Atlantic Richfield Company

Shannon Couch
Operations Project Manager

PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3804
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E-Mail: shannon.couch@bp.com

October 25, 2012

RECEIVED

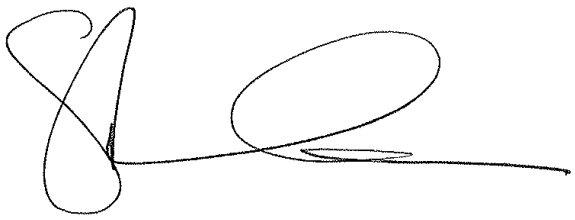
11:45 am, Nov 01, 2012

Alameda County
Environmental Health

Re: Third Quarter 2012 Monitoring Report
Atlantic Richfield Company Station #2169
889 West Grand Avenue, Oakland, California
ACEH Case #RO0000072

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.

Submitted by,



Shannon Couch
Operations Project Manager

Attachment

BROADBENT
1324 Mangrove Ave., Suite 212, Chico, CA 95926
[T] 530-566-1400 [F] 530-566-1401
broadbentinc.com

October 25, 2012

Project No. 06-88-621

Atlantic Richfield Company
P.O. Box 1257
San Ramon, CA 94583
Submitted via ENFOS

Attn.: Ms. Shannon Couch

Re: Third Quarter 2012 Monitoring Report, Atlantic Richfield Company Station #2169, 889 West Grand Avenue, Oakland, California; ACEH Case #RO0000072

Dear Ms. Couch:

Attached is the Third Quarter 2012 Monitoring Report for Atlantic Richfield Company Station #2169 located at 889 West Grand Avenue, Oakland, Alameda County, California. This report presents results of groundwater sampling recently conducted and a summary of current developments at the Site through the Third Quarter of 2012.

Should you have questions regarding the work performed or results obtained, please do not hesitate to contact me at (530) 566-1400.

Sincerely,
BROADBENT & ASSOCIATES, INC.

Thomas A. Venus, PE
Senior Engineer

Enclosures

cc: Ms. Dilan Roe, PE, Alameda County Environmental Health (submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

THIRD QUARTER 2012
MONITORING REPORT
ARCO STATION #2169, OAKLAND, CALIFORNIA

Broadbent & Associates, Inc. (Broadbent) is pleased to present this *Third Quarter 2012 Monitoring Report* on behalf of Atlantic Richfield Company (a BP affiliated company) for ARCO Station #2169 located in Oakland, Alameda County, California. Quarterly reporting is being submitted to the Alameda County Environmental Health Services Agency (ACEH) consistent with their requirements under the legal authority of the California Regional Water Quality Control Board, as codified by the California Code of Regulations Title 23, Section 2652(d). Details of work performed, discussion of results, and recommendations are provided below.

Facility Name / Address:	ARCO Station #2169 / 889 West Grand Avenue, Oakland
Client Project Manager / Title:	Ms. Shannon Couch / RM Operations Project Manager
Broadbent Contact:	Mr. Tom Venus, PE / (530) 566-1400
Broadbent Project No.:	06-88-621
Primary Regulatory Agency / ID No.:	ACEH, Case #RO0000072 (GeoTracker ID #T0600100112)
Current phase of project:	Monitoring, Offsite Assessment
List of Acronyms / Abbreviations:	See end of report text for list of acronyms/abbreviations used in report.

WORK PERFORMED THIS QUARTER (Third Quarter 2012):

1. Submitted *Second Quarter 2012 Status Report* (Broadbent, 7/27/2012).
2. Conducted groundwater monitoring/sampling for Third Quarter 2012 on August 16, 2012.

WORK SCHEDULED FOR NEXT QUARTER (Fourth Quarter 2012):

1. Submit *Third Quarter 2012 Monitoring Report* (contained herein).
2. No environmental field work is presently scheduled at Station #2169 during Fourth Quarter 2012.
3. Prepare and submit UST Case Summary and Closure Request report.

GROUNDWATER MONITORING PLAN SUMMARY:

Groundwater level gauging:	A-1, A-2, A-5, A-6, ADR-1, ADR-2, AR-2	(1Q & 3Q)
Groundwater sample collection:	A-1, A-5, A-6, ADR-1	(1Q & 3Q)
	A-2, ADR-2, AR-2	(3Q)
Biodegradation indicator parameter monitoring:	A-1, A-5, A-6, ADR-1	(1Q & 3Q)
	A-2, ADR-2, AR-2	(3Q)

QUARTERLY RESULTS SUMMARY:

LNAPL

LNAPL observed this quarter:	No	(yes\no)
LNAPL recovered this quarter:	None	(gal)
Cumulative LNAPL recovered:	4.8 (from ADR-2, 1995)	(gal)

Groundwater Elevation and Gradient:

Depth to groundwater:	10.33 (A-5) to 11.83 (AR-2)	(ft below TOC)
Gradient direction:	Northeast	(compass direction)
Gradient magnitude:	0.001	(ft/ft)
Average change in elevation:	-0.39	(ft since last measurement)

Laboratory Analytical Data

Summary: GRO detected in 5 wells up to 1,300 µg/L in A-1;
Benzene was detected in 4 wells up to 120 µg/L in A-1;
MTBE was detected in 3 wells up to 320 µg/L in ADR-2;
Toluene, Ethylbenzene, Total Xylenes, and TAME were also detected in select wells.

ACTIVITIES CONDUCTED & RESULTS:

Third Quarter 2012 groundwater monitoring was conducted on August 16, 2012 by Broadbent personnel in accordance with the current monitoring plan summary detailed above. This monitoring plan comprises the wells remaining following the "raze & rebuild" renovation of ARCO Station #2169 in the second half of 2010. No irregularities were noted during water level gauging. Light, Non-Aqueous Phase Liquid (LNAPL, or free product) was not noted to be present in the wells monitored during this event. Depth to water measurements ranged from 10.33 ft at A-5 to 11.83 ft at AR-2, within the screened interval of each well. Resulting groundwater surface elevations ranged from 5.55 ft at ADR-2 to 6.04 ft at AR-2. Groundwater elevations are summarized in Table 1. The water level elevation in well AR-2 is considered suspect due to the dissimilar construction of this well (vertical riser connected to horizontal perforated pipe within UST pit backfill), and is consequently not used for contouring. The remaining water level elevations yielded a very slight potentiometric groundwater gradient to the Northeast at approximately 0.001 ft/ft. Field methods used during groundwater monitoring are provided in Appendix A. Field data sheets are included in Appendix B. Historic groundwater elevation data is presented in Appendix C. A Site Location Map is presented as Drawing 1. Potentiometric groundwater elevation contours are presented in Drawing 2.

Groundwater samples were collected on August 16, 2012. Samples were collected from each of the wells consistent with the current monitoring program. No irregularities were reported during sampling. Samples were submitted under chain-of-custody protocol to TestAmerica Laboratories, Inc. (Irvine, California) for analysis of Gasoline-Range Organics (GRO, C6-C12) by EPA Method 5030B/8015B; for Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX), Methyl Tertiary Butyl Ether (MTBE), 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 5030B/8260B. No significant irregularities were encountered during analysis of the samples. The laboratory analytical report, including chain-of-custody documentation, is provided in Appendix D.

Hydrocarbons in the GRO range were detected above the laboratory reporting limit in five of seven wells sampled at concentrations up to 1,300 micrograms per liter (µg/L, parts per billion, ppb) in well A-1. Benzene was detected above the laboratory reporting limit in four of seven wells sampled at concentrations up to 120 µg/L in well A-1. Toluene was detected above the laboratory reporting limit in wells A-1 and ADR-1 at concentrations of 5.2 µg/L and 0.52 µg/L, respectively. Ethylbenzene was detected above the laboratory reporting limit in four wells sampled at concentrations up to 30 µg/L in well A-1. Total Xylenes were detected above the laboratory reporting limit in three wells sampled at concentrations up to 23 µg/L in well A-1. MTBE was detected above the laboratory reporting limit in three wells sampled at concentrations up to 320 µg/L in well ADR-2. TAME was detected above the laboratory reporting limit in ADR-2 at a concentration of 140 µg/L. The remaining analytes were not detected above their laboratory reporting limits in the wells sampled this last monitoring event. Groundwater monitoring laboratory analytical results are summarized in Table 1, Table 2, and Appendix C. 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 E.

DISCUSSION:

Groundwater levels were between historic minimum and maximum elevations for the seven wells remaining in the monitoring program. Overall, groundwater elevations decreased very slightly (-0.39 ft) since the last groundwater monitoring event on February 22, 2012. Groundwater elevations on August 16, 2012 yielded a very slight potentiometric groundwater gradient to the Northeast at approximately 0.001 ft/ft, similar to that calculated in First Quarter 2012 but inconsistent with earlier historic gradient data presented in Table 3. The change in gradient direction is possibly from having so few wells remaining in the monitoring schedule, and that those remaining are laid out primarily in a line along Market Street. The exceptions are AR-2 and A-6, with AR-2 not even constructed like a standard monitoring well being horizontal slotted pipes attached with a T-joint to a vertical riser in the UST basin. Adding to the reasons for potential change is the fact that a large storm water infiltration gallery was constructed in the southwest corner of the property. This gallery has the potential to influence shallow groundwater elevations with possible mounding due to the gallery's proximity to the remaining monitoring wells.

Detected analytical concentrations were within the historic minimum and maximum ranges recorded for each well during the Third Quarter 2012 monitoring event with the following exceptions: MTBE reached an historic maximum concentration within well ADR-2 at 320 µg/L (also historic maximum recorded at the Site); TAME reached an historic maximum concentration within well ADR-2 at 140 µg/L (also historic maximum recorded at the Site). Recent and historic laboratory analytical results are summarized in Table 1, Table 2, and Appendix C.

RECOMMENDATIONS:

Groundwater monitoring and sampling is next scheduled to be conducted at ARCO Station #2169 during First Quarter 2013. In the meantime, the Site appears to meet the criteria for case closure under the State Water Resources Control Board's recently published Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closure. Broadbent proposes to prepare a UST Case Summary and Closure Request report for submittal to ACEH during the Fourth Quarter 2012.

LIMITATIONS:

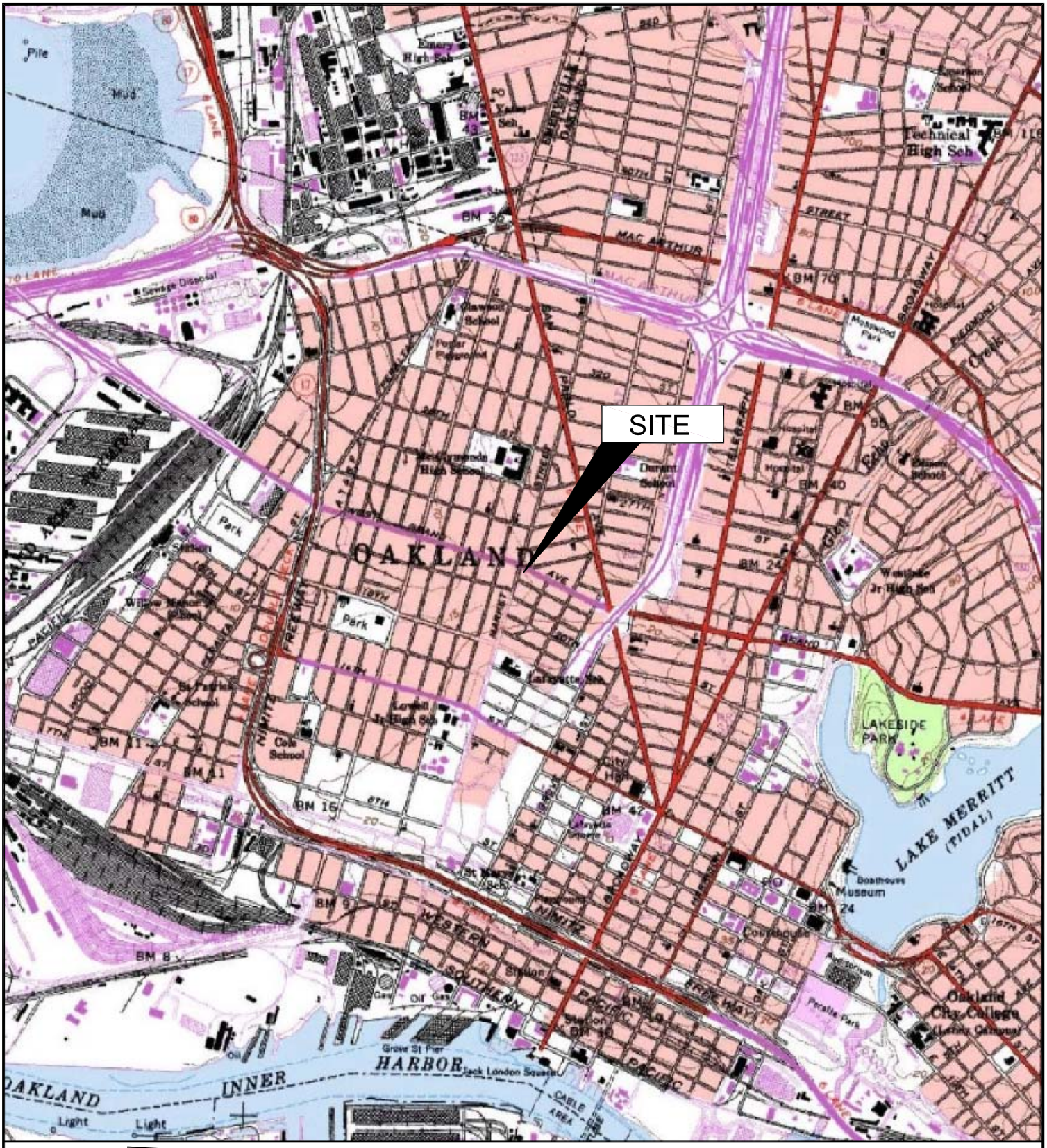
The findings presented in this report are based upon observations of field personnel, points investigated, results of laboratory tests performed by TestAmerica Laboratories, Inc. (Irvine, California), and our understanding of ACEH requirements. Our services were performed in accordance with the generally 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 the Atlantic Richfield Company. It is possible that variations in soil or groundwater conditions could exist beyond points explored in this investigation. Also, changes in site conditions could occur in the future due to variations in rainfall, temperature, regional water usage, or other factors.

ATTACHMENTS:

Drawing 1: Site Location Map
Drawing 2: Groundwater Elevation Contours and Analytical Summary Map, August 16, 2012

LIST OF COMMONLY USED ACCRONYMS/ABBREVIATIONS:

ACEH:	Alameda County Environmental Health	ft/ft:	feet per foot
ACPWA:	Alameda County Public Works Agency	gal:	Gallons
BTEX:	Benzene, Toluene, Ethylbenzene, Total Xylenes	GRO:	Gasoline-Range Organics
1,2-DCA:	1,2-Dichloroethane	LNAPL:	Light Non-Aqueous Phase Liquid
DIPE:	Di-Isopropyl Ether	MTBE:	Methyl Tertiary Butyl Ether
DO:	Dissolved Oxygen	NO_3:	Nitrate as Nitrogen
DRO:	Diesel-Range Organics	ppb:	parts per billion
EDB:	1,2-Dibromomethane	SO_4:	Sulfate
Eh:	Oxidation Reduction Potential	TAME:	Tert-Amyl Methyl Ether
EPA:	Environmental Protection Agency	TBA:	Tert Butyl Alcohol
ETBE:	Ethyl Tertiary Butyl Ether	TOC:	Top of Casing
Fe^{2+}:	Ferrous Iron	µg/L:	micrograms per liter



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0 2000 4000

APPROXIMATE SCALE (ft)

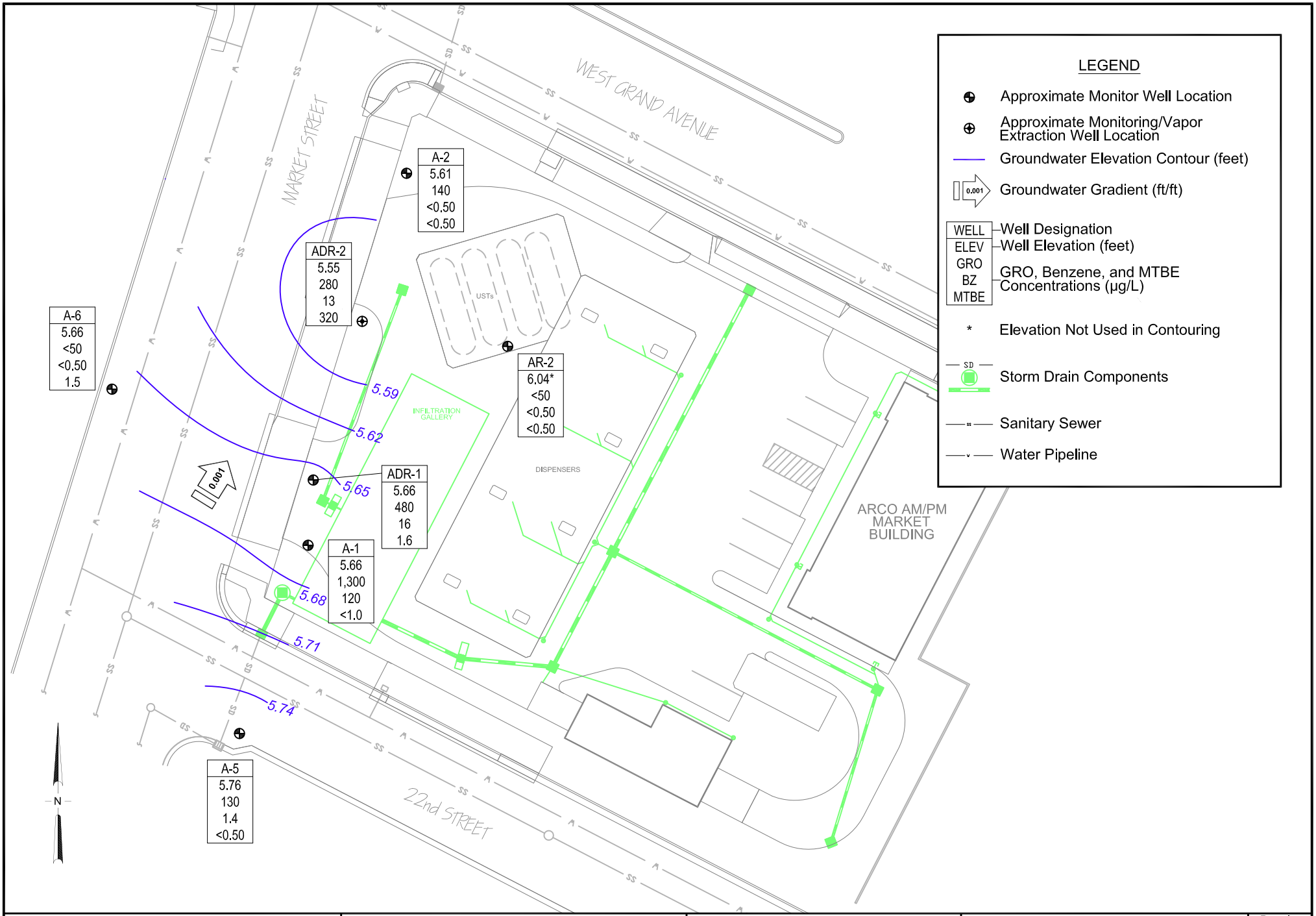
IMAGE SOURCE: USGS

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, CA 95926
Project No.: 06-88-621 Date: 9/1/09

