINED WELL VOLUME</b>			
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)	
			
<b>LOW-FLOW</b>			
Previous Low-Flow Purge Rate: _____ (gpm)			
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: _____ (gpm)*			
Comments: _____			

## GROUNDWATER STABILIZATION PARAMETER RECORD

### Previous Stabilized Parameters

## PURGE COMPLETION RECORD

Low Flow & Parameters Stable

#### Others:

### 3 Casing Volumes & Parameters Stable

*J. Geod. Sci.* 2011, 11(1)

**SAMPLE COLLECTION RECORD**

## GEOCHEMICAL PARAMETERS

Depth to Water at Sampling:

Sample Collected Via:  Disp. Bailer  Dedicated Pump Tubing

Disp. Pump tubing      Other:

Sample ID: \_\_\_\_\_ Sample Collection Time: \_\_\_\_\_ (

Containers (#): \_\_\_\_ VOA (\_\_\_\_ preserved or \_\_\_\_

Other: \_\_\_\_\_  Other: \_\_\_\_\_

**Other:** \_\_\_\_\_

...  
b

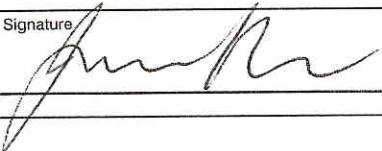
Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature:

*[Handwritten signature]*

NO. 684589

## NON-HAZARDOUS WASTE DATA FORM

		BESI #
Generator's Name and Mailing Address <b>BP WEST COAST PRODUCTS, LLC</b> P.O. BOX 80249 RANCHO SANTA MARGARITA, CA 92688		Generator's Site Address (if different than mailing address) <b>FORMER ARCO 11109</b> 4280 FOOTHILL BLVD OAKLAND, CA 94601
Generator's Phone: <b>949-460-5200</b> Container type removed from site: <input type="checkbox"/> Drums <input checked="" type="checkbox"/> Vacuum Truck <input type="checkbox"/> Roll-off Truck <input type="checkbox"/> Dump Truck <input type="checkbox"/> Other _____		Container type transported to receiving facility: <input type="checkbox"/> Drums <input type="checkbox"/> Vacuum Truck <input type="checkbox"/> Roll-off Truck <input type="checkbox"/> Dump Truck <input type="checkbox"/> Other _____
Quantity <b>169</b>		Quantity _____ Volume _____
WASTE DESCRIPTION <b>NON-HAZARDOUS WATER</b>		GENERATING PROCESS <b>WELL PURGING / DECON WATER</b>
COMPONENTS OF WASTE 1. <b>WATER</b> 99-100%		COMPONENTS OF WASTE 3. _____
2. <b>TPH</b> <1%		4. _____
Waste Profile _____		PROPERTIES: pH <b>7-10</b> <input type="checkbox"/> SOLID <input checked="" type="checkbox"/> LIQUID <input type="checkbox"/> SLUDGE <input type="checkbox"/> SLURRY <input type="checkbox"/> OTHER _____
HANDLING INSTRUCTIONS: <b>WEAR ALL APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.</b>		
Generator Printed/Typed Name <b>Emily Leamer</b> On behalf of BP West Coast Products, LLC		Signature  Month Day Year
The Generator certifies that the waste as described is 100% non-hazardous		
Transporter 1 Company Name <b>Broadbent</b>		Phone# _____
Transporter 1 Printed/Typed Name <b>James Ramos</b>		Signature  Month Day Year <b>3 23 12</b>
Transporter Acknowledgment of Receipt of Materials		
Transporter 2 Company Name		Phone# _____
Transporter 2 Printed/Typed Name		Signature _____ Month Day Year
Transporter Acknowledgment of Receipt of Materials		
Receiving Facility Name and Site Address <b>INSTRAT, INC.</b> 1105 AIRPORT RD. RIO VISTA, CA 94571		Phone# <b>530-753-1829</b>
Printed/Typed Name		Signature _____ Month Day Year
Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.		

**APPENDIX C**

**LABORATORY REPORT  
AND CHAIN-OF-CUSTODY DOCUMENTATION**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica San Francisco

1220 Quarry Lane

Pleasanton, CA 94566

Tel: (925)484-1919

TestAmerica Job ID: 720-40828-1

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:

3/14/2012 4:37:10 PM

Dimple Sharma

Project Manager I

dimple.sharma@testamericainc.com

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Results relate only to the items tested and the sample(s) as received by the laboratory.

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## Definitions/Glossary

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

TestAmerica Job ID: 720-40828-1

### Qualifiers

#### GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits

### 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
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## Case Narrative

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

TestAmerica Job ID: 720-40828-1

### Job ID: 720-40828-1

Laboratory: TestAmerica San Francisco

#### Narrative

##### Job Narrative 720-40828-1

#### Comments

No additional comments.

#### Receipt

All samples were received in good condition within temperature requirements.

#### GC/MS VOA

Method 8260B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for batch 109416 exceeded control limits for the following analyte: MTBE. This analyte was biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No other analytical or quality issues were noted.