ARCO Service Station #2169
889 West Grand Avenue
Oakland, California

Site Location Map

Drawing
1



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SCALE (ft)

BROADBENT & ASSOCIATES, INC.
ENGINEERING, WATER RESOURCES & ENVIRONMENTAL
1324 Mangrove Ave. Suite 212, Chico, California 95926
Project No.: 06-88-621 Date: 9/06/2012

ARCO Station #2169
889 West Grand Avenue
Oakland, California

Groundwater Elevation Contours and Analytical Summary Map
16 August 2012

Drawing
2

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

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-1															
6/26/2000	--	14.16	9.00	25.00	10.75	3.41	--	--	--	--	--	--	--	--	
7/20/2000	--		9.00	25.00	11.01	3.15	3,900	1,100	28	12	46	25	--	--	
9/19/2000	--		9.00	25.00	11.26	2.90	4,800	2,400	27	20	57	32	--	--	
12/26/2000	--		9.00	25.00	10.96	3.20	429	104	2.85	12.2	9.91	18.7	--	--	
3/20/2001	--		9.00	25.00	9.59	4.57	<500	13.9	7.12	13.9	23.2	<25	--	--	
6/12/2001	--		9.00	25.00	10.83	3.33	140	2.2	<0.5	8.7	9.2	25	--	--	
9/23/2001	--		9.00	25.00	11.43	2.73	<50	<0.50	<0.50	<0.50	<0.50	4.5	--	--	
12/28/2001	--		9.00	25.00	8.66	5.50	930	250	7.6	21	13	<25	--	--	
3/21/2002	--		9.00	25.00	8.43	5.73	<50	<0.5	<0.5	<0.5	1.2	<2.5	--	--	
4/17/2002	--		9.00	25.00	9.36	4.80	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
8/14/2002	--		9.00	25.00	11.12	3.04	170	8.4	<0.5	<0.5	1.4	4.9	5.7	7.4	b
11/27/2002	--		9.00	25.00	11.11	3.05	98	2.9	0.75	<0.5	<0.5	6.4	1.6	7.0	b
2/12/2003	--		9.00	25.00	10.10	4.06	73	9.3	<0.50	1	0.53	2.9	2.1	7.2	d
5/22/2003	--		9.00	25.00	10.18	3.98	400	88	1.6	4.6	11	4.9	1.3	7.4	
7/23/2003	--		9.00	25.00	10.85	3.31	140	3.2	<0.50	<0.50	0.56	10	10.8	7.4	
11/13/2003	P		9.00	25.00	11.35	2.81	<50	0.64	<0.50	<0.50	<0.50	4.2	4.3	7.75	f
02/16/2004	P	16.75	9.00	25.00	9.65	7.10	99	18	<0.50	1.2	0.96	3.2	7.2	7.6	f, i
05/06/2004	P		9.00	25.00	10.57	6.18	<50	0.73	<0.50	<0.50	<0.50	1.9	1.23	6.93	
09/02/2004	P		9.00	25.00	11.05	5.70	64	1.1	<0.50	<0.50	<0.50	1.7	12.1	8.7	
11/29/2004	P		9.00	25.00	10.50	6.25	<50	1.4	<0.50	<0.50	<0.50	<0.50	0.62	7.0	
02/02/2005	P		9.00	25.00	9.18	7.57	56	14	<0.50	<0.50	0.55	5.1	3.2	7.2	
05/09/2005	P		9.00	25.00	9.28	7.47	52	7.8	<0.50	0.53	0.52	2.7	2.1	7.2	
08/11/2005	P		9.00	25.00	10.70	6.05	420	61	<0.50	1.8	1.0	4.2	3.2	6.8	
02/09/2006	P		9.00	25.00	9.04	7.71	170	60	1.5	3.5	5.1	5.6	1.69	7.1	o
8/11/2006	P		9.00	25.00	10.44	6.31	200	18	<0.50	0.73	0.60	3.7	--	7.2	
2/7/2007	NP		9.00	25.00	10.34	6.41	270	5.5	<0.50	0.95	1.2	20	1.15	7.27	
8/14/2007	NP		9.00	25.00	10.43	6.32	3,500	350	21	110	68	1.8	1.32	7.46	
2/22/2008	P		9.00	25.00	8.75	8.00	2,600	160	7.2	16	11	<2.5	4.16	7.65	
8/12/2008	NP		9.00	25.00	10.30	6.45	7,400	420	28	190	170	<2.5	0.54	9.38	
1/8/2009	NP		9.00	25.00	10.07	6.68	14,000	400	130	530	790	<10	0.49	7.26	

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

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-1 Cont.															
9/4/2009	NP	16.75	9.00	25.00	11.22	5.53	990	19	2.2	0.80	1.5	7.4	0.48	7.25	
3/5/2010	P		9.00	25.00	7.84	8.91	800	12	1.3	5.6	3.6	3.3	0.84	7.09	
3/11/2011	NP		9.00	25.00	9.02	7.73	4900	260	68	43	380	<5.0	2.11	7.3	
8/26/2011	P		9.00	25.00	10.50	6.25	5,500	320	260	230	650	<5.0	0.63	7.1	
2/22/2012	P		9.00	25.00	10.68	6.07	4,700	350	65	200	140	7.6	0.57	7.66	
8/16/2012	**P**		**9.00**	**25.00**	**11.09**	**5.66**	**1,300**	**120**	**5.2**	**30**	**23**	**<1.0**	**2.57**	**7.60**	
A-2															
6/26/2000	--	14.55	10.00	25.00	11.27	3.28	--	--	--	--	--	--	--	--	
7/20/2000	--		10.00	25.00	11.52	3.03	<50	<0.5	<0.5	<0.5	<1.0	<3	--	--	
9/19/2000	--		10.00	25.00	11.63	2.92	--	--	--	--	--	--	--	--	
12/26/2000	--		10.00	25.00	11.44	3.11	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/20/2001	--		10.00	25.00	10.08	4.47	--	--	--	--	--	--	--	--	
6/12/2001	--		10.00	25.00	11.35	3.20	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
9/23/2001	--		10.00	25.00	11.92	2.63	--	--	--	--	--	--	--	--	
12/28/2001	--		10.00	25.00	9.31	5.24	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/21/2002	--		10.00	25.00	9.05	5.50	--	--	--	--	--	--	--	--	
4/17/2002	--		10.00	25.00	9.88	4.67	52	<0.5	<0.5	<0.5	<0.5	26	--	--	
8/14/2002	--		10.00	25.00	11.62	2.93	<50	<0.5	<0.5	<0.5	1.2	<2.5	3.7	7.2	c
11/27/2002	--		10.00	25.00	11.56	2.99	--	--	--	--	--	--	--	--	
2/12/2003	--		10.00	25.00	10.75	3.80	<50	<0.50	<0.50	<0.50	<0.50	12	2.9	7.1	d
5/22/2003	--		10.00	25.00	10.72	3.83	--	--	--	--	--	--	--	--	
7/23/2003	--		10.00	25.00	11.39	3.16	<50	<0.50	<0.50	<0.50	<0.50	2.6	1.3	6.8	
11/13/2003	--		10.00	25.00	11.60	2.95	--	--	--	--	--	--	--	--	
02/16/2004	--	17.18	10.00	25.00	10.27	6.91	--	--	--	--	--	--	--	--	i
05/06/2004	--		10.00	25.00	11.05	6.13	--	--	--	--	--	--	--	--	
09/02/2004	P		10.00	25.00	11.45	5.73	130	<0.50	<0.50	<0.50	<0.50	2.5	5.1	7.4	
11/29/2004	--		10.00	25.00	11.12	6.06	--	--	--	--	--	--	--	--	
02/02/2005	--		10.00	25.00	9.73	7.45	--	--	--	--	--	--	--	--	
05/09/2005	--		10.00	25.00	12.82	4.36	--	--	--	--	--	--	--	--	
08/11/2005	P		10.00	25.00	11.29	5.89	120	<0.50	<0.50	<0.50	<0.50	1.2	1.6	7.1	m

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

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-2 Cont.															
02/09/2006	--	17.18	10.00	25.00	10.43	6.75	--	--	--	--	--	--	--	--	
8/11/2006	P		10.00	25.00	11.12	6.06	<50	<0.50	<0.50	<0.50	<0.50	1.4	1.1	7.0	
2/7/2007	--		10.00	25.00	11.07	6.11	--	--	--	--	--	--	--	--	
8/14/2007	NP		10.00	25.00	11.28	5.90	<50	<0.50	<0.50	<0.50	<0.50	0.65	0.64	7.57	
2/22/2008	--		10.00	25.00	9.50	7.68	--	--	--	--	--	--	--	--	
8/12/2008	NP		10.00	25.00	11.28	5.90	64	<0.50	<0.50	<0.50	<0.50	0.96	0.57	9.44	
1/8/2009	--		10.00	25.00	10.90	6.28	--	--	--	--	--	--	--	--	
9/4/2009	NP		10.00	25.00	11.77	5.41	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.43	7.39	
3/5/2010	--		10.00	25.00	8.53	8.65	--	--	--	--	--	--	--	--	
3/11/2011	P		10.00	25.00	9.67	7.51	76	<0.50	<0.50	<0.50	<0.50	<0.50	0.84	7.3	p (GRO)
8/26/2011	P		10.00	25.00	11.29	5.89	100	<2.0	<2.0	<2.0	<2.0	<2.0	1.01	7.6	r (GRO), s
2/22/2012	P		10.00	25.00	11.21	5.97	190	<2.0	<2.0	<2.0	<2.0	<2.0	0.54	7.68	r (GRO), s, t
8/16/2012	**P**		**10.00**	**25.00**	**11.57**	**5.61**	**140**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**3.09**	**7.45**	
A-3															
6/26/2000	--	15.75	9.00	29.50	11.98	3.77	--	--	--	--	--	--	--	--	
7/20/2000	--		9.00	29.50	12.21	3.54	--	--	--	--	--	--	--	--	
9/19/2000	--		9.00	29.50	12.50	3.25	--	--	--	--	--	--	--	--	
12/26/2000	--		9.00	29.50	12.17	3.58	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/20/2001	--		9.00	29.50	10.70	5.05	--	--	--	--	--	--	--	--	
6/12/2001	--		9.00	29.50	12.09	3.66	--	--	--	--	--	--	--	--	
9/23/2001	--		9.00	29.50	12.65	3.10	--	--	--	--	--	--	--	--	
12/28/2001	--		9.00	29.50	9.94	5.81	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/21/2002	--		9.00	29.50	9.69	6.06	--	--	--	--	--	--	--	--	
4/17/2002	--		9.00	29.50	10.61	5.14	--	--	--	--	--	--	--	--	
8/14/2002	--		9.00	29.50	12.27	3.48	--	--	--	--	--	--	--	--	
11/27/2002	--		9.00	29.50	12.22	3.53	--	--	--	--	--	--	--	--	
2/12/2003	--		9.00	29.50	11.40	4.35	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	6.9	d
5/22/2003	--		9.00	29.50	11.42	4.33	--	--	--	--	--	--	--	--	
7/23/2003	--		9.00	29.50	12.00	3.75	--	--	--	--	--	--	--	--	
02/16/2004	--	18.37	9.00	29.50	10.94	7.43	--	--	--	--	--	--	--	--	g, i

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

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L								
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE	DO (mg/L)	pH	Footnote
A-3 Cont.															
05/06/2004	--	18.37	9.00	29.50	11.75	6.62	--	--	--	--	--	--	--	--	
09/02/2004	--		9.00	29.50	12.15	6.22	--	--	--	--	--	--	--	--	
11/29/2004	--		9.00	29.50	11.87	6.50	--	--	--	--	--	--	--	--	
02/02/2005	--		9.00	29.50	10.42	7.95	--	--	--	--	--	--	--	--	
05/09/2005	--		9.00	29.50	10.49	7.88	--	--	--	--	--	--	--	--	
08/11/2005	--		9.00	29.50	12.02	6.35	--	--	--	--	--	--	--	--	
02/09/2006	--		9.00	29.50	11.27	7.10	--	--	--	--	--	--	--	--	
8/11/2006	--		9.00	29.50	11.83	6.54	--	--	--	--	--	--	--	--	
2/7/2007	--		9.00	29.50	11.82	6.55	--	--	--	--	--	--	--	--	
8/14/2007	--		9.00	29.50	12.06	6.31	--	--	--	--	--	--	--	--	
2/22/2008	--		9.00	29.50	10.25	8.12	--	--	--	--	--	--	--	--	
8/12/2008	--		9.00	29.50	12.10	6.27	--	--	--	--	--	--	--	--	
1/8/2009	--		9.00	29.50	11.71	6.66	--	--	--	--	--	--	--	--	
9/4/2009	--		9.00	29.50	12.57	5.80	--	--	--	--	--	--	--	--	
3/5/2010	--		9.00	29.50	9.13	9.24	--	--	--	--	--	--	--	--	
3/11/2011	--		9.00	29.50	--	--	--	--	--	--	--	--	--	--	q
A-4															
6/26/2000	--	15.25	8.00	28.00	10.99	4.26	--	--	--	--	--	--	--	--	
7/20/2000	--		8.00	28.00	11.16	4.09	--	--	--	--	--	--	--	--	
9/19/2000	--		8.00	28.00	11.97	3.28	--	--	--	--	--	--	--	--	
12/26/2000	--		8.00	28.00	11.19	4.06	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/20/2001	--		8.00	28.00	9.81	5.44	--	--	--	--	--	--	--	--	
6/12/2001	--		8.00	28.00	11.12	4.13	--	--	--	--	--	--	--	--	
9/23/2001	--		8.00	28.00	11.63	3.62	--	--	--	--	--	--	--	--	
12/28/2001	--		8.00	28.00	8.41	6.84	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/21/2002	--		8.00	28.00	8.63	6.62	--	--	--	--	--	--	--	--	
4/17/2002	--		8.00	28.00	9.68	5.57	--	--	--	--	--	--	--	--	
8/14/2002	--		8.00	28.00	11.31	3.94	--	--	--	--	--	--	--	--	
11/27/2002	--		8.00	28.00	11.25	4.00	--	--	--	--	--	--	--	--	
2/12/2003	--		8.00	28.00	10.37	4.88	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.9	7.1	d

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

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-4 Cont.															
5/22/2003	--	15.25	8.00	28.00	10.42	4.83	--	--	--	--	--	--	--	--	
7/23/2003	--		8.00	28.00	11.02	4.23	--	--	--	--	--	--	--	--	
02/16/2004	--	18.01	8.00	28.00	9.65	8.36	--	--	--	--	--	--	--	--	g, i
05/06/2004	--		8.00	28.00	10.68	7.33	--	--	--	--	--	--	--	--	
09/02/2004	--		8.00	28.00	10.83	7.18	--	--	--	--	--	--	--	--	
11/29/2004	--		8.00	28.00	10.50	7.51	--	--	--	--	--	--	--	--	
02/02/2005	--		8.00	28.00	9.22	8.79	--	--	--	--	--	--	--	--	
05/09/2005	--		8.00	28.00	8.98	9.03	--	--	--	--	--	--	--	--	
08/11/2005	--		8.00	28.00	10.99	7.02	--	--	--	--	--	--	--	--	
02/09/2006	--		8.00	28.00	10.15	7.86	--	--	--	--	--	--	--	--	
8/11/2006	--		8.00	28.00	10.30	7.71	--	--	--	--	--	--	--	--	
2/7/2007	--		8.00	28.00	10.63	7.38	--	--	--	--	--	--	--	--	
8/14/2007	--		8.00	28.00	10.70	7.31	--	--	--	--	--	--	--	--	
2/22/2008	--		8.00	28.00	8.90	9.11	--	--	--	--	--	--	--	--	
8/12/2008	--		8.00	28.00	10.60	7.41	--	--	--	--	--	--	--	--	
1/8/2009	--		8.00	28.00	10.90	7.11	--	--	--	--	--	--	--	--	
9/4/2009	--		8.00	28.00	11.80	6.21	--	--	--	--	--	--	--	--	
3/5/2010	--		8.00	28.00	7.64	10.37	--	--	--	--	--	--	--	--	
3/11/2011	--		8.00	28.00	--	--	--	--	--	--	--	--	--	--	q
A-5															
6/26/2000	--	13.51	8.00	30.00	10.04	3.47	--	--	--	--	--	--	--	--	
7/20/2000	--		8.00	30.00	10.31	3.20	730	140	11	<0.5	8.9	3	--	--	
9/19/2000	--		8.00	30.00	10.55	2.96	160	13	<0.5	2.8	1.9	<3	--	--	
12/26/2000	--		8.00	30.00	10.37	3.14	8,120	465	108	659	1,450	<250	--	--	
3/20/2001	--		8.00	30.00	8.81	4.70	7,990	1,110	473	611	1,580	<250	--	--	
6/12/2001	--		8.00	30.00	10.13	3.38	450	91	18	35	95	<5.0	--	--	
9/23/2001	--		8.00	30.00	10.80	2.71	110	20	<0.5	5	5	2.7	--	--	
12/28/2001	--		8.00	30.00	8.17	5.34	320	24	2	20	27	5	--	--	
3/21/2002	--		8.00	30.00	7.78	5.73	2,500	420	85	130	350	31	--	--	
4/17/2002	--		8.00	30.00	8.68	4.83	1,300	190	36	67	210	<25	--	--	