## Detection Summary

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

TestAmerica Job ID: 720-40828-1

**Client Sample ID: MW-3 (3/8/12)** **Lab Sample ID: 720-40828-1**

No Detections

**Client Sample ID: MW-4 (3/8/12)** **Lab Sample ID: 720-40828-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	42		0.50		ug/L	1		8260B/CA_LUFTM	Total/NA
Gasoline Range Organics (GRO) -C6-C12	120		50		ug/L	1		8260B/CA_LUFTM	Total/NA

**Client Sample ID: MW-6 (3/8/12)** **Lab Sample ID: 720-40828-3**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.58		0.50		ug/L	1		8260B/CA_LUFTM	Total/NA

**Client Sample ID: MW-7 (3/8/12)** **Lab Sample ID: 720-40828-4**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	2.3		0.50		ug/L	1		8260B/CA_LUFTM	Total/NA
Benzene	1.4		0.50		ug/L	1		8260B/CA_LUFTM	Total/NA
Gasoline Range Organics (GRO) -C6-C12	550		50		ug/L	1		8260B/CA_LUFTM	Total/NA

**Client Sample ID: MW-11 (3/8/12)** **Lab Sample ID: 720-40828-5**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	280		5.0		ug/L	10		8260B/CA_LUFTM	Total/NA
Ethylbenzene	250		5.0		ug/L	10		8260B/CA_LUFTM	Total/NA
Toluene	170		5.0		ug/L	10		8260B/CA_LUFTM	Total/NA
Xylenes, Total	380		10		ug/L	10		8260B/CA_LUFTM	Total/NA
Gasoline Range Organics (GRO) -C6-C12	5000		500		ug/L	10		8260B/CA_LUFTM	Total/NA

# Client Sample Results

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

TestAmerica Job ID: 720-40828-1

**Client Sample ID: MW-3 (3/8/12)**

**Lab Sample ID: 720-40828-1**

**Matrix: Water**

Date Collected: 03/08/12 10:40

Date Received: 03/08/12 18:50

## 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			03/09/12 13:43	1
<hr/>									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	101		67 - 130					03/09/12 13:43	1
1,2-Dichloroethane-d4 (Surr)	106		75 - 138					03/09/12 13:43	1
Toluene-d8 (Surr)	99		70 - 130					03/09/12 13:43	1

# Client Sample Results

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

TestAmerica Job ID: 720-40828-1

**Client Sample ID: MW-4 (3/8/12)**

**Lab Sample ID: 720-40828-2**

**Matrix: Water**

Date Collected: 03/08/12 10:15  
Date Received: 03/08/12 18:50

**Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	42		0.50		ug/L			03/12/12 17:57	1
Gasoline Range Organics (GRO) -C6-C12	120		50		ug/L			03/09/12 14:12	1
<hr/>									
<b>Surrogate</b>									
4-Bromofluorobenzene	105		67 - 130				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99		67 - 130					03/09/12 14:12	1
1,2-Dichloroethane-d4 (Surr)	106		75 - 138					03/12/12 17:57	1
1,2-Dichloroethane-d4 (Surr)	110		75 - 138					03/09/12 14:12	1
Toluene-d8 (Surr)	99		70 - 130					03/12/12 17:57	1
Toluene-d8 (Surr)	100		70 - 130					03/09/12 14:12	1
								03/12/12 17:57	1

# Client Sample Results

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

TestAmerica Job ID: 720-40828-1

**Client Sample ID: MW-6 (3/8/12)**

**Lab Sample ID: 720-40828-3**

**Matrix: Water**

Date Collected: 03/08/12 09:45

Date Received: 03/08/12 18:50

**Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	0.58		0.50		ug/L			03/12/12 17:28	1
<hr/>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	99		67 - 130					03/09/12 14:42	1
4-Bromofluorobenzene	96		67 - 130					03/12/12 17:28	1
1,2-Dichloroethane-d4 (Surr)	108		75 - 138					03/09/12 14:42	1
1,2-Dichloroethane-d4 (Surr)	111		75 - 138					03/12/12 17:28	1
Toluene-d8 (Surr)	98		70 - 130					03/09/12 14:42	1
Toluene-d8 (Surr)	96		70 - 130					03/12/12 17:28	1

# Client Sample Results

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

TestAmerica Job ID: 720-40828-1

**Client Sample ID: MW-7 (3/8/12)**

**Lab Sample ID: 720-40828-4**

**Matrix: Water**

Date Collected: 03/08/12 11:10  
Date Received: 03/08/12 18:50

**Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	2.3		0.50		ug/L		03/09/12 23:37		1
Benzene	1.4		0.50		ug/L		03/09/12 23:37		1
EDB	ND		0.50		ug/L		03/09/12 23:37		1
1,2-DCA	ND		0.50		ug/L		03/09/12 23:37		1
Ethylbenzene	ND		0.50		ug/L		03/09/12 23:37		1
Toluene	ND		0.50		ug/L		03/09/12 23:37		1
Xylenes, Total	ND		1.0		ug/L		03/09/12 23:37		1
<b>Gasoline Range Organics (GRO) -C6-C12</b>	<b>550</b>		50		ug/L		03/09/12 23:37		1
TBA	ND		4.0		ug/L		03/09/12 23:37		1
Ethanol	ND		250		ug/L		03/09/12 23:37		1
DIPE	ND		0.50		ug/L		03/09/12 23:37		1
TAME	ND		0.50		ug/L		03/09/12 23:37		1
Ethyl t-butyl ether	ND		0.50		ug/L		03/09/12 23:37		1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>	
4-Bromofluorobenzene	105		67 - 130				03/09/12 23:37		1
1,2-Dichloroethane-d4 (Surr)	110		75 - 138				03/09/12 23:37		1
Toluene-d8 (Surr)	104		70 - 130				03/09/12 23:37		1

# Client Sample Results

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

TestAmerica Job ID: 720-40828-1

**Client Sample ID: MW-11 (3/8/12)**

**Lab Sample ID: 720-40828-5**

**Matrix: Water**

Date Collected: 03/08/12 11:40

Date Received: 03/08/12 18:50

**Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		5.0		ug/L			03/10/12 14:50	10
Benzene	280		5.0		ug/L			03/10/12 14:50	10
EDB	ND		5.0		ug/L			03/10/12 14:50	10
1,2-DCA	ND		5.0		ug/L			03/10/12 14:50	10
Ethylbenzene	250		5.0		ug/L			03/10/12 14:50	10
Toluene	170		5.0		ug/L			03/10/12 14:50	10
Xylenes, Total	380		10		ug/L			03/10/12 14:50	10
Gasoline Range Organics (GRO) -C6-C12	5000		500		ug/L			03/10/12 14:50	10
TBA	ND		40		ug/L			03/10/12 14:50	10
Ethanol	ND		2500		ug/L			03/10/12 14:50	10
DIPE	ND		5.0		ug/L			03/10/12 14:50	10
TAME	ND		5.0		ug/L			03/10/12 14:50	10
Ethyl t-butyl ether	ND		5.0		ug/L			03/10/12 14:50	10
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene	99		67 - 130					03/10/12 14:50	10
1,2-Dichloroethane-d4 (Surr)	91		75 - 138					03/10/12 14:50	10
Toluene-d8 (Surr)	100		70 - 130					03/10/12 14:50	10

# QC Sample Results

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

TestAmerica Job ID: 720-40828-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS

**Lab Sample ID:** MB 720-109416/6

**Matrix:** Water

**Analysis Batch:** 109416

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

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methyl tert-butyl ether	ND		0.50		ug/L			03/09/12 09:29	1
Benzene	ND		0.50		ug/L			03/09/12 09:29	1
Ethylbenzene	ND		0.50		ug/L			03/09/12 09:29	1
Toluene	ND		0.50		ug/L			03/09/12 09:29	1
Xylenes, Total	ND		1.0		ug/L			03/09/12 09:29	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			03/09/12 09:29	1
Surrogate	MB		Limits				Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
4-Bromofluorobenzene	99		67 - 130					03/09/12 09:29	1
1,2-Dichloroethane-d4 (Surr)	107		75 - 138					03/09/12 09:29	1
Toluene-d8 (Surr)	97		70 - 130					03/09/12 09:29	1

**Lab Sample ID:** LCS 720-109416/7

**Matrix:** Water

**Analysis Batch:** 109416

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

Analyte	Spike		Result	LCS Qualifier	Unit	D	%Rec	Limits
	Added							
Methyl tert-butyl ether	25.0		30.3		ug/L		121	62 - 130
Benzene	25.0		28.5		ug/L		114	79 - 130
Ethylbenzene	25.0		28.2		ug/L		113	80 - 120
Toluene	25.0		27.4		ug/L		110	78 - 120
m-Xylene & p-Xylene	50.0		56.8		ug/L		114	70 - 142
o-Xylene	25.0		29.2		ug/L		117	70 - 130
Surrogate	LCS		Limits					
	%Recovery	Qualifier						
4-Bromofluorobenzene	101		67 - 130					
1,2-Dichloroethane-d4 (Surr)	101		75 - 138					
Toluene-d8 (Surr)	99		70 - 130					

**Lab Sample ID:** LCS 720-109416/9

**Matrix:** Water

**Analysis Batch:** 109416

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

Analyte	Spike		Result	LCS Qualifier	Unit	D	%Rec	Limits
	Added							
Gasoline Range Organics (GRO) -C6-C12	500		475		ug/L		95	58 - 120
Surrogate	LCS		Limits					
	%Recovery	Qualifier						
4-Bromofluorobenzene	102		67 - 130					
1,2-Dichloroethane-d4 (Surr)	104		75 - 138					
Toluene-d8 (Surr)	99		70 - 130					

# QC Sample Results

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

TestAmerica Job ID: 720-40828-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