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							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-5 Cont.															
8/14/2002	--	13.51	8.00	30.00	10.41	3.10	840	150	<5.0	68	41	<25	1.4	6.8	b
11/27/2002	--		8.00	30.00	10.50	3.01	300	26	2.3	17	6	<0.5	1.16	7.2	b
2/12/2003	--		8.00	30.00	10.81	2.70	<500	74	7	34	45	<5.0	1.0	7.3	d
5/22/2003	--		8.00	30.00	9.46	4.05	500	100	9	28	47	<5.0	1.0	7.6	
7/23/2003	--		8.00	30.00	10.29	3.22	900	100	5.7	65	57	<5.0	4.5	8.4	
11/13/2003	NP		8.00	30.00	11.24	2.27	1,800	210	5.1	190	140	<5.0	4.3	7.32	f
02/16/2004	NP	16.09	8.00	30.00	9.45	6.64	680	52	15	50	77	<0.50	5.0	7.8	h, i
05/06/2004	P		8.00	30.00	10.28	5.81	1,500	140	13	72	110	<2.5	1.03	6.93	
09/02/2004	NP		8.00	30.00	10.78	5.31	690	69	1.3	42	35	<1.0	1.3	7.1	
11/29/2004	NP		8.00	30.00	10.05	6.04	<5,000	360	<50	190	290	<50	1.0	7.0	
02/02/2005	NP		8.00	30.00	8.37	7.72	220	31	2.3	10	13	<0.50	0.6	7.4	
05/09/2005	NP		8.00	30.00	8.45	7.64	110	1.7	<0.50	1.4	1.1	<0.50	2.5	7.6	
08/11/2005	NP		8.00	30.00	10.11	5.98	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.8	7.3	
02/09/2006	NP		8.00	30.00	9.02	7.07	<50	0.62	<0.50	<0.50	<0.50	<0.50	0.89	7.3	o
8/11/2006	NP		8.00	30.00	9.77	6.32	400	13	3.4	8.0	58	<0.50	2.16	7.2	
2/7/2007	P		8.00	30.00	9.90	6.19	10,000	670	120	1,100	3,100	<10	2.12	7.03	
8/14/2007	NP		8.00	30.00	9.70	6.39	28,000	260	68	3,000	7,800	<10	1.37	7.80	
2/22/2008	NP		8.00	30.00	8.02	8.07	27,000	410	98	2,600	4,400	<50	1.36	7.42	
8/12/2008	NP		8.00	30.00	9.50	6.59	31,000	140	<50	1,800	3,900	<50	0.62	9.70	
1/8/2009	NP		8.00	30.00	9.29	6.80	39,000	300	53	2,400	5,400	<50	0.67	7.59	
9/4/2009	NP		8.00	30.00	10.42	5.67	130	<0.50	<0.50	<0.50	<0.50	<0.50	0.46	7.19	
3/5/2010	P		8.00	30.00	7.55	8.54	110	1.4	<0.50	6.1	7.3	<0.50	0.59	7.18	
3/11/2011	NP		8.00	30.00	8.30	7.79	190	7.4	<0.50	15	10	<0.50	2.33	7.6	p (GRO)
8/26/2011	P		8.00	30.00	9.81	6.28	1,900	36	1.4	190	52	<0.50	0.57	7.0	
2/22/2012	P		8.00	30.00	9.98	6.11	93	<0.50	<0.50	1.0	<0.50	<0.50	0.66	7.51	r (GRO)
8/16/2012	**P**		**8.00**	**30.00**	**10.33**	**5.76**	**130**	**1.4**	**<0.50**	**18**	**1.1**	**<0.50**	**2.64**	**7.95**	
A-6															
6/26/2000	--	13.51	8.00	28.50	10.09	3.42	--	--	--	--	--	--	--	--	
7/20/2000	--		8.00	28.50	10.91	2.60	170	<0.5	<0.5	0.6	2	6	--	--	
9/19/2000	--		8.00	28.50	11.27	2.24	<50	<0.5	<0.5	<0.5	<1.0	6	--	--	

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							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-6 Cont.															
12/26/2000	--	13.51	8.00	28.50	10.65	2.86	56.2	<0.5	<0.5	<0.5	<0.5	8.17	--	--	
3/20/2001	--		8.00	28.50	8.72	4.79	216	<0.5	<0.5	<0.5	1.8	19.9	--	--	
6/12/2001	--		8.00	28.50	10.80	2.71	80	0.62	<0.5	<0.5	<0.5	15	--	--	
9/23/2001	--		8.00	28.50	10.79	2.72	450	1.7	1.9	2.3	3.3	53	--	--	
12/28/2001	--		8.00	28.50	8.05	5.46	270	0.98	3.5	0.77	1.4	26	--	--	
3/21/2002	--		8.00	28.50	7.83	5.68	130	<0.5	<0.5	<0.5	<0.5	19	--	--	
4/17/2002	--		8.00	28.50	8.73	4.78	<50	<0.5	<0.5	<0.5	<0.5	16	--	--	
8/14/2002	--		8.00	28.50	10.43	3.08	980	4.8	2.6	2	4.9	75	1.5	7.1	b
11/27/2002	--		8.00	28.50	10.47	3.04	280	<0.5	0.74	<0.5	<0.5	16	0.9	6.9	b
2/12/2003	--		8.00	28.50	10.44	3.07	51	<0.50	<0.50	<0.50	<0.50	9.9	0.8	7.1	d
5/22/2003	--		8.00	28.50	9.43	4.08	<50	<0.50	<0.50	<0.50	<0.50	11	1.2	8.2	
7/23/2003	--		8.00	28.50	10.27	3.24	120	<0.50	<0.50	<0.50	<0.50	14	>20	9.6	
11/13/2003	NP		8.00	28.50	11.20	2.31	<50	<0.50	<0.50	<0.50	<0.50	2.3	6.2	9.0	f
02/16/2004	NP	16.10	8.00	28.50	9.76	6.34	50	<0.50	<0.50	<0.50	<0.50	3.9	6.5	8.3	h, i
05/06/2004	P		8.00	28.50	10.03	6.07	110	<0.50	<0.50	<0.50	<0.50	7.1	1.01	7.02	
09/02/2004	NP		8.00	28.50	10.47	5.63	56	<0.50	<0.50	<0.50	<0.50	4.4	3.2	7.4	
11/29/2004	NP		8.00	28.50	9.99	6.11	<50	<0.50	<0.50	<0.50	<0.50	2.9	0.92	6.9	
02/02/2005	NP		8.00	28.50	8.46	7.64	150	<0.50	<0.50	<0.50	<0.50	14	0.5	7.4	
05/09/2005	NP		8.00	28.50	8.55	7.55	93	<0.50	<0.50	<0.50	<0.50	12	3.0	7.2	
08/11/2005	NP		8.00	28.50	10.13	5.97	780	<0.50	<0.50	<0.50	<0.50	14	1.0	6.9	
02/09/2006	NP		8.00	28.50	9.23	6.87	210	<0.50	<0.50	<0.50	<0.50	17	1.27	6.8	o
8/11/2006	NP		8.00	28.50	9.95	6.15	920	<0.50	<0.50	<0.50	<0.50	21	1.6	7.0	
2/7/2007	P		8.00	28.50	9.72	6.38	170	<0.50	<0.50	<0.50	1.4	7.1	2.18	7.24	
8/14/2007	NP		8.00	28.50	9.82	6.28	<50	<0.50	<0.50	<0.50	<0.50	2.3	1.72	8.22	
2/22/2008	NP		8.00	28.50	8.07	8.03	350	<0.50	<0.50	<0.50	<0.50	11	0.79	7.48	
8/12/2008	NP		8.00	28.50	9.70	6.40	<50	<0.50	<0.50	<0.50	<0.50	2.4	0.58	9.58	
1/8/2009	NP		8.00	28.50	9.45	6.65	<50	<0.50	<0.50	<0.50	<0.50	1.6	0.61	7.32	
9/4/2009	NP		8.00	28.50	10.60	5.50	<50	<0.50	<0.50	<0.50	<0.50	4.9	0.51	7.18	
3/5/2010	P		8.00	28.50	7.27	8.83	320	<0.50	<0.50	<0.50	<0.50	4.1	0.65	7.11	
3/11/2011	NP		8.00	28.50	8.37	7.73	160	<0.50	<0.50	<0.50	<0.50	5.7	1.56	7.7	p (GRO)

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Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-6 Cont.															
8/26/2011	P	16.10	8.00	28.50	9.90	6.20	70	<0.50	<0.50	<0.50	<0.50	2.2	1.22	7.3	
2/22/2012	P		8.00	28.50	10.03	6.07	<50	<0.50	<0.50	<0.50	<0.50	2.3	0.69	7.45	
8/16/2012	**P**		**8.00**	**28.50**	**10.44**	**5.66**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**1.5**	**8.18**	**7.58**	
ADR-1															
6/26/2000	--	13.95	5.00	22.00	10.55	3.40	--	--	--	--	--	--	--	--	
7/20/2000	--		5.00	22.00	10.85	3.10	180	29	<0.5	0.8	<1.0	22	--	--	
9/19/2000	--		5.00	22.00	11.08	2.87	120	7.4	<0.5	1.2	<1.0	22	--	--	
12/26/2000	--		5.00	22.00	10.93	3.02	<50	1.29	<0.5	<0.5	<0.5	14.7	--	--	
3/20/2001	--		5.00	22.00	9.32	4.63	225	23.4	<0.5	8.71	4.13	10.8	--	--	
6/12/2001	--		5.00	22.00	10.65	3.30	250	23	0.5	13	4.2	7.5	--	--	
9/23/2001	--		5.00	22.00	11.25	2.70	<50	1.4	<0.5	<0.5	0.57	2.8	--	--	
12/28/2001	--		5.00	22.00	8.43	5.52	250	16	<0.5	1.2	4.1	6.8	--	--	
3/21/2002	--		5.00	22.00	8.27	5.68	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
4/17/2002	--		5.00	22.00	9.17	4.78	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
8/14/2002	--		5.00	22.00	11.88	2.07	<50	1.1	<0.5	<0.5	<0.5	<2.5	3.4	6.7	
11/27/2002	--		5.00	22.00	10.91	3.04	<50	0.54	<0.5	<0.5	<0.5	1.1	1.8	6.8	
2/12/2003	--		5.00	22.00	9.95	4.00	<50	<0.50	<0.50	<0.50	<0.50	0.73	1.9	7.2	d
5/22/2003	--		5.00	22.00	9.86	4.09	<50	0.96	<0.50	<0.50	<0.50	3.5	1.2	7.3	
7/23/2003	--		5.00	22.00	10.59	3.36	<50	2.5	<0.50	0.56	<0.50	4	>20	9.4	
11/13/2003	--		5.00	22.00	11.15	2.80	<50	0.60	<0.50	<0.50	<0.50	1.6	8.5	8.2	f
02/16/2004	NP	16.56	5.00	22.00	9.43	7.13	<50	<0.50	<0.50	<0.50	<0.50	1.6	5.5	9.6	f, i
05/07/2004	NP		5.00	22.00	10.41	6.15	<500	5.3	<5.0	<5.0	<5.0	<5.0	1.72	7.0	
09/02/2004	NP		5.00	22.00	10.73	5.83	<50	<0.50	<0.50	<0.50	<0.50	0.84	18.1	8.4	
11/29/2004	NP		5.00	22.00	10.30	6.26	<50	3.0	<0.50	<0.50	<0.50	<0.50	0.77	6.9	
02/02/2005	NP		5.00	22.00	9.02	7.54	<50	<0.50	<0.50	<0.50	<0.50	3.4	0.5	7.5	
05/09/2005	NP		5.00	22.00	8.92	7.64	<50	<0.50	<0.50	<0.50	<0.50	2.6	2.9	7.3	
08/11/2005	NP		5.00	22.00	10.57	5.99	67	2.8	<0.50	<0.50	<0.50	4.0	0.6	6.0	
02/09/2006	NP		5.00	22.00	10.05	6.51	<50	<0.50	<0.50	<0.50	<0.50	2.9	1.09	7.0	o
8/11/2006	NP		5.00	22.00	10.20	6.36	76	<0.50	<0.50	<0.50	<0.50	2.2	1.06	7.1	
2/7/2007	NP		5.00	22.00	10.15	6.41	<50	<0.50	<0.50	<0.50	<0.50	3.8	0.64	7.33	

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

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ADR-1 Cont.															
8/14/2007	NP	16.56	5.00	22.00	10.30	6.26	560	11	1.7	12	2.5	3.6	0.94	7.38	
2/22/2008	NP		5.00	22.00	8.55	8.01	120	<0.50	<0.50	<0.50	<0.50	3.9	1.52	6.95	
8/12/2008	NP		5.00	22.00	10.20	6.36	1,400	46	7.7	13	19	6.5	0.50	9.32	
1/8/2009	NP		5.00	22.00	9.95	6.61	740	<0.50	0.94	<0.50	0.58	2.4	0.47	7.36	
9/4/2009	NP		5.00	22.00	11.06	5.50	810	<0.50	0.65	<0.50	<0.50	<0.50	0.61	7.17	
3/5/2010	NP		5.00	22.00	7.62	8.94	62	<0.50	<0.50	<0.50	<0.50	0.92	1.33	7.01	
3/11/2011	NP		5.00	22.00	8.88	7.68	<50	<0.50	<0.50	<0.50	<0.50	1.4	1.60	7.3	
8/26/2011	P		5.00	22.00	10.42	6.14	840	54	2.7	13	48	1.7	0.46	7.0	
2/22/2012	P		5.00	22.00	10.48	6.08	90	0.99	<0.50	<0.50	<0.50	1.1	0.70	7.64	r (GRO)
8/16/2012	**P**		**5.00**	**22.00**	**10.90**	**5.66**	**480**	**16**	**0.52**	**1.4**	**2.0**	**1.6**	**2.90**	**7.50**	
ADR-2															
6/26/2000	--	14.64	5.00	22.00	11.22	3.42	--	--	--	--	--	--	--	--	
7/20/2000	--		5.00	22.00	11.60	3.04	12,000	410	2.5	540	720	23	--	--	
9/19/2000	--		5.00	22.00	11.81	2.83	1,400	530	5	680	740	34	--	--	
12/26/2000	--		5.00	22.00	11.52	3.12	901	26.6	<5.0	21.4	32.5	32.8	--	--	
3/20/2001	--		5.00	22.00	10.10	4.54	--	--	--	--	--	--	--	--	j
6/12/2001	--		5.00	22.00	11.41	3.23	--	--	--	--	--	--	--	--	j
9/23/2001	--		5.00	22.00	11.98	2.66	5,300	370	<5.0	550	96	60	--	--	
12/28/2001	--		5.00	22.00	9.48	5.16	2,600	190	<5.0	160	29	61	--	--	
3/21/2002	--		5.00	22.00	9.10	5.54	180	6	<0.5	4.5	3.2	15	--	--	
4/17/2002	--		5.00	22.00	9.93	4.71	730	86	<0.5	13	<0.5	<25	--	--	
8/14/2002	--		5.00	22.00	12.09	2.55	1,300	170	<10	100	47	<50	0.9	7.0	b
11/27/2002	--		5.00	22.00	11.66	2.98	1,800	240	3.1	120	14	74	0.6	6.9	b
2/12/2003	--		5.00	22.00	10.74	3.90	760	120	<5.0	15	5.2	22	1.3	7.1	d
5/22/2003	--		5.00	22.00	10.67	3.97	520	110	<5.0	7.1	<5.0	9.7	0.7	7.6	
7/23/2003	--		5.00	22.00	11.38	3.26	140	2.8	<0.50	5	0.98	8.4	>20	9.4	
02/16/2004	--	17.24	5.00	22.00	10.26	6.98	--	--	--	--	--	--	--	--	f, i
05/06/2004	--		5.00	22.00	11.05	6.19	--	--	--	--	--	--	--	--	
09/02/2004	P		5.00	22.00	11.50	5.74	<500	67	<5.0	71	12	5.6	0.7	7.4	
11/29/2004	--		5.00	22.00	11.20	6.04	--	--	--	--	--	--	--	--	