**Lab Sample ID: LCSD 720-109416/10**

**Matrix: Water**

**Analysis Batch: 109416**

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

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec.	RPD	Limit
		Result	Qualifier					
Gasoline Range Organics (GRO) -C6-C12	500	459		ug/L	92	58 - 120	3	20

**Surrogate**      **LCSD**      **LCSD**

	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	104		67 - 130
1,2-Dichloroethane-d4 (Surr)	106		75 - 138
Toluene-d8 (Surr)	99		70 - 130

**Lab Sample ID: LCSD 720-109416/8**

**Matrix: Water**

**Analysis Batch: 109416**

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

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec.	RPD	Limit
		Result	Qualifier					
Methyl tert-butyl ether	25.0	33.5	*	ug/L	134	62 - 130	10	20
Benzene	25.0	29.7		ug/L	119	79 - 130	4	20
Ethylbenzene	25.0	29.0		ug/L	116	80 - 120	3	20
Toluene	25.0	28.3		ug/L	113	78 - 120	3	20
m-Xylene & p-Xylene	50.0	58.4		ug/L	117	70 - 142	3	20
o-Xylene	25.0	30.4		ug/L	122	70 - 130	4	20

**Surrogate**      **LCSD**      **LCSD**

	%Recovery	Qualifier	Limits
4-Bromofluorobenzene	103		67 - 130
1,2-Dichloroethane-d4 (Surr)	104		75 - 138
Toluene-d8 (Surr)	99		70 - 130

**Lab Sample ID: MB 720-109445/4**

**Matrix: Water**

**Analysis Batch: 109445**

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

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methyl tert-butyl ether	ND		0.50		ug/L		03/09/12 13:48		1
Benzene	ND		0.50		ug/L		03/09/12 13:48		1
EDB	ND		0.50		ug/L		03/09/12 13:48		1
1,2-DCA	ND		0.50		ug/L		03/09/12 13:48		1
Ethylbenzene	ND		0.50		ug/L		03/09/12 13:48		1
Toluene	ND		0.50		ug/L		03/09/12 13:48		1
Xylenes, Total	ND		1.0		ug/L		03/09/12 13:48		1
Gasoline Range Organics (GRO)	ND		50		ug/L		03/09/12 13:48		1
-C6-C12									
TBA	ND		4.0		ug/L		03/09/12 13:48		1
Ethanol	ND		250		ug/L		03/09/12 13:48		1
DIPE	ND		0.50		ug/L		03/09/12 13:48		1
TAME	ND		0.50		ug/L		03/09/12 13:48		1
Ethyl t-butyl ether	ND		0.50		ug/L		03/09/12 13:48		1

**Surrogate**      **MB**      **MB**

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene	96		67 - 130		03/09/12 13:48	1
1,2-Dichloroethane-d4 (Surr)	97		75 - 138		03/09/12 13:48	1
Toluene-d8 (Surr)	97		70 - 130		03/09/12 13:48	1

# QC Sample Results

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

TestAmerica Job ID: 720-40828-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

**Lab Sample ID: LCS 720-109445/5**

**Matrix: Water**

**Analysis Batch: 109445**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				
Methyl tert-butyl ether	25.0	27.4		ug/L	110	62 - 130	
Benzene	25.0	26.1		ug/L	104	79 - 130	
EDB	25.0	28.3		ug/L	113	70 - 130	
1,2-DCA	25.0	24.3		ug/L	97	61 - 132	
Ethylbenzene	25.0	25.3		ug/L	101	80 - 120	
Toluene	25.0	25.5		ug/L	102	78 - 120	
m-Xylene & p-Xylene	50.0	53.2		ug/L	106	70 - 142	
o-Xylene	25.0	26.7		ug/L	107	70 - 130	
TBA	500	508		ug/L	102	70 - 130	
Ethanol	500	496		ug/L	99	31 - 216	
DIPE	25.0	26.3		ug/L	105	69 - 134	
TAME	25.0	29.7		ug/L	119	79 - 130	
Ethyl t-butyl ether	25.0	26.1		ug/L	104	70 - 130	
<b>Surrogate</b>		<b>LCS</b>	<b>LCS</b>				
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			
4-Bromofluorobenzene		99		67 - 130			
1,2-Dichloroethane-d4 (Surr)		92		75 - 138			
Toluene-d8 (Surr)		101		70 - 130			

**Lab Sample ID: LCS 720-109445/7**

**Matrix: Water**

**Analysis Batch: 109445**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				
Gasoline Range Organics (GRO) -C6-C12	500	500		ug/L	100	58 - 120	
<b>Surrogate</b>		<b>LCS</b>	<b>LCS</b>				
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			
4-Bromofluorobenzene		98		67 - 130			
1,2-Dichloroethane-d4 (Surr)		91		75 - 138			
Toluene-d8 (Surr)		99		70 - 130			