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ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
ADR-2 Cont.															
02/02/2005	--	17.24	5.00	22.00	9.76	7.48	--	--	--	--	--	--	--	--	
05/09/2005	--		5.00	22.00	11.18	6.06	--	--	--	--	--	--	--	--	
08/11/2005	NP		5.00	22.00	11.30	5.94	1,900	200	<2.5	160	9.6	9.0	0.6	6.6	
02/09/2006	--		5.00	22.00	9.60	7.64	--	--	--	--	--	--	--	--	
8/11/2006	NP		5.00	22.00	11.13	6.11	570	54	<1.0	2.2	<1.0	4.6	0.8	7.1	
2/7/2007	--		5.00	22.00	11.08	6.16	--	--	--	--	--	--	--	--	
8/14/2007	NP		5.00	22.00	11.28	5.96	520	5.4	<0.50	3.6	<0.50	5.3	0.65	7.37	
2/22/2008	--		5.00	22.00	9.47	7.77	--	--	--	--	--	--	--	--	
8/12/2008	NP		5.00	22.00	11.27	5.97	560	0.92	<0.50	0.80	<0.50	4.2	0.71	9.40	
1/8/2009	--		5.00	22.00	10.88	6.36	--	--	--	--	--	--	--	--	
9/4/2009	NP		5.00	22.00	11.79	5.45	330	0.66	<0.50	<0.50	<0.50	1.9	0.55	7.38	
3/5/2010	--		5.00	22.00	8.55	8.69	--	--	--	--	--	--	--	--	
3/11/2011	NP		5.00	22.00	9.65	7.59	230	0.55	<0.50	0.56	<0.50	1.9	1.27	7.6	p (GRO)
8/26/2011	P		5.00	22.00	11.27	5.97	1,900	6.7	<0.50	7.1	<0.50	40	1.18	7.3	j
2/22/2012	P		5.00	22.00	11.29	5.95	310	4.8	<0.50	1.4	<0.50	11	0.34	7.72	r (GRO)
8/16/2012	**P**		**5.00**	**22.00**	**11.69**	**5.55**	**280**	**13**	**<1.0**	**7.1**	**<2.0**	**320**	**2.67**	**7.46**	
AR-1															
6/26/2000	--	15.61	8.00	28.00	11.59	4.02	--	--	--	--	--	--	--	--	
7/20/2000	--		8.00	28.00	12.06	3.55	<50	<0.5	<0.5	<0.5	<1.0	6	--	--	
9/19/2000	--		8.00	28.00	11.89	3.72	<50	<0.5	<0.5	<0.5	<1.0	<3	--	--	
12/26/2000	--		8.00	28.00	11.95	3.66	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
03/20/2001	--		8.00	28.00	--	--	--	--	--	--	--	--	--	--	a
6/12/2001	--		8.00	28.00	11.87	3.74	<50	<0.5	<0.5	<0.5	<0.5	17	--	--	
9/23/2001	--		8.00	28.00	12.42	3.19	--	--	--	--	--	--	--	--	
12/28/2001	--		8.00	28.00	7.62	7.99	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/21/2002	--		8.00	28.00	9.37	6.24	--	--	--	--	--	--	--	--	
4/17/2002	--		8.00	28.00	10.43	5.18	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
8/14/2002	--		8.00	28.00	12.08	3.53	<50	<0.5	<0.5	<0.5	1.3	<2.5	2.2	7.9	
11/27/2002	--		8.00	28.00	12.00	3.61	--	--	--	--	--	--	--	--	
2/12/2003	--		8.00	28.00	10.89	4.72	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.8	7.9	d

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Well ID and Date Monitored	P/NP	TOC (feet)	Top of Screen (ft bgs)	Bottom of Screen (ft bgs)	DTW (feet)	Water Level Elevation (feet)	Concentrations in µg/L						DO (mg/L)	pH	Footnote
							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
AR-1 Cont.															
5/22/2003	--	15.61	8.00	28.00	11.18	4.43	--	--	--	--	--	--	--	--	
7/23/2003	--		8.00	28.00	11.73	3.88	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.3	7.7	
11/13/2003	--		8.00	28.00	12.05	3.56	--	--	--	--	--	--	--	--	
02/16/2004	--	18.18	8.00	28.00	10.35	7.83	--	--	--	--	--	--	--	--	
05/06/2004	--		8.00	28.00	11.60	6.58	--	--	--	--	--	--	--	--	
09/02/2004	P		8.00	28.00	11.88	6.30	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	7.8	
11/29/2004	--		8.00	28.00	11.55	6.63	--	--	--	--	--	--	--	--	
02/02/2005	--		8.00	28.00	9.92	8.26	--	--	--	--	--	--	--	--	
05/09/2005	--		8.00	28.00	10.19	7.99	--	--	--	--	--	--	--	--	
08/11/2005	P		8.00	28.00	11.80	6.38	<50	<0.50	<0.50	<0.50	<0.50	<0.50	7.4	7.6	n
02/09/2006	--		8.00	28.00	10.49	7.69	--	--	--	--	--	--	--	--	
8/11/2006	P		8.00	28.00	11.48	6.70	<50	<0.50	<0.50	<0.50	<0.50	<0.50	5.42	8.1	
2/7/2007	--		8.00	28.00	--	--	--	--	--	--	--	--	--	--	e
8/14/2007	--		8.00	28.00	--	--	--	--	--	--	--	--	--	--	e
2/22/2008	--		8.00	28.00	--	--	--	--	--	--	--	--	--	--	e
8/12/2008	NP		8.00	28.00	11.57	6.61	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.42	9.51	
1/8/2009	--		8.00	28.00	11.43	6.75	--	--	--	--	--	--	--	--	
9/4/2009	NP		8.00	28.00	12.52	5.66	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.62	7.61	
3/5/2010	--		8.00	28.00	8.66	9.52	--	--	--	--	--	--	--	--	
3/11/2011	--		8.00	28.00	--	--	--	--	--	--	--	--	--	--	q
AR-2															
6/26/2000	--	15.28	8.50	28.50	11.79	3.49	--	--	--	--	--	--	--	--	
7/20/2000	--		8.50	28.50	12.07	3.21	<50	<0.5	<0.5	<0.5	<1.0	<3	--	--	
9/19/2000	--		8.50	28.50	12.08	3.20	<50	<0.5	<0.5	<0.5	<1.0	<3	--	--	
12/26/2000	--		8.50	28.50	11.95	3.33	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--	--	
3/20/2001	--		8.50	28.50	10.50	4.78	--	--	--	--	--	--	--	--	
6/12/2001	--		8.50	28.50	11.73	3.55	<50	<0.5	<0.5	<0.5	<0.5	82	--	--	
9/23/2001	--		8.50	28.50	12.43	2.85	--	--	--	--	--	--	--	--	
12/28/2001	--		8.50	28.50	8.60	6.68	<50	<0.5	<0.5	<0.5	<0.5	30	--	--	
3/21/2002	--		8.50	28.50	9.49	5.79	--	--	--	--	--	--	--	--	

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							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
AR-2 Cont.															
4/17/2002	--	15.28	8.50	28.50	10.37	4.91	<50	<0.5	<0.5	<0.5	<0.5	3.2	--	--	
8/14/2002	--		8.50	28.50	12.13	3.15	<50	<0.5	<0.5	<0.5	<0.5	<2.5	1.4	7.9	
11/27/2002	--		8.50	28.50	12.08	3.20	--	--	--	--	--	--	--	--	
2/12/2003	--		8.50	28.50	11.15	4.13	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.2	7.5	d
5/22/2003	--		8.50	28.50	11.18	4.10	--	--	--	--	--	--	--	--	
7/23/2003	--		8.50	28.50	11.85	3.43	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.3	8.2	
11/13/2003	--		8.50	28.50	11.98	3.30	--	--	--	--	--	--	--	--	f
02/16/2004	--	17.87	8.50	28.50	10.69	7.18	--	--	--	--	--	--	--	--	f, i
05/06/2004	--		8.50	28.50	11.55	6.32	--	--	--	--	--	--	--	--	
09/02/2004	--		8.50	28.50	--	--	--	--	--	--	--	--	--	--	k
09/20/2004	NP		8.50	28.50	11.98	5.89	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.2	10.4	
11/29/2004	--		8.50	28.50	12.62	5.25	--	--	--	--	--	--	--	--	
02/02/2005	--		8.50	28.50	10.12	7.75	--	--	--	--	--	--	--	--	
05/09/2005	--		8.50	28.50	10.13	7.74	--	--	--	--	--	--	--	--	
08/11/2005	NP		8.50	28.50	11.73	6.14	<50	<0.50	<0.50	<0.50	<0.50	<0.50	1.8	7.3	
02/09/2006	--		8.50	28.50	10.03	7.84	--	--	--	--	--	--	--	--	
8/11/2006	NP		8.50	28.50	11.61	6.26	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.1	7.4	
2/7/2007	--		8.50	28.50	11.52	6.35	--	--	--	--	--	--	--	--	
8/14/2007	NP		8.50	28.50	11.75	6.12	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.86	7.41	
2/22/2008	--		8.50	28.50	9.82	8.05	--	--	--	--	--	--	--	--	
8/12/2008	NP		8.50	28.50	11.78	6.09	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.37	9.13	
1/8/2009	--		8.50	28.50	11.40	6.47	--	--	--	--	--	--	--	--	
9/4/2009	NP		8.50	28.50	11.32	6.55	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.53	7.56	
3/5/2010	--		8.50	28.50	9.04	8.83	--	--	--	--	--	--	--	--	
3/11/2011	NP		8.50	28.50	9.80	8.07	150	<0.50	<0.50	<0.50	<0.50	<0.50	2.40	8.6	p (GRO)
8/26/2011	P		8.50	28.50	11.39	6.48	<50	<0.50	<0.50	<0.50	<0.50	<0.50	2.03	8.4	
2/22/2012	P		8.50	28.50	11.42	6.45	<50	<0.50	<0.50	<0.50	<0.50	<0.50	0.38	8.69	
8/16/2012	**P**		**8.50**	**28.50**	**11.83**	**6.04**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**3.19**	**8.35**	

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
ft MSL = Feet above mean sea level
GRO = Gasoline range organics
GWE = Groundwater elevation measured in ft MSL
mg/L = Milligrams per liter
MTBE = Methyl tert-butyl ether analyzed by EPA Method 8021B unless otherwise noted
NP = Well not purged prior to sampling
P = Well purged prior to sampling
TOC = Top of casing measured in ft MSL
TPH-g = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter

Footnotes:
a = Well was covered by stockpiled soil and not accessible
b = GRO/TPH-g chromatogram pattern: Gasoline C6-C10
c = Primary and confirmation results for xylene varied by greater than 40% RPD. The values may still be useful for their intended purpose
d = TPH-g, BTEX, and MTBE analyzed using EPA Method 8260B starting first quarter 2003
e = Well inaccessible
f = ORC sock in well
g = Well removed from annual sampling schedule
h = ORC sock removed prior to gauging
i = Site re-survey to NAV'88 datum on January 30, 2004
j = Sheen in well
k = Car parked over well AR-2 during monitoring event on 9/2/04. Well was sampled 9/20/04
m = Hydrocarbon result partly due to individual peak(s) in quant. range
n = Possible low bias for GRO due to CCV falling outside acceptance criteria
o = Initial analysis within holding time but failed QA/QC criteria
p = Quantitation of unknown hydrocarbon(s) in sample based on gasoline
q = Well decommissioned 6/16/2010
r = Quantitated against gasoline
s = Reporting limits raised due to high level of non-target analytes
t = Sample preserved improperly

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

Beginning in the second quarter 2004, the carbon range for GRO was changed from C6-C10 to C4-C12

Top and bottom of screen depths for wells ADR-1 and ADR-2 are estimated from EMCON sampling sheets

Values for DO and pH were obtained through field measurements

GRO analysis was completed by EPA method 8260B (C4-C12) for samples collected from the time period April 2006 through February 4, 2008. The analysis for GRO was changed to EPA method 8015B (C6-C12) for samples collected from the time period February 5, 2008 through the present

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

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-1									
7/20/2000	--	--	25	--	--	--	--	--	
9/19/2000	--	--	32	--	--	--	--	--	
12/26/2000	--	--	18.7	--	--	--	--	--	
3/20/2001	--	--	<25	--	--	--	--	--	
6/12/2001	--	--	25	--	--	--	--	--	
9/23/2001	--	--	4.5	--	--	--	--	--	
12/28/2001	--	--	<25	--	--	--	--	--	
3/21/2002	--	--	<2.5	--	--	--	--	--	
4/17/2002	--	--	<2.5	--	--	--	--	--	
8/14/2002	--	--	4.9	--	--	--	--	--	
11/27/2002	--	--	6.4	--	--	--	--	--	
2/12/2003	<40	<20	2.9	<0.50	<0.50	<0.50	--	--	
5/22/2003	<100	<20	4.9	<0.50	<0.50	<0.50	--	--	
7/23/2003	<100	<20	10	<0.50	<0.50	<0.50	<0.50	<0.50	
11/13/2003	<100	<20	4.2	<0.50	<0.50	<0.50	--	--	
02/16/2004	<100	<20	3.2	<0.50	<0.50	<0.50	<0.50	<0.50	
05/06/2004	<100	<20	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	
11/29/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/02/2005	<100	<20	5.1	<0.50	<0.50	<0.50	<0.50	<0.50	a
05/09/2005	<100	<20	2.7	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	4.2	<0.50	<0.50	<0.50	<0.50	<0.50	a
02/09/2006	<300	<20	5.6	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/11/2006	<300	<20	3.7	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	20	<0.50	<0.50	<0.50	<0.50	<0.50	
8/14/2007	<300	<20	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)
2/22/2008	<1,500	<50	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
8/12/2008	<1,500	<50	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
1/8/2009	<6,000	<200	<10	<10	<10	<10	<10	<10	
9/4/2009	<300	<10	7.4	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2010	<300	<10	3.3	<0.50	<0.50	<0.50	<0.50	<0.50	
3/11/2011	<3,000	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-1 Cont.									
8/26/2011	<3,000	<100	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
2/22/2012	<3,000	<100	7.6	<5.0	<5.0	<5.0	<5.0	<5.0	
8/16/2012	**<300**	**<20**	**<1.0**	**<1.0**	**<1.0**	**<1.0**	**<1.0**	**<1.0**	
A-2									
7/20/2000	--	--	<3	--	--	--	--	--	
12/26/2000	--	--	<2.5	--	--	--	--	--	
6/12/2001	--	--	<2.5	--	--	--	--	--	
12/28/2001	--	--	<2.5	--	--	--	--	--	
4/17/2002	--	--	26	--	--	--	--	--	
8/14/2002	--	--	<2.5	--	--	--	--	--	
2/12/2003	<40	<20	12	<0.50	<0.50	<0.50	--	--	
7/23/2003	<100	<20	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	2.5	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/11/2006	<300	<20	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	
8/14/2007	<300	<20	0.65	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)
8/12/2008	<300	<10	0.96	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/11/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/26/2011	<1,200	<40	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
2/22/2012	<1,200	<40	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
8/16/2012	**<150**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
A-3									
12/26/2000	--	--	<2.5	--	--	--	--	--	
12/28/2001	--	--	<2.5	--	--	--	--	--	
2/12/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
A-4									
12/26/2000	--	--	<2.5	--	--	--	--	--	
12/28/2001	--	--	<2.5	--	--	--	--	--	
2/12/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-5									
7/20/2000	--	--	3	--	--	--	--	--	
9/19/2000	--	--	<3	--	--	--	--	--	
12/26/2000	--	--	<250	--	--	--	--	--	
3/20/2001	--	--	<250	--	--	--	--	--	
6/12/2001	--	--	<5.0	--	--	--	--	--	
9/23/2001	--	--	2.7	--	--	--	--	--	
12/28/2001	--	--	5	--	--	--	--	--	
3/21/2002	--	--	31	--	--	--	--	--	
4/17/2002	--	--	<25	--	--	--	--	--	
8/14/2002	--	--	<25	--	--	--	--	--	
11/27/2002	--	--	<0.5	--	--	--	--	--	
2/12/2003	<400	<200	<5.0	<5.0	<5.0	<5.0	--	--	
5/22/2003	<1,000	<200	<5.0	<5.0	<5.0	<5.0	--	--	
7/23/2003	<1,000	<200	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
11/13/2003	<1,000	<200	<5.0	<5.0	<5.0	<5.0	--	--	
02/16/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
05/06/2004	<500	<100	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
09/02/2004	<200	<40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
11/29/2004	<10,000	<2,000	<50	<50	<50	<50	<50	<50	
02/02/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
05/09/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	a
02/09/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/11/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<6,000	<400	<10	<10	<10	<10	<10	<10	
8/14/2007	<6,000	<400	<10	<10	<10	<10	<10	<10	d (1,2-DCA)
2/22/2008	<30,000	<1,000	<50	<50	<50	<50	<50	<50	
8/12/2008	<30,000	<1,000	<50	<50	<50	<50	<50	<50	
1/8/2009	<30,000	<1,000	<50	<50	<50	<50	<50	<50	
9/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2010	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/11/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-5 Cont.									
8/26/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2012	**<150**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
A-6									
7/20/2000	--	--	6	--	--	--	--	--	
9/19/2000	--	--	6	--	--	--	--	--	
12/26/2000	--	--	8.17	--	--	--	--	--	
3/20/2001	--	--	19.9	--	--	--	--	--	
6/12/2001	--	--	15	--	--	--	--	--	
9/23/2001	--	--	53	--	--	--	--	--	
12/28/2001	--	--	26	--	--	--	--	--	
3/21/2002	--	--	19	--	--	--	--	--	
4/17/2002	--	--	16	--	--	--	--	--	
8/14/2002	--	--	75	--	--	--	--	--	
11/27/2002	--	--	16	--	--	--	--	--	
2/12/2003	<40	<20	9.9	<0.50	<0.50	<0.50	--	--	
5/22/2003	<100	<20	11	<0.50	<0.50	0.6	--	--	
7/23/2003	<100	<20	14	<0.50	<0.50	0.54	<0.50	<0.50	
11/13/2003	<100	<20	2.3	<0.50	<0.50	<0.50	--	--	
02/16/2004	<100	<20	3.9	<0.50	<0.50	<0.50	<0.50	<0.50	
05/06/2004	<100	<20	7.1	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	4.4	<0.50	<0.50	<0.50	<0.50	<0.50	
11/29/2004	<100	<20	2.9	<0.50	<0.50	<0.50	<0.50	<0.50	
02/02/2005	<100	<20	14	<0.50	<0.50	0.91	<0.50	<0.50	a
05/09/2005	<100	<20	12	<0.50	<0.50	0.66	<0.50	<0.50	
08/11/2005	<100	<20	14	<0.50	<0.50	2.2	<0.50	<0.50	a
02/09/2006	<300	<20	17	<0.50	<0.50	1.2	<0.50	<0.50	b
8/11/2006	<300	<20	21	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	7.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/14/2007	<300	<20	2.3	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)
2/22/2008	<300	<10	11	<0.50	<0.50	0.89	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
A-6 Cont.									
8/12/2008	<300	<10	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	
1/8/2009	<300	<10	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	4.9	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2010	<300	<10	4.1	<0.50	<0.50	<0.50	<0.50	<0.50	
3/11/2011	<300	<10	5.7	<0.50	<0.50	<0.50	<0.50	<0.50	
8/26/2011	<300	<10	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2012	<300	<10	2.3	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2012	**<150**	**<10**	**1.5**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
ADR-1									
7/20/2000	--	--	22	--	--	--	--	--	
9/19/2000	--	--	22	--	--	--	--	--	
12/26/2000	--	--	14.7	--	--	--	--	--	
3/20/2001	--	--	10.8	--	--	--	--	--	
6/12/2001	--	--	7.5	--	--	--	--	--	
9/23/2001	--	--	2.8	--	--	--	--	--	
12/28/2001	--	--	6.8	--	--	--	--	--	
3/21/2002	--	--	<2.5	--	--	--	--	--	
4/17/2002	--	--	<2.5	--	--	--	--	--	
8/14/2002	--	--	<2.5	--	--	--	--	--	
11/27/2002	--	--	1.1	--	--	--	--	--	
2/12/2003	<40	<20	0.73	<0.50	<0.50	<0.50	--	--	
5/22/2003	<100	<20	3.5	<0.50	<0.50	<0.50	--	--	
7/23/2003	<100	<20	4	<0.50	<0.50	<0.50	<0.50	<0.50	
11/13/2003	<100	<20	1.6	<0.50	<0.50	<0.50	--	--	
02/16/2004	<100	<20	1.6	<0.50	<0.50	<0.50	<0.50	<0.50	
05/07/2004	<1,000	<200	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	
09/02/2004	<100	<20	0.84	<0.50	<0.50	<0.50	<0.50	<0.50	
11/29/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
02/02/2005	<100	<20	3.4	<0.50	<0.50	<0.50	<0.50	<0.50	a
05/09/2005	<100	<20	2.6	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	4.0	<0.50	<0.50	<0.50	<0.50	<0.50	a