**Lab Sample ID: LCSD 720-109445/6**

**Matrix: Water**

**Analysis Batch: 109445**

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD
	Added	Result	Qualifier					
Methyl tert-butyl ether	25.0	28.9		ug/L	116	62 - 130	5	20
Benzene	25.0	26.9		ug/L	108	79 - 130	3	20
EDB	25.0	29.4		ug/L	118	70 - 130	4	20
1,2-DCA	25.0	24.7		ug/L	99	61 - 132	2	20
Ethylbenzene	25.0	25.4		ug/L	102	80 - 120	0	20
Toluene	25.0	25.9		ug/L	104	78 - 120	2	20
m-Xylene & p-Xylene	50.0	53.2		ug/L	106	70 - 142	0	20
o-Xylene	25.0	26.4		ug/L	106	70 - 130	1	20
TBA	500	512		ug/L	102	70 - 130	1	20
Ethanol	500	510		ug/L	102	31 - 216	3	30
DIPE	25.0	27.4		ug/L	110	69 - 134	4	20
TAME	25.0	31.1		ug/L	124	79 - 130	5	20

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

# QC Sample Results

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

TestAmerica Job ID: 720-40828-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

**Lab Sample ID: LCSD 720-109445/6**

**Matrix: Water**

**Analysis Batch: 109445**

Analyte	Spike		LCSD Result	LCSD Qualifier	Unit	D	%Rec.		RPD	RPD Limit
	Added	%					%Rec	Limits		
Ethyl t-butyl ether	25.0		26.9		ug/L	108		70 - 130	3	20
<b>Surrogate</b>										
4-Bromofluorobenzene	96		67 - 130							
1,2-Dichloroethane-d4 (Surr)	92		75 - 138							
Toluene-d8 (Surr)	101		70 - 130							

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Lab Sample ID: LCSD 720-109445/8**

**Matrix: Water**

**Analysis Batch: 109445**

Analyte	Spike		LCSD Result	LCSD Qualifier	Unit	D	%Rec.		RPD	RPD Limit
	Added	%					%Rec	Limits		
Gasoline Range Organics (GRO) -C6-C12	500		491		ug/L	98		58 - 120	2	20
<b>Surrogate</b>										
4-Bromofluorobenzene	97		67 - 130							
1,2-Dichloroethane-d4 (Surr)	91		75 - 138							
Toluene-d8 (Surr)	99		70 - 130							

**Lab Sample ID: MB 720-109494/4**

**Matrix: Water**

**Analysis Batch: 109494**

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methyl tert-butyl ether	ND		0.50		ug/L			03/10/12 11:58	1
Benzene	ND		0.50		ug/L			03/10/12 11:58	1
EDB	ND		0.50		ug/L			03/10/12 11:58	1
1,2-DCA	ND		0.50		ug/L			03/10/12 11:58	1
Ethylbenzene	ND		0.50		ug/L			03/10/12 11:58	1
Toluene	ND		0.50		ug/L			03/10/12 11:58	1
Xylenes, Total	ND		1.0		ug/L			03/10/12 11:58	1
Gasoline Range Organics (GRO) -C6-C12	ND		50		ug/L			03/10/12 11:58	1
TBA	ND		4.0		ug/L			03/10/12 11:58	1
Ethanol	ND		250		ug/L			03/10/12 11:58	1
DIPE	ND		0.50		ug/L			03/10/12 11:58	1
TAME	ND		0.50		ug/L			03/10/12 11:58	1
Ethyl t-butyl ether	ND		0.50		ug/L			03/10/12 11:58	1
<b>Surrogate</b>									
4-Bromofluorobenzene	95		67 - 130						
1,2-Dichloroethane-d4 (Surr)	97		75 - 138						
Toluene-d8 (Surr)	96		70 - 130						

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

# QC Sample Results

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

TestAmerica Job ID: 720-40828-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

**Lab Sample ID: LCS 720-109494/5**

**Matrix: Water**

**Analysis Batch: 109494**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				
Methyl tert-butyl ether	25.0	26.3		ug/L	105	62 - 130	
Benzene	25.0	25.8		ug/L	103	79 - 130	
EDB	25.0	27.7		ug/L	111	70 - 130	
1,2-DCA	25.0	24.3		ug/L	97	61 - 132	
Ethylbenzene	25.0	24.9		ug/L	100	80 - 120	
Toluene	25.0	24.7		ug/L	99	78 - 120	
m-Xylene & p-Xylene	50.0	52.7		ug/L	105	70 - 142	
o-Xylene	25.0	26.1		ug/L	104	70 - 130	
TBA	500	505		ug/L	101	70 - 130	
Ethanol	500	496		ug/L	99	31 - 216	
DIPE	25.0	25.5		ug/L	102	69 - 134	
TAME	25.0	28.4		ug/L	114	79 - 130	
Ethyl t-butyl ether	25.0	25.2		ug/L	101	70 - 130	
<b>Surrogate</b>		<b>LCS</b>	<b>LCS</b>				
		%Recovery	Qualifier	<b>Limits</b>			
4-Bromofluorobenzene		97		67 - 130			
1,2-Dichloroethane-d4 (Surr)		94		75 - 138			
Toluene-d8 (Surr)		101		70 - 130			

**Lab Sample ID: LCS 720-109494/7**

**Matrix: Water**

**Analysis Batch: 109494**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
	Added	Result	Qualifier				
Gasoline Range Organics (GRO)	500	475		ug/L	95	58 - 120	
-C6-C12							
<b>Surrogate</b>		<b>LCS</b>	<b>LCS</b>				
		%Recovery	Qualifier	<b>Limits</b>			
4-Bromofluorobenzene		99		67 - 130			
1,2-Dichloroethane-d4 (Surr)		93		75 - 138			
Toluene-d8 (Surr)		100		70 - 130			

**Lab Sample ID: LCSD 720-109494/6**

**Matrix: Water**

**Analysis Batch: 109494**

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD
	Added	Result	Qualifier					
Methyl tert-butyl ether	25.0	26.6		ug/L	106	62 - 130	1	20
Benzene	25.0	25.8		ug/L	103	79 - 130	0	20
EDB	25.0	27.7		ug/L	111	70 - 130	0	20
1,2-DCA	25.0	23.9		ug/L	96	61 - 132	2	20
Ethylbenzene	25.0	25.6		ug/L	102	80 - 120	3	20
Toluene	25.0	25.6		ug/L	102	78 - 120	4	20
m-Xylene & p-Xylene	50.0	53.6		ug/L	107	70 - 142	2	20
o-Xylene	25.0	26.4		ug/L	106	70 - 130	1	20
TBA	500	495		ug/L	99	70 - 130	2	20
Ethanol	500	490		ug/L	98	31 - 216	1	30
DIPE	25.0	25.4		ug/L	102	69 - 134	0	20
TAME	25.0	28.4		ug/L	114	79 - 130	0	20

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

# QC Sample Results

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

TestAmerica Job ID: 720-40828-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

**Lab Sample ID: LCSD 720-109494/6**

**Matrix: Water**

**Analysis Batch: 109494**

Analyte		Spike	LCSD	LCSD	Unit	D	%Rec.	Limits	RPD	RPD Limit
		Added	Result	Qualifier						
Ethyl t-butyl ether		25.0	24.9		ug/L					
<b>Surrogate</b>										
4-Bromofluorobenzene	%Recovery	98		Limits						
1,2-Dichloroethane-d4 (Surr)		91		67 - 130						
Toluene-d8 (Surr)		101		75 - 138						
				70 - 130						

**Lab Sample ID: LCSD 720-109494/8**

**Matrix: Water**

**Analysis Batch: 109494**

Analyte		Spike	LCSD	LCSD	Unit	D	%Rec.	Limits	RPD	RPD Limit
		Added	Result	Qualifier						
Gasoline Range Organics (GRO)		500	483		ug/L					
<b>Surrogate</b>										
4-Bromofluorobenzene	%Recovery	98		Limits						
1,2-Dichloroethane-d4 (Surr)		90		67 - 130						
Toluene-d8 (Surr)		99		75 - 138						
				70 - 130						

**Lab Sample ID: MB 720-109519/5**

**Matrix: Water**

**Analysis Batch: 109519**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Methyl tert-butyl ether	ND		0.50		ug/L			03/12/12 09:08	1
<b>Surrogate</b>									
4-Bromofluorobenzene	%Recovery	95		Limits			Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)		95		67 - 130				03/12/12 09:08	1
Toluene-d8 (Surr)		96		75 - 138				03/12/12 09:08	1
				70 - 130				03/12/12 09:08	1

**Lab Sample ID: LCS 720-109519/6**

**Matrix: Water**

**Analysis Batch: 109519**

Analyte	Spike	LCs	LCs	Unit	D	%Rec.	Limits	
	Added	Result	Qualifier					
Methyl tert-butyl ether	25.0	26.1		ug/L				
<b>Surrogate</b>								
4-Bromofluorobenzene	%Recovery	97		Limits				
1,2-Dichloroethane-d4 (Surr)		94		67 - 130				
Toluene-d8 (Surr)		100		75 - 138				
				70 - 130				

# QC Sample Results

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

TestAmerica Job ID: 720-40828-1

## Method: 8260B/CA\_LUFTMS - 8260B / CA LUFT MS (Continued)

Lab Sample ID: LCSD 720-109519/7

Matrix: Water

Analysis Batch: 109519

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

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec.	RPD	Limit
		Result	Qualifier			%Rec		
Methyl tert-butyl ether	25.0	26.7		ug/L	107	62 - 130	2	20
<hr/>								
Surrogate	LCSD	LCSD						
	%Recovery	Qualifier						
4-Bromofluorobenzene	96		67 - 130					
1,2-Dichloroethane-d4 (Surr)	95		75 - 138					
Toluene-d8 (Surr)	99		70 - 130					

# QC Association Summary

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

TestAmerica Job ID: 720-40828-1

## GC/MS VOA

### Analysis Batch: 109416

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-40828-1	MW-3 (3/8/12)	Total/NA	Water	8260B/CA_LUFT MS	5
720-40828-2	MW-4 (3/8/12)	Total/NA	Water	8260B/CA_LUFT MS	6
720-40828-3	MW-6 (3/8/12)	Total/NA	Water	8260B/CA_LUFT MS	7
LCS 720-109416/7	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	8
LCS 720-109416/9	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	9
LCSD 720-109416/10	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	10
LCSD 720-109416/8	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	11
MB 720-109416/6	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	12