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ADR-1 Cont.									
02/09/2006	<300	<20	2.9	<0.50	<0.50	<0.50	<0.50	<0.50	b
8/11/2006	<300	<20	2.2	<0.50	<0.50	<0.50	<0.50	<0.50	
2/7/2007	<300	<20	3.8	<0.50	<0.50	<0.50	<0.50	<0.50	
8/14/2007	<300	<20	3.6	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)
2/22/2008	<300	<10	3.9	<0.50	<0.50	<0.50	<0.50	<0.50	
8/12/2008	<600	<20	6.5	<1.0	<1.0	<1.0	<1.0	<1.0	
1/8/2009	<300	<10	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/5/2010	<300	<10	0.92	<0.50	<0.50	<0.50	<0.50	<0.50	
3/11/2011	<300	<10	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	
8/26/2011	<300	<10	1.7	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2012	<300	<10	1.1	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2012	**<150**	**<10**	**1.6**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
ADR-2									
7/20/2000	--	--	23	--	--	--	--	--	
9/19/2000	--	--	34	--	--	--	--	--	
12/26/2000	--	--	32.8	--	--	--	--	--	
9/23/2001	--	--	60	--	--	--	--	--	
12/28/2001	--	--	61	--	--	--	--	--	
3/21/2002	--	--	15	--	--	--	--	--	
4/17/2002	--	--	<25	--	--	--	--	--	
8/14/2002	--	--	<50	--	--	--	--	--	
11/27/2002	--	--	74	--	--	--	--	--	
2/12/2003	<400	<200	22	<5.0	<5.0	<5.0	--	--	
5/22/2003	<1,000	<200	9.7	<5.0	<5.0	<5.0	--	--	
7/23/2003	<100	<20	8.4	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<1,000	<200	5.6	<5.0	<5.0	<5.0	<5.0	<5.0	
08/11/2005	<500	<100	9.0	<2.5	<2.5	<2.5	<2.5	<2.5	a
8/11/2006	<600	<40	4.6	<1.0	<1.0	<1.0	<1.0	<1.0	a, c
8/14/2007	<300	<20	5.3	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)
8/12/2008	<300	<10	4.2	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
ADR-2 Cont.									
9/4/2009	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
3/11/2011	<300	<10	1.9	<0.50	<0.50	<0.50	<0.50	<0.50	
8/26/2011	<300	11	40	<0.50	<0.50	14	<0.50	<0.50	
2/22/2012	<300	<10	11	<0.50	<0.50	1.7	<0.50	<0.50	
8/16/2012	**<300**	**<20**	**320**	**<1.0**	**<1.0**	**140**	**<1.0**	**<1.0**	
AR-1									
7/20/2000	--	--	6	--	--	--	--	--	
9/19/2000	--	--	<3	--	--	--	--	--	
12/26/2000	--	--	<2.5	--	--	--	--	--	
6/12/2001	--	--	17	--	--	--	--	--	
12/28/2001	--	--	<2.5	--	--	--	--	--	
4/17/2002	--	--	<2.5	--	--	--	--	--	
8/14/2002	--	--	<2.5	--	--	--	--	--	
2/12/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
7/23/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
09/02/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/11/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/12/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
AR-2									
7/20/2000	--	--	<3	--	--	--	--	--	
9/19/2000	--	--	<3	--	--	--	--	--	
12/26/2000	--	--	<2.5	--	--	--	--	--	
6/12/2001	--	--	82	--	--	--	--	--	
12/28/2001	--	--	30	--	--	--	--	--	
4/17/2002	--	--	3.2	--	--	--	--	--	
8/14/2002	--	--	<2.5	--	--	--	--	--	
2/12/2003	<40	<20	<0.50	<0.50	<0.50	<0.50	--	--	
7/23/2003	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	

Table 2. Summary of Fuel Additives Analytical Data

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Well ID and Date Monitored	Concentrations in µg/L								Footnote
	Ethanol	TBA	MTBE	DIPE	ETBE	TAME	1,2-DCA	EDB	
AR-2 Cont.									
09/20/2004	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
08/11/2005	<100	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	a
8/11/2006	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/14/2007	<300	<20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	d (1,2-DCA)
8/12/2008	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
9/4/2009	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
3/11/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/26/2011	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/22/2012	<300	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/16/2012	**<150**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	

Symbols & Abbreviations:
-- = Not analyzed/applicable/measured/available
< = Not detected at or above specified laboratory reporting limit
1,2-DCA = 1,2-Dichloroethane
DIPE = Diisopropyl ether
EDB = 1,2-Dibromoethane
ETBE = Ethyl tert-butyl ether
MTBE = Methyl tert-butyl ether
TAME = tert-Amyl methyl ether
TBA = tert-Butyl alcohol
g/L = Micrograms per Liter

Footnotes:
a = Calibration verification was within method limits but outside contract limits for ethanol
b = Initial analysis within holding time but failed QA/QC criteria
c = Possible high bias due to CCV failing outside acceptance criteria for TBA.
d = CCV recovery above limit; analyte not detected

Notes:
All volatile organic 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

ARCO Service Station #2169, 889 W. Grand Ave., Oakland, CA

Date Measured	Approximate Gradient Direction	Approximate Gradient Magnitude (ft/ft)
7/20/2000	Northwest	0.004
9/19/2000	West-Northwest	0.003
12/26/2000	Northwest	0.004
3/20/2001	Northwest	0.003
6/12/2001	Northwest	0.004
9/23/2001	Northwest	0.004
12/28/2001	Variable	Variable
3/21/2002	Northwest	0.004
4/17/2002	Northwest	0.003
8/14/2002	West	0.003
11/27/2002	West	0.003
2/12/2003	South	0.005
5/22/2003	West to Northwest	0.002 to 0.003
7/23/2003	Southwest to Northwest	0.005 to 0.004
11/13/2003	Southwest	0.009
2/16/2004	Southwest	0.009
5/6/2004	Southwest	0.004
9/2/2004	West-Northwest	0.005
11/29/2004	West to Southwest	0.005 to 0.006
2/2/2005	Northwest to Southwest	0.005
5/9/2005	Northwest	0.01
8/11/2005	West	0.004
2/9/2006	West	0.003
8/11/2006	Northwest*	0.005
2/7/2007	North-Northwest*	0.004
8/14/2007	Northwest	0.005
2/22/2008	North-Northwest	0.005
8/12/2008	North-Northwest	0.005
1/8/2009	North-Northwest	0.003
9/4/2009	Northwest	0.002
3/5/2010	West-Northwest	0.006
3/11/2011	Northeast	0.002
8/26/2011	Northeast	0.003
2/22/2012	Northeast	0.001
8/16/2012	**Northeast**	**0.001**

Symbols & Abbreviations:

* = Base map provided to Broadbent & Associates, Inc. incorrectly oriented north arrow 47° east of true north. Flow directions from Broadbent & Associates, Inc. reports for Third Quarter 2006 and First Quarter 2007 corrected in table above

Notes:

The data within this table collected prior to April 2006 was provided to Broadbent & Associates, Inc. by Atlantic Richfield Company and theirprevious 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[1]. Parameters are considered stable when two (2) consecutive readings recorded three (3) minutes apart fall within ranges provided below in Table 1. In the event that the parameters have not stabilized and five (5) well casing volumes have been removed, purging activities will cease and be considered complete. Once the well is purged, a groundwater sample(s) is collected from the well using a new disposable bailer. If a new disposable bailer was used for purging, that bailer may be used to collect the sample(s). A sample is not collected if the well is inadvertently purged dry.

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

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

3.2 Low-Flow Purging and Sampling

“Low-Flow”, “Minimal Drawdown”, or "Low-Stress” purging is performed per ASTM D6771-02. It is a method of groundwater removal from within a well’s screened interval that is intended to minimize drawdown and mixing of the water column in the well

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

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.

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

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

3.3 Minimal Purge, Discrete Depth, and Passive Sampling

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

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

4.0 DECONTAMINATION

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

5.0 SAMPLE CONTAINERS, LABELING, AND STORAGE

Samples were collected in laboratory prepared containers with appropriate preservative (if preservative was required). Samples were 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

BROADBENT

DAILY REPORT

Page 1 of 1

Project: BP 2169 Project No.: 06-88-621

Field Representative(s): AM / JR Day: Thursday Date: 8/16/12

Time Onsite: From: 0806 To: 1415; From: _____ To: _____; From: _____ To: _____

X Signed HASP X Safety Glasses X Hard Hat X Steel Toe Boots X Safety Vest

X UST Emergency System Shut-off Switches Located X Proper Gloves

X Proper Level of Barricading ___ Other PPE (describe) _____

Weather: Foggy / Sunny

Equipment In Use: Water quality meter, bailers, water level meter

Visitors: None

TIME:	WORK DESCRIPTION:
0800	Arrived onsite / conducted tailgate meeting
0830	Set up @ A-5
0915	Set up @ A-6
0955	Set up @ A-2
1055	Set up @ ADR-1
1130	Set up @ ADR-2
1220	Set up @ AR-2
1320	Set up @ A-1
1415	Sign out & left site

Signature: _____

Revision 1/24/2012

BROADBENT

GROUNDWATER MONITORING SITE SHEET

Project: BP 2169 Project No.: 06-88-621 Date: 8/16/12

Field Representative: AM / 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)						
A-1					1328	—	—	11.09	23.70						
A-2					0959	-	—	11.57	24.65						
A-5					0845	-	-	10.33	24.18						
A-6					0920	-	-	10.44	26.95						
AR-2					1225	/	-	11.83	28.65						
ADR-1					1050	-	-	10.90	20.56						
ADR-2					1132	-	-	11.69	25.86						

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

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

Signature: _____

GROUNDWATER SAMPLING DATA SHEET

Project: BP 2169 Project No.: 06-88-621 Date: 8-16-12

Field Representative: VR/AM

Well ID: A-1 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT X 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)*

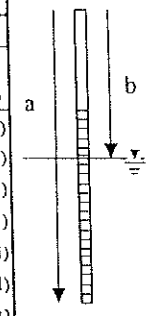
PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow Other: *(circle one)*

PREDETERMINED WELL VOLUME

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):	23.70 (ft)
Initial Depth to Water (b):	16.09 (ft)
Water Column Height (WCH) = (a - b):	12.61 (ft)
Water Column Volume (WCV) = WCH x Unit Volume:	4.79 (gal)
Three Casing Volumes = WCV x 3:	14.31 (gal)
Five Casing Volumes = WCV x 5:	23.95 (gal)
Pump Depth (if pump used):	___ (ft)



LOW-FLOW

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

Comments:

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

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1332	0	22.14	7.62	0.720	1.82	-140	13	moderate/strong
1338	5	21.84	7.56	0.809	2.19	-147	—	odor
1345	10	21.13	7.62	0.823	2.15	-151	—	
1352	15	21.33	7.61	0.819	2.70	-140	—	
1354	16	21.37	7.60	0.815	2.57	-143	411	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 11.20 (ft)

Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing
___ Disp. Pump Tubing Other:

Sample ID: _____ Sample Collection Time: 1358 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: _____ ___ Other: _____
___ Other: _____ ___ Other: _____

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)	1354	-143
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

GROUNDWATER SAMPLING DATA SHEET

Project: BP 2169 Project No.: 06-88-621 Date: 8-16-12

Field Representative: JR/AM

Well ID: A-2 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT X 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)*

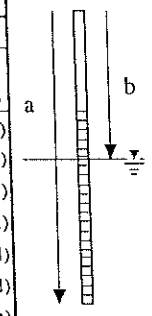
PURGING/SAMPLING METHOD (Predetermined Well Volume) Low-Flow Other: *(circle one)*

PREDETERMINED WELL VOLUME

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):	24.65 (ft)
Initial Depth to Water (b):	11.57 (ft)
Water Column Height (WCH) = (a - b):	13.08 (ft)
Water Column Volume (WCV) = WCH x Unit Volume:	4.97 (gal)
Three Casing Volumes = WCV x 3:	14.91 (gal)
Five Casing Volumes = WCV x 5:	24.85 (gal)
Pump Depth (if pump used):	___ (ft)



LOW-FLOW

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

Comments:

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

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1010	0.0	21.42	7.56	0.502	3.021	2	9.1	
1018	5.0	20.98	7.41	0.840	2.33	-4	208	
1028	10.0	20.79	7.45	0.884	3.45	14	461	
1028	15.0	20.87	7.44	0.896	3.10	27	601	
1030	16.0	20.90	7.45	0.898	3.09	23	663	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 11.62 (ft)

Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing
___ Disp. Pump Tubing Other:

Sample ID: A-2 Sample Collection Time: 1030 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)	1030	23
Alkalinity (mg/L)	~~1030~~	~~23~~
Other:		
Other:		

Signature: _____

ENVIRONMENT

GROUNDWATER SAMPLING DATA SHEET

Project: BP 2169 Project No.: 06-83-621 Date: 8/16/12

Field Representative: AM / JR

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

PURGE EQUIPMENT — X 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

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): 24.18 (ft)

Initial Depth to Water (b): 10.33 (ft)

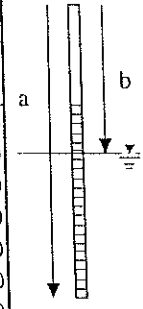
Water Column Height (WCH) = (a - b): 13.85 (ft)

Water Column Volume (WCV) = WCH x Unit Volume: 2.34 (gal)

Three Casing Volumes = WCV x 3: ~~7.02~~ (gal)

Five Casing Volumes = WCV x 5: 11.70 (gal)

Pump Depth (if pump used): _____ (ft)



LOW-FLOW

Previous Low-Flow Purge Rate: _____ (lpm)

Total Well Depth (a): ~~24.18~~ (ft)

Initial Depth to Water (b): ~~10.33~~ (ft)

Pump In-take Depth = b + (a-b)/2: _____ (ft)

Maximum Allowable Drawdown = (a-b)/8: _____ (ft)

Low-Flow Purge Rate: _____ (Lpm)*

Comments:

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

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity µS or mS	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0853	0	20.97	7.64	0.953	3.68	-112	0.0	-Slight HC ODOR
0900	3.5	20.62	7.87	0.946	2.51	-132	~~0.0~~	
0904	7.0	26.57	7.94	0.939	2.76	-136	~~0.0~~	- black particulates in water
0906	8.0	20.55	7.95	0.941	2.64	-135	42.1	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 11.50 (ft)

Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing ___ Disp. Pump Tubing Other:

Sample ID: A-5 Sample Collection Time: 0910 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber

___ Other: ___ ___ Other: ___

___ Other: ___ ___ Other: ___

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)	0906	2.64
Ferrous Iron (mg/L)		
Redox Potential (mV)	0906	-135
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Project: BP 2169 Project No.: 06-88-621 Date: 8/16/12

Field Representative: AM/JR

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

PURGE EQUIPMENT — X 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)*

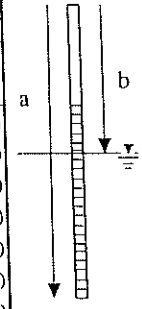
PREDETERMINED WELL VOLUME

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):	26.95 (ft)
Initial Depth to Water (b):	10.44 (ft)
Water Column Height (WCH) = (a - b):	16.51 (ft)
Water Column Volume (WCV) = WCH x Unit Volume:	2.80 (gal)
Three Casing Volumes = WCV x 3:	8.40 (gal)
Five Casing Volumes = WCV x 5:	14.00 (gal)
Pump Depth (if pump used):	(ft)



LOW-FLOW

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

Comments:

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

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (gal)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0927	0.0	22.50	7.54	0.730	2.79	-105	0.0	
0932	4.0	22.09	7.55	0.700	4.57	-112	-	
0937	8.0	22.09	7.59	0.706	2.67	-114	-	
0938	9.0	22.26	7.58	0.703	8.18	-116	0.0	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 10.65 (ft)

Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing ___ Disp. Pump Tubing Other:

Sample ID: A-6 Sample Collection Time: 0942 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber

___ Other: ___ ___ Other: ___

___ Other: ___ ___ Other: ___

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)	0938	-116
Alkalinity (mg/L)		
Other:		
Other:		

Signature:

ENVIRONMENT

GROUNDWATER SAMPLING DATA SHEET

Project: BP 2169 Project No.: 06-88-621 Date: 8/16/12

Field Representative: AM/JR

Well ID: AR-2 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT X 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)*

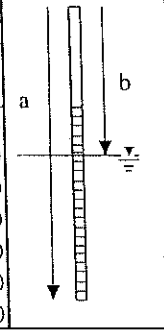
PURGING/SAMPLING METHOD (Predetermined Well Volume) Low-Flow Other: *(circle one)*