### Analysis Batch: 109445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-40828-4	MW-7 (3/8/12)	Total/NA	Water	8260B/CA_LUFT MS	13
LCS 720-109445/5	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	14
LCS 720-109445/7	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-109445/6	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-109445/8	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
MB 720-109445/4	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	

### Analysis Batch: 109494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-40828-5	MW-11 (3/8/12)	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-109494/5	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-109494/7	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-109494/6	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-109494/8	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	
MB 720-109494/4	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	

### Analysis Batch: 109519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
720-40828-2	MW-4 (3/8/12)	Total/NA	Water	8260B/CA_LUFT MS	
720-40828-3	MW-6 (3/8/12)	Total/NA	Water	8260B/CA_LUFT MS	
LCS 720-109519/6	Lab Control Sample	Total/NA	Water	8260B/CA_LUFT MS	
LCSD 720-109519/7	Lab Control Sample Dup	Total/NA	Water	8260B/CA_LUFT MS	

## QC Association Summary

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

TestAmerica Job ID: 720-40828-1

### GC/MS VOA (Continued)

#### Analysis Batch: 109519 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 720-109519/5	Method Blank	Total/NA	Water	8260B/CA_LUFT MS	

## Lab Chronicle

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

TestAmerica Job ID: 720-40828-1

**Client Sample ID: MW-3 (3/8/12)**

**Lab Sample ID: 720-40828-1**

Matrix: Water

Date Collected: 03/08/12 10:40

Date Received: 03/08/12 18:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	109416	03/09/12 13:43	LL	TAL SF

**Client Sample ID: MW-4 (3/8/12)**

**Lab Sample ID: 720-40828-2**

Matrix: Water

Date Collected: 03/08/12 10:15

Date Received: 03/08/12 18:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	109416	03/09/12 14:12	LL	TAL SF
Total/NA	Analysis	8260B/CA_LUFTMS		1	109519	03/12/12 17:57	AC	TAL SF

**Client Sample ID: MW-6 (3/8/12)**

**Lab Sample ID: 720-40828-3**

Matrix: Water

Date Collected: 03/08/12 09:45

Date Received: 03/08/12 18:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	109416	03/09/12 14:42	LL	TAL SF
Total/NA	Analysis	8260B/CA_LUFTMS		1	109519	03/12/12 17:28	AC	TAL SF

**Client Sample ID: MW-7 (3/8/12)**

**Lab Sample ID: 720-40828-4**

Matrix: Water

Date Collected: 03/08/12 11:10

Date Received: 03/08/12 18:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	109445	03/09/12 23:37	AC	TAL SF

**Client Sample ID: MW-11 (3/8/12)**

**Lab Sample ID: 720-40828-5**

Matrix: Water

Date Collected: 03/08/12 11:40

Date Received: 03/08/12 18:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		10	109494	03/10/12 14:50	DH	TAL SF

### Laboratory References:

TAL SF = TestAmerica San Francisco, 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: 720-40828-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica San Francisco	California	State Program	9	2496

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

## Method Summary

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

TestAmerica Job ID: 720-40828-1

Method	Method Description	Protocol	Laboratory
8260B/CA_LUFTM S	8260B / CA LUFT MS	SW846	TAL SF

**Protocol References:**

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

**Laboratory References:**

TAL SF = TestAmerica San Francisco, 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: 720-40828-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
720-40828-1	MW-3 (3/8/12)	Water	03/08/12 10:40	03/08/12 18:50
720-40828-2	MW-4 (3/8/12)	Water	03/08/12 10:15	03/08/12 18:50
720-40828-3	MW-6 (3/8/12)	Water	03/08/12 09:45	03/08/12 18:50
720-40828-4	MW-7 (3/8/12)	Water	03/08/12 11:10	03/08/12 18:50
720-40828-5	MW-11 (3/8/12)	Water	03/08/12 11:40	03/08/12 18:50

San Francisco

1220 Quarry Lane

Pleasanton, CA 94566

phone 925.484.1919 fax 925.600.3002

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

137004

TestAmerica Laboratories, Inc.