PREDETERMINED WELL VOLUME

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):	28.65 (ft)
Initial Depth to Water (b):	11.83 (ft)
Water Column Height (WCH) = (a - b):	16.82 (ft)
Water Column Volume (WCV) = WCH x Unit Volume:	11.10 (gal)
Three Casing Volumes = WCV x 3:	33.30 (gal)
Five Casing Volumes = WCV x 5:	55.50 (gal)
Pump Depth (if pump used):	___ (ft)



LOW-FLOW

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

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

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (gal)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1234	0.0	22.28	8.74	0.600	3.55	-70	2.0	
1242	11.0	20.87	8.83	0.731	2.40	-99	—	
1252	22.0	20.67	8.47	0.798	9.06	-102	—	
1308	33.0	20.52	8.51	0.796	4.92	-57	—	Allowed time to recharge
1310	34.0	20.72	8.35	0.789	3.14	-99	215	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 21.69 (ft)

Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing
___ Disp. Pump Tubing Other:

Sample ID: AR-2 Sample Collection Time: 1313 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ ___ Other: ___
___ Other: ___ ___ Other: ___

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)	1310	-99
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

ENVIRONMENT

GROUNDWATER SAMPLING DATA SHEET

Project: BP 2169 Project No.: 66-88-621 Date: 8/16/12

Field Representative: JR/AM

Well ID: ADR-1 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT X 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)*

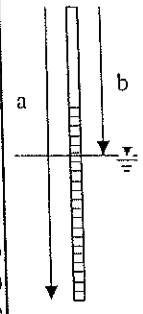
PURGING/SAMPLING METHOD Predetermined Well Volume Low-Flow Other: *(circle one)*

PREDETERMINED WELL VOLUME

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):	20.56	(ft)
Initial Depth to Water (b):	10.90	(ft)
Water Column Height (WCH) = (a - b):	9.66	(ft)
Water Column Volume (WCV) = WCH x Unit Volume:	6.37	(gal)
Three Casing Volumes = WCV x 3:	19.12	(gal)
Five Casing Volumes = WCV x 5:	31.85	(gal)
Pump Depth (if pump used):	____	(ft)



LOW-FLOW

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

Comments:

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

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume (L)	Temperature °C	pH	Conductivity µS or (mS)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1102	0.0	24.24	7.43	0.878	1.88	-134	0.0	Light HC odor
1105	5.0	23.32	7.46	0.874	1.92	-135	-	
1109	10.0	22.80	7.50	0.866	2.25	-132	-	
1112	15.0	22.19	7.52	0.848	2.50	-125	-	
1116	19.0	22.04	7.54	0.846	3.64	-127	-	
1118	20.0	22.31	7.50	0.852	2.90	-121	181	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 10.97 (ft)

Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing
___ Disp. Pump Tubing Other:

Sample ID: ADR-1 Sample Collection Time: 1120 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber
___ Other: ___ Other:
___ Other: ___ Other:

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)	1118	-121
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

ENVIRONMENT

GROUNDWATER SAMPLING DATA SHEET

Project: BP 2169 Project No.: 06-08-621 Date: 8/16/12

Field Representative: JR/AM

Well ID: ADR-2 Start Time: _____ End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT — X 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)*

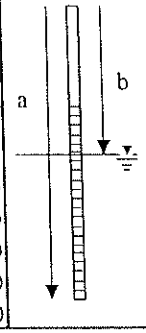
PREDETERMINED WELL VOLUME

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):	25.86 (ft)
Initial Depth to Water (b):	11.69 (ft)
Water Column Height (WCH) = (a - b):	14.17 (ft)
Water Column Volume (WCV) = WCH x Unit Volume:	9.35 (gal)
Three Casing Volumes = WCV x 3:	28.05 (gal)
Five Casing Volumes = WCV x 5:	46.75 (gal)
Pump Depth (if pump used):	___ (ft)



LOW-FLOW

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

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

GROUNDWATER STABILIZATION PARAMETER RECORD

Time (24:00)	Cumulative Volume ~~(L)~~ gal	Temperature °C	pH	Conductivity µS or ~~mS~~	DO mg/L ~~ppm~~	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
1147	0.0	22.01	7.87	0.780	[illegible]	-115	4.1	MILD HC
1153	7.0	21.96	7.36	0.857	2.08	-135	—	ODOR
1158	14.0	21.74	7.41	0.931	2.43	-117	—	
1203	21.0	21.24	7.43	0.952	2.71	-116	—	
1208	28.0	21.28	7.46	0.956	2.73	-120	—	
1210	29.0	21.30	7.46	0.957	2.67	-117	2.49	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 16.70 (ft)

Sample Collected Via: X Disp. Bailer ___ Dedicated Pump Tubing ___ Disp. Pump Tubing Other:

Sample ID: ADR-2 Sample Collection Time: 1215 (24:00)

Containers (#): 6 VOA (X preserved or ___ unpreserved) ___ Liter Amber

___ Other: ___ ___ Other: ___

___ Other: ___ ___ Other: ___

GEOCHEMICAL PARAMETERS

Parameter	Time	Measurement
DO (mg/L)		
Ferrous Iron (mg/L)		
Redox Potential (mV)	1210	-117
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Laboratory Management Program LaMP Chain of Custody Record

Page _____ of _____

BP Site Node Path: BP 2169 **Req Due Date (mm/dd/yy):** _____ **Rush TAT:** Yes ____ No ____

BP Facility No: 2169 **Lab Work Order Number:** _____

Lab Name: Test America	Facility Address: 889 W. Grand Ave	Consultant/Contractor: Broadbent and Associates
Lab Address: 17461 Derian Avenue, Suite 100, Irvine, CA 92614	City, State, ZIP Code: Oakland, CA	Consultant/Contractor Project No: 06-88-602
Lab PM: Pate Abe	Lead Regulatory Agency: ACEH	Address: 1324 Mangrove Ave., Suite 212, Chico CA 95926
Lab Phone: 1-949-261-1022	California Global ID No.: T0600100112	Consultant/Contractor PM: Tom Venus
Lab Shipping Accnt: Fed-Ex# 1103-6633-7	Enfos Proposal No: 0060C-0002 / WR245683	Phone: 530-566-1400 / 530-566-1402 (fx) Email: tvenus@broadbentinc.com
Lab Bottle Order No:	Accounting Mode: Provision x OOC-BU ____ OOC-RM ____	Email EDD To: tvenus@broadbentinc.com and to lab.enfosdoc@bp.com
Other Info:	Stage: Execute (40) Activity: Projecet Spend (80)	Invoice To: BP __x__ Contractor ____

BP Project Manager (PM): Shannon Couch

BP PM Phone: 1-925-275-3804

BP PM Email: shannon.couch@bp.com

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix: Is this location a well?	No. Containers / Preservative: Total Number of Container	Unpreserved	H2SO4	HNO3	HCl	Methanol		Requested Analyses: GRO by 8015M	BTEX/5 FO + EDB by 8260	1,2-DCA and Ethanol by 8260							Report Type & QC Level / Comments
	A-1	8-16-12	1355		x		y	6				x			x	x	x							
	A-2		1030		x		y	6				x			x	x	x							
	A-5		0910		x		y	6				x			x	x	x							
	A-6		0942		x		y	6				x			x	x	x							
	AR-2		1313		x		y	6				x			x	x	x							
	ADR-1		1120		x		y	6				x			x	x	x							
	ADR-2		1215		x		y	6				x			x	x	x							~~CANCEL~~
	TB - 2169 - 08162012		1430		x		n	2				x												ON HOLD

Standard __x__

Full Data Package ____

Comments

Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

Sampler's Name: James Ramos	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Broadbent		8-17-12	1700			
Shipment Method: Fed Ex Ship Date: 8-17-12						
Shipment Tracking No: 8007 0583 4091						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: _____ °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

NO. 689922

NON-HAZARDOUS WASTE DATA FORM

BES! #

GENERATOR

Generator's Name and Mailing Address

BP WEST COAST PRODUCTS, LLC
P.O. BOX 80249
RANCHO SANTA MARGARITA, CA 92688

Generator's Site Address (if different than mailing address)

BP 2169
889 W. Grand Ave.
Oakland, California

Generator's Phone: 949-460-5200

Container type removed from site:

☐ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck

☐ Other _____

Quantity 132 191

Container type transported to receiving facility:

☐ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck

☐ Other _____

Quantity _____ Volume _____

WASTE DESCRIPTION NON-HAZARDOUS WATER

GENERATING PROCESS WELL PURGING / DECON WATER

COMPONENTS OF WASTE	PPM	%
1. WATER		99-100%
2. TPH		<1%

COMPONENTS OF WASTE	PPM	%
3.		
4.		

Waste Profile _____ PROPERTIES: pH 7-10 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER _____

HANDLING INSTRUCTIONS: WEAR ALL APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.

Generator Printed/Typed Name: James Ramos | Signature | Month 8 | Day 16 | Year 12

The Generator certifies that the waste as described is 100% non-hazardous

TRANSPORTER

Transporter 1 Company Name: BROADBENT & ASSOCIATES, INC> | Phone#: 530-566-1400

Transporter 1 Printed/Typed Name: James Ramos | Signature | Month 8 | Day 16 | Year 12

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

Designated Facility Name and Site Address

INSTRAT, INC.
1105 AIRPORT RD.
RIO VISTA, CA 94571

Phone#: 530-753-1828

Printed/Typed Name | Signature | Month | Day | Year

Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.

APPENDIX C

HISTORIC GROUNDWATER DATA TABLES

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 03-03-95
Project Number: 0805-129.01

Well Designation	Water Level Field Date	TOC Elevation	Depth to Water	Groundwater Elevation	Floating Product Thickness	Groundwater Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot
A-1	04-03-92	14.75	10.35	4.40	ND	NR	NR
A-1	05-20-92	14.75	11.66	3.09	ND	NR	NR
A-1	06-16-92	14.75	11.95	2.80	ND	NR	NR
A-1	07-17-92	14.75	12.23	2.52	ND	NR	NR
A-1	08-07-92	14.75	12.16	2.59	ND	NR	NR
A-1	09-22-92	14.75	12.42	2.33	ND	NR	NR
A-1	10-13-92	14.75	12.47	2.28	ND	NR	NR
A-1	11-23-92	14.75	11.83	2.92	ND	NR	NR
A-1	12-16-92	14.75	11.03	3.72	ND	NR	NR
A-1	01-28-93	14.75	9.08	5.67	ND	NR	NR
A-1	02-22-93	14.75	9.46	5.29	ND	NR	NR
A-1	03-25-93	14.75	10.02	4.73	ND	NR	NR
A-1	04-15-93	14.75	10.50	4.25	ND	NR	NR
A-1	05-22-93	14.75	11.33	3.42	ND	NR	NR
A-1	06-16-93	14.75	11.51	3.24	ND	NR	NR
A-1	07-27-93	14.75	11.91	2.84	ND	NR	NR
A-1	08-26-93	14.75	12.11	2.64	ND	NR	NR
A-1	09-27-93	14.75	12.21	2.54	ND	NR	NR
A-1	10-08-93	14.75	12.21	2.54	ND	NR	NR
A-1	02-09-94	14.16	10.09	4.07	ND	NR	NR
A-1	05-04-94	14.16	10.68	3.48	ND	NW	0.004
A-1	08-10-94	14.16	10.28	3.88	ND	WNW	0.007
A-1	11-16-94	14.16	9.75	4.41	ND	NW	0.005

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 03-03-95
Project Number: 0805-129.01

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient foot/foot
A-2	04-03-92	15.16	10.97	4.19	ND	NR	NR
A-2	05-20-92	15.16	12.17	2.99	ND	NR	NR
A-2	06-16-92	15.16	12.43	2.73	ND	NR	NR
A-2	07-17-92	15.16	12.64	2.52	ND	NR	NR
A-2	08-07-92	15.16	12.75	2.41	ND	NR	NR
A-2	09-22-92	15.16	12.88	2.28	ND	NR	NR
A-2	10-13-92	15.16	12.92	2.24	ND	NR	NR
A-2	11-23-92	15.16	12.18	2.98	ND	NR	NR
A-2	12-16-92	15.16	11.52	3.64	ND	NR	NR
A-2	01-28-93	15.16	9.73	5.43	ND	NR	NR
A-2	02-22-93	15.16	9.28	5.88	ND	NR	NR
A-2	03-25-93	15.16	10.57	4.59	ND	NR	NR
A-2	04-15-93	15.16	11.20	3.96	ND	NR	NR
A-2	05-22-93	15.16	11.91	3.25	ND	NR	NR
A-2	06-16-93	15.16	12.04	3.12	ND	NR	NR
A-2	07-27-93	15.16	12.41	2.75	ND	NR	NR
A-2	08-25-93	15.16	12.54	2.62	ND	NR	NR
A-2	09-27-93	15.16	12.66	2.50	ND	NR	NR
A-2	10-08-93	15.16	12.65	2.51	ND	NR	NR
A-2	02-09-94	14.55	10.67	3.88	ND	NR	NR
A-2	05-04-94	14.55	11.25	3.30	ND	NW	0.004
A-2	08-10-94	14.55	11.56	2.99	ND	WNW	0.007
A-2	11-16-94	14.55	10.31	4.24	ND	NW	0.005

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 03-03-95
Project Number: 0805-129.01

Well Designation	Water Level Field Date	TOC Elevation	Depth to Water	Groundwater Elevation	Floating Product Thickness	Groundwater Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot
A-3	04-03-92	16.38	11.70	4.68	ND	NR	NR
A-3	05-20-92	16.38	13.00	3.38	ND	NR	NR
A-3	06-16-92	16.38	13.46	2.92	ND	NR	NR
A-3	07-17-92	16.38	13.45	2.93	ND	NR	NR
A-3	08-07-92	16.38	12.37	4.01	ND	NR	NR
A-3	09-22-92	16.38	13.71	2.67	ND	NR	NR
A-3	10-13-92	16.38	13.76	2.62	ND	NR	NR
A-3	11-23-92	16.38	13.60	2.78	ND	NR	NR
A-3	12-16-92	16.38	12.31	4.07	ND	NR	NR
A-3	01-28-93	16.38	10.33	6.05	ND	NR	NR
A-3	02-22-93	16.38	10.44	5.94	ND	NR	NR
A-3	03-25-93	16.38	11.27	5.11	ND	NR	NR
A-3	04-15-93	16.38	11.98	4.40	ND	NR	NR
A-3	05-22-93	16.38	12.70	3.68	ND	NR	NR
A-3	06-16-93	16.38	12.84	3.54	ND	NR	NR
A-3	07-27-93	16.38	13.22	3.16	ND	NR	NR
A-3	08-25-93	16.38	13.35	3.03	ND	NR	NR
A-3	09-27-93	16.38	13.50	2.88	ND	NR	NR
A-3	10-08-93	16.38	13.48	2.90	ND	NR	NR
A-3	02-09-94	15.75	11.32	4.43	ND	NR	NR
A-3	05-04-94	15.75	11.99	3.76	ND	NW	0.004
A-3	08-10-94	15.75	11.12	4.63	ND	WNW	0.007
A-3	11-16-94	15.75	11.02	4.73	ND	NW	0.005

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 03-03-95
Project Number: 0805-129.01

Well Designation	Water Level Field Date	TOC Elevation	Depth to Water	Groundwater Elevation	Floating Product Thickness	Groundwater Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot
A-4	04-03-92	15.89	10.84	5.05	ND	NR	NR
A-4	05-20-92	15.89	12.13	3.76	ND	NR	NR
A-4	06-16-92	15.89	12.33	3.56	ND	NR	NR
A-4	07-17-92	15.89	12.60	3.29	ND	NR	NR
A-4	08-07-92	15.89	12.56	3.33	ND	NR	NR
A-4	09-22-92	15.89	12.87	3.02	ND	NR	NR
A-4	10-13-92	15.89	12.87	3.02	ND	NR	NR
A-4	11-23-92	15.89	12.63	3.26	ND	NR	NR
A-4	12-16-92	15.89	11.34	4.55	ND	NR	NR
A-4	01-28-93	15.89	9.40	6.49	ND	NR	NR
A-4	02-22-93	15.89	9.35	6.54	ND	NR	NR
A-4	03-25-93	15.89	10.32	5.57	ND	NR	NR
A-4	04-15-93	15.89	11.15	4.74	ND	NR	NR
A-4	05-22-93	15.89	11.84	4.05	ND	NR	NR
A-4	06-16-93	15.89	12.01	3.88	ND	NR	NR
A-4	07-27-93	15.89	12.33	3.56	ND	NR	NR
A-4	08-25-93	15.89	12.48	3.41	ND	NR	NR
A-4	09-27-93	15.89	12.60	3.29	ND	NR	NR
A-4	10-08-93	15.89	12.57	3.32	ND	NR	NR
A-4	02-09-94	15.25	10.01	5.24	ND	NR	NR
A-4	05-04-94	15.25	11.08	4.17	ND	NW	0.004
A-4	08-10-94	15.25	11.75	3.50	ND	WNW	0.007
A-4	11-16-94	15.25	9.78	5.47	ND	NW	0.005

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 03-03-95
Project Number: 0805-129.01

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient foot/foot
A-5	02-11-93	14.14	9.15	4.99	ND	NR	NR
A-5	03-25-93	14.14	9.33	4.81	ND	NR	NR
A-5	04-15-93	14.14	10.11	4.03	ND	NR	NR
A-5	05-22-93	14.14	10.71	3.43	ND	NR	NR
A-5	06-16-93	14.14	10.84	3.30	ND	NR	NR
A-5	07-27-93	14.14	11.22	2.92	ND	NR	NR
A-5	08-26-93	14.14	11.44	2.70	ND	NR	NR
A-5	09-27-93	14.14	11.51	2.63	ND	NR	NR
A-5	10-08-93	14.14	11.68	2.46	ND	NR	NR
A-5	02-09-94	13.51	9.44	4.07	ND	NR	NR
A-5	05-04-94	13.51	10.00	3.51	ND	NW	0.004
A-5	08-10-94	13.51	10.76	2.75	ND	WNW	0.007
A-5	11-16-94	13.51	9.09	4.42	ND	NW	0.005
A-6	02-11-93	14.17	9.35	4.82	ND	NR	NR
A-6	03-25-93	14.17	Not surveyed: well was inaccessible				
A-6	04-16-93	14.17	9.36	4.81	ND	NR	NR
A-6	05-22-93	14.17	10.86	3.31	ND	NR	NR
A-6	06-16-93	14.17	10.98	3.19	ND	NR	NR
A-6	07-27-93	14.17	Not surveyed: well was inaccessible				
A-6	08-25-93	14.17	Not surveyed: well was inaccessible				
A-6	09-27-93	14.17	11.65	2.52	ND	NR	NR
A-6	10-08-93	14.17	11.80	2.37	ND	NR	NR
A-6	02-09-94	13.51	9.48	4.03	ND	NR	NR
A-6	05-04-94	13.51	10.07	3.44	ND	NW	0.004
A-6	08-10-94	13.51	10.77	2.74	ND	WNW	0.007
A-6	11-16-94	13.51	9.14	4.37	ND	NW	0.005