## Chain of Custody Record

720-40828

Client Contact	Project Manager: Sam Barkley	Site Contact:	Date:	COC No:					
Broadbent and Associates, Inc. Address: 875 Cotting Lane, Suite G City/State/Zip: Vallejo, CA 94591 (707) 455-7290 Phone (707) 455-7295 FAX Project Name: BP 11109 Site: 4280 Foothill, Oakland P O # GP09BPNA.C106	Tel/Fax: 707-455-7290 / 707-455-7295 Analysis Turnaround Time Calendar (C) or Work Days (W) TAT if different from Below Standard X <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day	Lab Contact: Dimple Sharma	Carrier:	of COCs Job No. SDG No.					
Sample Identification	Sample Date MW-2 (3/8/12)	Sample Time 3-8-12 1040	Sample Type GRAB	Matrix AQ	# of Cont. 3	Filtered Sample X	GRO 48269B BTX and 5 OX's by 8260B	Sample Specific Notes:	
	MW-3 (3/8/12)	1045	GRAB	AQ	3	X	BTX and 5 OX's by 8260B		
	MW-4 (3/8/12)	1045	GRAB	AQ	3	X	BTX and 5 OX's by 8260B		
	MW-5 (3/8/12)	0945	GRAB	AQ	3	X	BTX and 5 OX's by 8260B		
	MW-6 (3/8/12)	0945	GRAB	AQ	3	X	BTX and 5 OX's by 8260B		
	MW-7 (3/8/12)	1110	GRAB	AQ	3	X	BTX and 5 OX's by 8260B		
	MW-10 (3/8/12)	1140	GRAB	AQ	3	X	BTX and 5 OX's by 8260B		
	MW-11 (3/8/12)	1140	GRAB	AQ	3	X	BTX and 5 OX's by 8260B		
	MW-12 (3/8/12)	1145	GRAB	AQ	3	X	BTX and 5 OX's by 8260B		
TB-#11109-03082012		3-8-12 1145					ON HOLD		
Preservation Used: 1= Ice, 2= HCl; 3= H <sub>2</sub> SO <sub>4</sub> ; 4=HNO <sub>3</sub> ; 5=NaOH; 6= Other _____						Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant    Poison B <input type="checkbox"/> Unknown <input type="checkbox"/>						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/QC Requirements & Comments: 1.5°C									
Relinquished by: <i>Jayn</i>	Company: <i>Broadbent</i>	Date/Time: <i>3-8-12 1445</i>	Received by: <i>SLH</i>	Company: <i>TASF</i>	Date/Time: <i>3-8-12 1446</i>				
Relinquished by: <i>Bill</i>	Company: <i>TASF</i>	Date/Time: <i>3-8-12 1850</i>	Received by: <i>John Mullin</i>	Company: <i>Edwin</i>	Date/Time: <i>3-8-12 1850</i>				
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:				

## Login Sample Receipt Checklist

Client: ARCADIS U.S., Inc.

Job Number: 720-40828-1

**Login Number: 40828**

**List Source: TestAmerica San Francisco**

**List Number: 1**

**Creator: Mullen, Joan**

Question	Answer	Comment	
Radioactivity either was not measured or, if measured, is at or below background	N/A		1
The cooler's custody seal, if present, is intact.	N/A		2
The cooler or samples do not appear to have been compromised or tampered with.	True		3
Samples were received on ice.	True		4
Cooler Temperature is acceptable.	True		5
Cooler Temperature is recorded.	True		6
COC is present.	True		7
COC is filled out in ink and legible.	True		8
COC is filled out with all pertinent information.	True		9
Is the Field Sampler's name present on COC?	True		10
There are no discrepancies between the sample IDs on the containers and the COC.	True		11
Samples are received within Holding Time.	True		12
Sample containers have legible labels.	True		13
Containers are not broken or leaking.	True		14
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		
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True		
Multiphasic samples are not present.	True		
Samples do not require splitting or compositing.	True		
Residual Chlorine Checked.	True		

**APPENDIX D**

**GEOTRACKER UPLOAD CONFIRMATION RECEIPTS**

STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A GEO\_WELL FILE

## SUCCESS

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

<b><u>Submittal Type:</u></b>	<b>GEO_WELL</b>
<b><u>Submittal Title:</u></b>	<b>1Q12 GEO_WELL 11109</b>
<b><u>Facility Global ID:</u></b>	<b>T0600100217</b>
<b><u>Facility Name:</u></b>	<b>BP #11109</b>
<b><u>File Name:</u></b>	<b>GEO_WELL.zip</b>
<b><u>Organization Name:</u></b>	<b>Broadbent &amp; Associates, Inc.</b>
<b><u>Username:</u></b>	<b>BROADBENT-C</b>
<b><u>IP Address:</u></b>	<b>67.118.40.90</b>
<b><u>Submittal Date/Time:</u></b>	<b>3/21/2012 10:17:08 AM</b>
<b><u>Confirmation Number:</u></b>	<b>7934918999</b>

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STATE WATER RESOURCES CONTROL BOARD  
**GEOTRACKER ESI**

UPLOADING A EDF FILE

## SUCCESS

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

**Submittal Type:** EDF - Monitoring Report - Semi-Annually  
**Submittal Title:** 1Q12 GW Monitoring  
**Facility Global ID:** T0600100217  
**Facility Name:** BP #11109  
**File Name:** 720-40828-1.zip  
**Organization Name:** Broadbent & Associates, Inc.  
**Username:** BROADBENT-C  
**IP Address:** 67.118.40.90  
**Submittal Date/Time:** 3/21/2012 10:15:02 AM  
**Confirmation Number:** 4185256242

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[\*\*VIEW DETECTIONS REPORT\*\*](#)

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