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 03-03-95
Project Number: 0805-129.01

Well Designation	Water Level Field Date	TOC Elevation	Depth to Water	Groundwater Elevation	Floating Product Thickness	Groundwater Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot
AR-1	04-03-92	15.71	11.07	4.64	ND	NR	NR
AR-1	05-20-92	15.71	12.37	3.34	ND	NR	NR
AR-1	06-16-92	15.71	12.47	3.24	ND	NR	NR
AR-1	07-17-92	15.71	13.00	2.71	ND	NR	NR
AR-1	08-07-92	15.71	12.87	2.84	ND	NR	NR
AR-1	09-22-92	15.71	12.99	2.72	ND	NR	NR
AR-1	10-13-92	15.71	13.05	2.66	ND	NR	NR
AR-1	11-23-92	15.71	12.80	2.91	ND	NR	NR
AR-1	12-16-92	15.71	11.49	4.22	ND	NR	NR
AR-1	01-28-93	15.71	9.46	6.25	ND	NR	NR
AR-1	02-22-93	15.71	10.05	5.66	ND	NR	NR
AR-1	03-25-93	15.71	10.75	4.96	ND	NR	NR
AR-1	04-15-93	15.71	11.26	4.45	ND	NR	NR
AR-1	05-22-93	15.71	12.07	3.64	ND	NR	NR
AR-1	06-16-93	15.71	12.21	3.50	ND	NR	NR
AR-1	07-27-93	15.71	12.60	3.11	ND	NR	NR
AR-1	08-25-93	15.71	12.78	2.93	ND	NR	NR
AR-1	09-27-93	15.71	12.89	2.82	ND	NR	NR
AR-1	10-08-93	15.71	12.84	2.87	ND	NR	NR
AR-1	02-09-94	15.61	11.08	4.53	ND	NR	NR
AR-1	05-04-94	15.61	11.83	3.78	ND	NW	0.004
AR-1	08-10-94	15.61	11.09	4.52	ND	WNW	0.007
AR-1	11-16-94	15.61	10.19	5.42	ND	NW	0.005

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 03-03-95
Project Number: 0805-129.01

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient foot/foot
AR-2	07-17-92	15.79	13.14	2.65	ND	NR	NR
AR-2	08-07-92	15.79	13.25	2.54	ND	NR	NR
AR-2	09-22-92	15.79	13.58	2.21	ND	NR	NR
AR-2	10-13-92	15.79	13.65	2.14	ND	NR	NR
AR-2	11-23-92	15.79	Not surveyed: could not located well				
AR-2	12-16-92	15.79	12.16	3.63	ND	NR	NR
AR-2	01-28-93	15.79	10.26	5.53	ND	NR	NR
AR-2	02-22-93	15.79	10.52	5.27	ND	NR	NR
AR-2	03-25-93	15.79	11.18	4.61	ND	NR	NR
AR-2	04-15-93	15.79	11.81	3.98	ND	NR	NR
AR-2	05-22-93	15.79	12.46	3.33	ND	NR	NR
AR-2	06-16-93	15.79	12.53	3.26	ND	NR	NR
AR-2	07-27-93	15.79	12.77	3.02	ND	NR	NR
AR-2	08-26-93	15.79	13.23	2.56	ND	NR	NR
AR-2	09-27-93	15.79	13.16	2.63	ND	NR	NR
AR-2	10-08-93	15.79	13.32	2.47	ND	NR	NR
AR-2	02-09-94	15.28	11.33	3.95	ND	NR	NR
AR-2	05-04-94	15.28	11.88	3.40	ND	NW	0.004
AR-2	08-10-94	15.28	12.48	2.80	ND	WNW	0.007
AR-2	11-16-94	15.28	10.95	4.33	ND	NW	0.005

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 03-03-95
Project Number: 0805-129.01

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient foot/foot
ADR-1	02-09-94	13.95	9.90	4.05	ND	NR	NR
ADR-1	05-04-94	13.95	10.50	3.45	ND	NW	0.004
ADR-1	08-10-94	13.95	10.36	3.59	ND	WNW	0.007
ADR-1	11-16-94	13.95	9.64	4.31	Sheen	NW	0.005
ADR-2	02-09-94	14.64	10.73	3.91	ND	NR	NR
ADR-2	05-04-94	14.64	11.31	3.33	ND	NW	0.004
ADR-2	08-10-94	14.64	9.81	** 4.90	0.10	WNW	0.007
ADR-2	11-16-94	14.64	9.84	** 4.87	0.09	NW	0.005

TOC = Top of casing
ft-MSL = Elevation in feet, relative to mean sea level
MWN = Groundwater flow direction and gradient apply to the entire monitoring well network
ND = None detected
NR = Not reported; data not available or not measurable
NW = Northwest
WNW = West-northwest
** [Corrected elevation (Z')] = Z + (h * 0.73) where: Z = measured elevation, h = floating product thickness, 0.73 = density ratio of oil to water

Table 3
Historical Groundwater Analytical Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 02-08-95
Project Number: 0805-129.01

Well Desig-nation	Water Sample Field Date	TPHG	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHD
		ppb	ppb	ppb	ppb	ppb	ppb
A-1	04-03-92	34000	6200	3900	410	3100	6100
A-1	07-17-92	5600	3000	500	<100	<100	Not analyzed
A-1	10-13-92	5600	980	590	85	910	Not analyzed
A-1	01-28-93	3700	780	360	130	460	^620
A-1	04-15-93	210	34	11	7.1	20	^420
A-1	08-26-93	2000	370	35	50	220	^1500
A-1	10-08-93	2600	430	65	64	99	^1200
A-1	02-09-94	3000	560	150	66	190	^650
A-1	05-04-94	1300	250	61	27	110	^2100
A-1	08-10-94	27000	3700	1100	540	3000	^3000
A-1	11-16-94	2100	460	6.4	62	120	^^^^640
A-2	04-03-92	<30	<0.3	<0.3	<0.3	<0.3	<50
A-2	07-17-92	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-2	10-13-92	<50	0.57	<0.5	<0.5	<0.5	Not analyzed
A-2	01-28-93	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-2	04-15-93	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-2	08-25-93	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-2	10-08-93	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-2	02-09-94	^^260	<0.6	<0.5	<0.5	<0.5	Not analyzed
A-2	05-04-94	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-2	08-10-94	690	47	25	3.9	86	Not analyzed
A-2	11-16-94	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-3	04-03-92	200	0.79	0.65	4.4	<0.3	130
A-3	07-17-92	<50	<0.5	<0.5	1.3	2.3	Not analyzed
A-3	10-13-92	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-3	01-28-93	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-3	04-15-93	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-3	08-25-93	<50	<0 5	<0.5	<0.5	<0.5	Not analyzed
A-3	10-08-93	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-3	02-09-94	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-3	05-04-94	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-3	08-10-94	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-3	11-16-94	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed

Table 3
Historical Groundwater Analytical Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 02-08-95
Project Number: 0805-129.01

Well Desig-nation	Water Sample Field Date	TPHG	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHD
		ppb	ppb	ppb	ppb	ppb	ppb
A-4	04-03-92	35	<0.3	<0.3	<0.3	<0.3	85
A-4	07-17-92	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-4	10-13-92	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-4	01-28-93	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-4	04-15-93	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-4	08-25-93	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-4	10-08-93	<50	<0.5	<0.5	<0 5	<0.5	Not analyzed
A-4	02-09-94	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-4	05-04-94	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-4	08-10-94	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-4	11-16-94	<50	<0.5	<0.5	<0.5	<0.5	Not analyzed
A-5	02-11-93	4900	380	640	140	970	Not analyzed
A-5	04-15-93	27000	3100	4000	1100	4600	Not analyzed
A-5	08-26-93	13000	1100	1400	480	1800	Not analyzed
A-5	10-08-93	6800	490	620	280	980	Not analyzed
A-5	02-09-94	2200	190	130	130	310	Not analyzed
A-5	05-09-94	13000	1000	1500	490	2000	Not analyzed
A-5	08-10-94	11000	730	930	310	1300	Not analyzed
A-5	11-16-94	2600	160	220	130	400	Not analyzed
A-6	02-11-93	990	1.8	5.1	17	7.2	Not analyzed
A-6	04-16-93	390	1.3	1.6	1.7	7.7	Not analyzed
A-6	08-25-93	Not sampled: well was inaccessible					
A-6	10-08-93	220	0.73	<0.5	0.82	0.65	Not analyzed
A-6	02-09-94	640	<2.9	<3.7	<2.4	<8.2	Not analyzed
A-6	05-04-94	260	<0.5	<1.5	<1.5	<0.5	Not analyzed
A-6	08-10-94	300	<0.6	<2.5	<0.8	<1	Not analyzed
A-6	11-16-94	250	<0.5	<1.5	<0.6	<1.5	Not analyzed

Table 3
Historical Groundwater Analytical Data
Summary Report

ARCO Service Station 2169
889 West Grand Avenue, Oakland, CA

Date: 02-08-95
Project Number: 0805-129.01

Well Desig-nation	Water Sample Field Date	TPHG	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHD
		ppb	ppb	ppb	ppb	ppb	ppb
AR-1	04-03-92	17000	310	1400	320	3000	12000
AR-1	07-17-92	44000	4300	1800	1800	10000	Not analyzed
AR-1	10-13-92	32000	310	730	570	3100	^22000
AR-1	01-28-93	15000	1200	510	510	2600	^5300
AR-1	04-15-93	17000	1800	360	520	1600	^5400
AR-1	08-25-93	2900	260	54	80	160	^2800
AR-1	10-08-93	3500	200	85	120	290	^4100
AR-1	02-09-94	26000	2900	450	920	3000	^4200
AR-1	05-04-94	36000	3400	360	1400	3700	^7200
AR-1	08-10-94	6100	120	66	65	530	^2900
AR-1	11-16-94	1200	66	20	34	210	^^^^560
AR-2	07-17-92	150	6.6	24	6.6	39	Not analyzed
AR-2	10-13-92	<50	2	0.86	0.51	3.8	^58
AR-2	01-28-93	2000	570	13	<10	380	^290
AR-2	04-15-93	85	15	<0.5	<0.5	2.4	<50
AR-2	08-26-93	<50	<0.5	<0.5	<0.5	<0.5	<50
AR-2	10-08-93	<50	<0.5	<0.5	<0.5	<0.5	<50
AR-2	02-09-94	^^82	<0.5	<0.5	<0.5	<0.5	<50
AR-2	05-04-94	<50	<0.5	<0.5	<0.5	<0.5	<50
AR-2	08-10-94	200	5	1.7	2.7	38	^55
AR-2	11-16-94	<50	0.8	<0.5	<0.5	<0.5	<50
ADR-1	02-09-94	3000	380	140	59	240	^110
ADR-1	05-04-94	2100	490	93	68	140	^60
ADR-1	08-10-94	150000	5400	15000	3600	24000	^^^4800
ADR-1	11-16-94	Not sampled: well contained floating product					
ADR-2	02-09-94	83000	6300	6100	2000	11000	12000
ADR-2	05-04-94	36000	4600	2600	930	4500	^4200
ADR-2	08-10-94	Not sampled: well contained floating product					
ADR-2	11-16-94	Not sampled: well contained floating product					

TPHG = Total petroleum hydrocarbons as gasoline
TPHD = Total petroleum hydrocarbons as diesel
ppb = Parts per billion or micrograms per liter (µg/l)
^ = Sample contains a lower boiling point hydrocarbon quantitated as diesel; chromatogram does not match the typical diesel fingerprint
^^ = Sample contains a single non-fuel component eluting in the gasoline range, and quantified as gasoline
^^^ = Sample contains a mixture of diesel and a lower boiling point hydrocarbon quantitated as diesel; chromatogram does not match the typical diesel fingerprint
^^^^ = Sample contains components eluting in the diesel range, quantified as diesel; chromatogram does not match the typical diesel fingerprint

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present***

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	Date Sampled	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	TPH Diesel (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
A-1	03-24-95	14.16	8.10	ND	6.06	03-24-95	1,200	230	39	34	66	--	--	160		
A-1	06-05-95	14.16	11.13	ND	3.03	06-05-95	1,500	310	27	36	76	--	--	710		
A-1	08-17-95	14.16	11.71	ND	2.45	08-18-95	1,600	470	35	48	110	120	--	240		
A-1	12-04-95	14.16	12.28	ND	1.88	12-04-95	1,200	240	17	25	56	--	120	--		
A-1	03-01-96	14.16	8.78	ND	5.38	03-13-96	1,300	300	74	29	73	100	--	--		
A-1	05-29-96	14.16	9.85	ND	4.31	05-29-96	Not sampled: well sampled semi-annually, during the first and third quarters									
A-1	08-29-96	14.16	11.08	ND	3.08	08-29-96	1,200	320	5.9	25	27	110	--	--		
A-1	11-21-96	14.16	10.54	ND	3.62	11-21-96	Not sampled: well sampled semi-annually, during the first and third quarters									
A-1	03-26-97	14.16	10.55	ND	3.61	03-26-97	<50	0.8	<0.5	<0.5	<0.5	64	--	--		
A-1	05-21-97	14.16	11.10	ND	3.06	05-21-97	Not sampled: well sampled semi-annually, during the first and third quarters									
A-1	08-08-97	14.16	11.32	ND	2.84	08-08-97	91	7	<0.5	0.5	3.9	<60	--	--		
A-1	11-18-97	14.16	3.46	ND	10.70	11-18-97	54	<0.5	<0.5	<0.5	0.6	27	--	--		
A-1	02-20-98	14.16	7.10	ND	7.06	02-23-98	590	160	22	15	28	70	--	--		
A-1	05-11-98	14.16	9.87	ND	4.29	05-11-98	280	26	<0.5	0.8	2.3	6	--	--		
A-1	07-30-98	14.16	10.73	ND	3.43	07-30-98	1,000	210	5	<5	38	<30	--	--		
A-1	10-08-98	14.16	11.15	ND	3.01	10-08-98	3,100	740	11	<10	24	<60	--	--		
A-1	02-18-99	14.16	8.00	ND	6.16	02-18-99	510	87	7.1	6.4	13	52	--	--		
A-1	05-26-99	14.16	10.60	ND	3.56	05-26-99	240	26	<0.5	1.2	6.2	34	--	--		
A-1	08-23-99	14.16	11.22	ND	2.94	08-23-99	79	3.9	0.6	<0.5	1.7	38	--	--	0.68	NP
A-1	10-27-99	14.16	11.37	ND	2.79	10-27-99	110	2.2	<0.5	<0.5	<1	25	--	--	0.80	NP
A-1	01-31-00	14.16	9.44	ND	4.72	01-31-00	<50	<0.5	<0.5	<0.5	<1	<3	--	--	1.0	NP
A-2	03-24-95	14.55	8.64	ND	5.91	03-24-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--		
A-2	06-05-95	14.55	11.72	ND	2.83	06-05-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--		
A-2	08-17-95	14.55	12.35	ND	2.20	08-17-95	<50	<0.5	<0.5	<0.5	<0.5	12	--	--		
A-2	12-04-95	14.55	12.74	ND	1.81	12-04-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--		
A-2	03-01-96	14.55	9.34	ND	5.21	03-13-96	<50	<0.5	0.6	<0.5	1.3	<9	--	--		

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present***

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

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A-2	05-29-96	14.55	10.40	ND	4.15	05-29-96	<50	<0.5	<0.5	<0.5	<0.5	<20	--	--		
A-2	08-29-96	14.55	11.50	ND	3.05	08-29-96	<50	<0.5	<0.5	<0.5	<0.5	<39	--	--		
A-2	11-21-96	14.55	11.06	ND	3.49	11-21-96	<50	<0.5	<0.5	<0.5	<0.5	<30	--	--		
A-2	03-26-97	14.55	11.12	ND	3.43	03-26-97	<50	<0.5	<0.5	<0.5	<0.5	<20	--	--		
A-2	05-21-97	14.55	11.58	ND	2.97	05-21-97	Not sampled: well sampled semi-annually, during the first and third quarters									
A-2	08-08-97	14.55	11.82	ND	2.73	08-08-97	<50	<0.5	<0.5	<0.5	<0.5	<20	--	--		
A-2	11-18-97	14.55	3.33	ND	11.22	11-18-97	Not sampled: well sampled semi-annually, during the first and third quarters									
A-2	02-20-98	14.55	7.68	ND	6.87	02-20-98	<50	<0.5	<0.5	<0.5	<0.5	17	--	--		
A-2	05-11-98	14.55	10.45	ND	4.10	05-11-98	Not sampled									
A-2	07-30-98	14.55	11.23	ND	3.32	07-30-98	Not sampled: well sampled semi-annually, during the first and second quarters									
A-2	10-08-98	14.55	11.62	ND	2.93	10-08-98	Not sampled: well sampled semi-annually, during the first and second quarters									
A-2	02-18-99	14.55	8.62	ND	5.93	02-18-99	93	<0.5	<0.5	<0.5	<1	26	--	--		
A-2	05-26-99	14.55	11.16	ND	3.39	05-26-99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
A-2	08-23-99	14.55	11.69	ND	2.86	08-23-99	Not sampled: well sampled semi-annually, during the first and second quarters								0.59	
A-2	10-27-99	14.55	11.88	ND	2.67	10-27-99	Not sampled: well sampled semi-annually, during the first and second quarters								0.59	
A-2	01-31-00	14.55	10.17	ND	4.38	01-31-00	<50	<0.5	<0.5	<0.5	<1	<3	--	--	1.0	NP
A-3	03-24-95	15.75	8.83	ND	6.92	03-24-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--		
A-3	06-05-95	15.75	12.44	ND	3.31	06-05-95	Not sampled: well sampled annually									
A-3	08-17-95	15.75	13.04	ND	2.71	08-17-95	Not sampled: well sampled annually									
A-3	12-04-95	15.75	13.57	ND	2.18	12-04-95	Not sampled: well sampled annually									
A-3	03-01-96	15.75	9.90	ND	5.85	03-13-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
A-3	05-29-96	15.75	11.08	ND	4.67	05-29-96	Not sampled: well sampled annually									
A-3	08-29-96	15.75	12.38	ND	3.37	08-29-96	Not sampled: well sampled annually									
A-3	11-21-96	15.75	11.86	ND	3.89	11-21-96	Not sampled: well sampled annually									
A-3	03-26-97	15.75	11.81	ND	3.94	03-26-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
A-3	05-21-97	15.75	12.35	ND	3.40	05-21-97	Not sampled: well sampled annually									

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present***

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

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A-3	08-08-97	15.75	12.62	ND	3.13	08-08-97	Not sampled: well sampled annually									
A-3	11-18-97	15.75	3.75	ND	12.00	11-18-97	Not sampled: well sampled annually									
A-3	02-20-98	15.75	8.06	ND	7.69	02-20-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
A-3	05-11-98	15.75	11.19	ND	4.56	05-11-98	Not sampled: well sampled annually									
A-3	07-30-98	15.75	12.05	ND	3.70	07-30-98	Not sampled: well sampled annually									
A-3	10-08-98	15.75	12.43	ND	3.32	10-08-98	Not sampled: well sampled annually									
A-3	02-18-99	15.75	9.05	ND	6.70	02-18-99	Not sampled: well sampled annually									
A-3	05-26-99	15.75	11.93	ND	3.82	05-26-99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
A-3	08-23-99	15.75	12.57	ND	3.18	08-23-99	Not sampled: well sampled annually								0.88	
A-3	10-27-99	15.75	12.65	ND	3.10	10-27-99	Not sampled: well sampled annually									
A-3	01-31-00	15.75	9.55	ND	6.20	01-31-00	<50	<0.5	<0.5	<0.5	<1	9	--	--	1.0	NP
A-4	03-24-95	15.25	7.20	ND	8.05	03-24-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--		
A-4	06-05-95	15.25	11.70	ND	3.55	06-05-95	Not sampled: well sampled annually									
A-4	08-17-95	15.25	12.28	ND	2.97	08-17-95	Not sampled: well sampled annually									
A-4	12-04-95	15.25	12.63	ND	2.62	12-04-95	Not sampled: well sampled annually									
A-4	03-01-96	15.25	8.55	ND	6.70	03-13-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
A-4	05-29-96	15.25	10.32	ND	4.93	05-29-96	Not sampled: well sampled annually									
A-4	08-29-96	15.25	11.55	ND	3.70	08-29-96	Not sampled: well sampled annually									
A-4	11-21-96	15.25	10.83	ND	4.42	11-21-96	Not sampled: well sampled annually									
A-4	03-26-97	15.25	10.97	ND	4.28	03-26-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
A-4	05-21-97	15.25	11.51	ND	3.74	05-21-97	Not sampled: well sampled annually									
A-4	08-08-97	15.25	11.73	ND	3.52	08-08-97	Not sampled: well sampled annually									
A-4	11-18-97	15.25	4.37	ND	10.88	11-18-97	Not sampled: well sampled annually									
A-4	02-20-98	15.25	6.25	ND	9.00	02-20-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
A-4	05-11-98	15.25	10.33	ND	4.92	05-11-98	Not sampled: well sampled annually									
A-4	07-30-98	15.25	11.25	ND	4.00	07-30-98	Not sampled: well sampled annually									

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present***

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

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A-4	10-08-98	15.25	11.62	ND	3.63	10-08-98	Not sampled: well sampled annually									
A-4	02-18-99	15.25	7.12	ND	8.13	02-18-99	Not sampled: well sampled annually									
A-4	05-26-99	15.25	11.12	ND	4.13	05-26-99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
A-4	08-23-99	15.25	11.62	ND	3.63	08-23-99	Not sampled: well sampled annually								0.54	
A-4	10-27-99	15.25	11.74	ND	3.51	10-27-99	Not sampled: well sampled annually									
A-4	01-31-00	15.25	9.45	ND	5.80	01-31-00	<50	<0.5	<0.5	<0.5	<1	4	--	--	1.0	NP
A-5	03-24-95	13.51	7.40	ND	6.11	03-24-95	3,300	200	310	130	460	--	--	--		
A-5	06-05-95	13.51	10.43	ND	3.08	06-05-95	57,000	2,700	4,600	1,500	6,800	--	--	--		
A-5	08-17-95	13.51	11.15	ND	2.36	08-18-95	34,000	1,600	2,700	1,100	5,100	<28	--	--		
A-5	12-04-95	13.51	11.42	ND	2.09	12-04-95	61	<0.5	<0.5	<0.5	<0.5	--	--	--		
A-5	03-01-96	13.51	8.11	ND	5.40	03-13-96	11,000	860	960	380	1,600	<100	--	--		
A-5	05-29-96	13.51	9.30	ND	4.21	05-29-96	19,000	1,600	1,900	880	3,300	<100	--	--		
A-5	08-29-96	13.51	10.60	ND	2.91	08-29-96	7,700	490	450	260	990	<30	--	--		
A-5	11-21-96	13.51	10.05	ND	3.46	11-21-96	8,000	450	550	340	1,100	<30	--	--		
A-5	03-26-97	13.51	9.87	ND	3.64	03-26-97	3,100	190	140	130	340	<30	--	--		
A-5	05-21-97	13.51	10.25	ND	3.26	05-21-97	16,000	1,500	900	700	2,700	<120	--	--		
A-5	08-08-97	13.51	10.42	ND	3.09	08-08-97	9,000	690	240	440	1,300	<30	--	--		
A-5	11-18-97	13.51	Not surveyed: well inaccessible													
A-5	02-20-98	13.51	Not surveyed: well inaccessible													
A-5	05-11-98	13.51	Not surveyed: well inaccessible													
A-5	07-30-98	13.51	Not surveyed: well inaccessible													
A-5	10-08-98	13.51	Not surveyed: well inaccessible													
A-5	02-18-99	13.51	7.63	ND	5.88	02-18-99	<50	0.8	<0.5	<0.5	1.5	<10	--	--		
A-5	05-26-99	13.51	9.85	ND	3.66	05-26-99	1,700	240	41	110	330	<12	--	--		
A-5	08-23-99	13.51	10.60	ND	2.91	08-23-99	560	65	3	30	52	<6	--	--	0.73	NP
A-5	10-27-99	13.51	10.72	ND	2.79	10-27-99	480	93	1.0	16	19	<3	--	--	0.65	NP

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present***

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

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A-5	01-31-00	13.51	9.37	ND	4.14	01-31-00	Not sampled: well was inaccessible									
A-6	03-24-95	13.51	7.89	ND	5.62	03-24-95	120	<0.5	<1	<0.5	<1.5	--	--	--		
A-6	06-05-95	13.51	10.06	ND	3.45	06-05-95	160	<0.5	<0.6	<0.5	<0.5	--	--	--		
A-6	08-17-95	13.51	11.10	ND	2.41	08-18-95	530	<0.5	<0.5	<2.4	<4.2	6	--	--		
A-6	12-04-95	13.51	11.52	ND	1.99	12-04-95	28,000	1,600	1,800	880	3,600	--	--	--		
A-6	03-01-96	13.51	8.21	ND	5.30	03-13-96	1,400	<3	<15	<7	<10	<20	--	--		
A-6	05-29-96	13.51	9.25	ND	4.26	05-29-96	410	<2	<2	<2	<2	3	--	--		
A-6	08-29-96	13.51	10.52	ND	2.99	08-29-96	80	<0.5	<0.5	<0.5	<0.5	6	--	--		
A-6	11-21-96	13.51	10.54	ND	2.97	11-21-96	62	<0.5	<0.5	<0.5	<0.5	12	--	--		
A-6	03-26-97	13.51	9.93	ND	3.58	03-26-97	110	<0.5	0.8	1	1.4	15	--	--		
A-6	05-21-97	13.51	10.54	ND	2.97	05-21-97	600	0.6	0.6	<2	2.7	<3	--	--		
A-6	08-08-97	13.51	10.77	ND	2.74	08-08-97	850	<0.5	<0.5	6.1	<0.5	<4	--	--		
A-6	11-18-97	13.51	3.41	ND	10.10	11-18-97	690	<1	<1	3	2	7	--	--		
A-6	02-20-98	13.51	6.73	ND	6.78	02-20-98	60	<0.5	0.6	1.3	0.5	4	--	--		
A-6	05-11-98	13.51	9.26	ND	4.25	05-11-98	140	<0.5	0.7	0.6	<0.5	6	--	--		
A-6	07-30-98	13.51	10.12	ND	3.39	07-30-98	910	<2	<2	3	7	34	--	--		
A-6	10-08-98	13.51	10.53	ND	2.98	10-08-98	1,300	<2	4	3	4	21	--	--		
A-6	02-18-99	13.51	7.50	ND	6.01	02-18-99	150	<0.5	<0.5	1.4	1.7	35	--	--		
A-6	05-26-99	13.51	10.00	ND	3.51	05-26-99	100	<0.5	<0.5	<0.5	<0.5	17	--	--		
A-6	08-23-99	13.51	10.70	ND	2.81	08-23-99	98	0.6	<0.5	1.1	4.3	13	--	--	2.42	NP
A-6	10-27-99	13.51	11.00	ND	2.51	10-27-99	<50	<0.5	<0.5	<0.5	<1	7	--	--	13.23	NP
A-6	01-31-00	13.51	9.31	ND	4.20	01-31-00	<50	<0.5	<0.5	<0.5	<1	9	--	--	1.0	NP
AR-1	03-24-95	15.61	7.25	ND	8.36	03-24-95	270	14	0.6	2.5	2.1	--	--	130		
AR-1	06-05-95	15.61	11.37	ND	4.24	06-05-95	190	10	<0.5	0.8	0.5	--	--	580		
AR-1	08-17-95	15.61	12.40	ND	3.21	08-17-95	960	110	12	4.5	150	14	--	<50		

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present***

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	Date Sampled	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	TPH Diesel (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
AR-1	12-04-95	15.61	12.90	ND	2.71	12-04-95	<50	1.5	<0.5	<0.5	0.8	--	--	--		
AR-1	03-01-96	15.61	8.19	ND	7.42	03-13-96	150	3.8	0.5	1.4	1.3	<3	--	--		
AR-1	05-29-96	15.61	10.41	ND	5.20	05-29-96	Not sampled: well sampled semi-annually, during the first and third quarters									
AR-1	08-29-96	15.61	12.12	ND	3.49	08-29-96	<50	<0.5	<0.5	<0.5	0.8	<3	--	--		
AR-1	11-21-96	15.61	11.52	ND	4.09	11-21-96	Not sampled: well sampled semi-annually, during the first and third quarters									
AR-1	03-26-97	15.61	11.33	ND	4.28	03-26-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
AR-1	05-21-97	15.61	12.02	ND	3.59	05-21-97	Not sampled: well sampled semi-annually, during the first and third quarters									
AR-1	08-08-97	15.61	12.31	ND	3.30	08-08-97	<50	0.7	<0.5	1	<0.5	<3	--	--		
AR-1	11-18-97	15.61	3.97	ND	11.64	11-18-97	Not sampled: well sampled semi-annually, during the first and third quarters									
AR-1	02-20-98	15.61	6.42	ND	9.19	02-23-98	<200	<2	<2	<2	<2	160	--	--		
AR-1	05-11-98	15.61	10.93	ND	4.68	05-11-98	<50	<0.5	<0.5	<0.5	<0.5	4	--	--		
AR-1	07-30-98	15.61	11.82	ND	3.79	07-30-98	<50	<0.5	<0.5	<0.5	<0.5	6	--	--		
AR-1	10-08-98	15.61	12.24	ND	3.37	10-08-98	<50	<0.5	<0.5	<0.5	<0.5	6	--	--		
AR-1	02-18-99	15.61	7.75	ND	7.86	02-18-99	<50	<0.5	<0.5	<0.5	<1 0	<10	--	--		
AR-1	05-26-99	15.61	11.62	ND	3.99	05-26-99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
AR-1	08-23-99	15.61	9.32	ND	6.29	08-23-99	Not sampled: well sampled semi-annually, during the first and second quarters									
AR-1	10-27-99	15.61	12.14	ND	3.47	10-27-99	Not sampled: well sampled semi-annually, during the first and second quarters									
AR-1	01-31-00	15.61	Not surveyed: well inaccessible													
AR-2	03-24-95	15.28	9.13	ND	6.15	03-24-95	<50	6.2	<0.5	<0.5	0.6	--	--	<50		
AR-2	06-05-95	15.28	12.09	ND	3.19	06-05-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	<50		
AR-2	08-17-95	15.28	12.78	ND	2 50	08-18-95	<50	<0.5	<0.5	<0.5	<0.5	4	--	<50		
AR-2	12-04-95	15.28	11.44	ND	3.84	12-13-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--		
AR-2	03-01-96	15.28	9.83	ND	5.45	03-13-96	190	26	2.6	3.3	13	200	--	--		
AR-2	05-29-96	15.28	10.97	ND	4.31	05-29-96	Not sampled: well sampled semi-annually, during the first and third quarters									
AR-2	08-29-96	15.28	12.20	ND	3.08	08-29-96	<50	<0.5	<0.5	<0.5	<0.5	95	--	--		
AR-2	11-21-96	15.28	11.57	ND	3.71	11-21-96	Not sampled: well sampled semi-annually, during the first and third quarters									

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present***

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	Date Sampled	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	TPH Diesel (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
AR-2	03-26-97	15.28	11.60	ND	3.68	03-26-97	<50	<0.5	<0.5	<0.5	<0.5	9	--	--		
AR-2	05-21-97	15.28	12.12	ND	3.16	05-21-97	Not sampled: well sampled semi-annually, during the first and third quarters									
AR-2	08-08-97	15.28	12.35	ND	2.93	08-08-97	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
AR-2	11-18-97	15.28	3.48	ND	11.80	11-18-97	Not sampled: well sampled semi-annually, during the first and third quarters									
AR-2	02-20-98	15.28	8.00	ND	7.28	02-20-98	<50	<0.5	<0.5	<0.5	<0.5	43	--	--		
AR-2	05-11-98	15.28	10.97	ND	4.31	05-11-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
AR-2	07-30-98	15.28	11.76	ND	3.52	07-30-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
AR-2	10-08-98	15.28	12.17	ND	3.11	10-08-98	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
AR-2	02-18-99	15.28	9.17	ND	6.11	02-18-99	<50	<0.5	<0.5	<0.5	<1.0	<10	--	--		
AR-2	05-26-99	15.28	11.72	ND	3.56	05-26-99	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--		
AR-2	08-23-99	15.28	12.31	ND	2.97	08-23-99	Not sampled: well sampled semi-annually, during the first and second quarters								0.61	
AR-2	10-27-99	15.28	12.42	ND	2.86	10-27-99	Not sampled: well sampled semi-annually, during the first and second quarters									
AR-2	01-31-00	15.28	10.31	ND	4.97	01-31-00	Not sampled									
ADR-1	03-24-95	13.95	8.04	0.01	** 5.92	03-24-95	Not sampled: well contained floating product									
ADR-1	06-05-95	13.95	11.02	ND	2.93	06-05-95	23,000	310	420	300	1,900	--	--	13,000		
ADR-1	08-17-95	13.95	11.86	ND	2.09	08-18-95	4,400	150	120	95	620	120	--	4,500		
ADR-1	12-04-95	13.95	10.05	ND	3.90	12-13-95	8,800	100	130	120	990	--	--	--		
ADR-1	03-01-96	13.95	8.76	ND	5.19	03-13-96	89,000	370	1,000	840	8,100	<500	--	--		
ADR-1	05-29-96	13.95	9.74	ND	4.21	05-30-96	27,000	230	380	370	2,700	<100	--	--		
ADR-1	08-29-96	13.95	10.77	ND	3.18	08-29-96	5,300	190	58	76	470	85	--	--		
ADR-1	11-21-96	13.95	10.49	ND	3.46	11-21-96	1,900	82	21	32	270	110	--	--		
ADR-1	03-26-97	13.95	10.37	ND	3.58	03-26-97	1,300	260	6	39	27	95	--	--		
ADR-1	05-21-97	13.95	10.90	ND	3.05	05-21-97	2,100	300	18	37	200	79	--	--		
ADR-1	08-08-97	13.95	11.12	ND	2.83	08-08-97	3,900	620	49	110	470	<200	--	--		
ADR-1	11-18-97	13.95	3.47	ND	10.48	11-18-97	18,000	900	140	360	2,700	<60	--	--		
ADR-1	02-20-98	13.95	Not surveyed: well inaccessible													

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present***

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	Date Sampled	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	TPH Diesel (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
ADR-1	05-11-98	13.95	Not surveyed: well inaccessible													
ADR-1	07-30-98	13.95	Not surveyed: well inaccessible													
ADR-1	10-08-98	13.95	Not surveyed: well inaccessible													
ADR-1	02-18-99	13.95	7.80	ND	6.15	02-18-99	200	4.4	<0.5	1.3	1.3	43	--	--		
ADR-1	05-26-99	13.95	10.40	ND	3.55	05-26-99	160	10	<0.5	1.7	1.8	43	--	--		
ADR-1	08-23-99	13.95	10.70	ND	3.25	08-23-99	7,400	310	16	210	970	18	--	--	0.37	NP
ADR-1	10-27-99	13.95	10.82	ND	3.13	10-27-99	5,000	210	6.3	180	490	5	--	--	0.73	NP
ADR-1	01-31-00	13.95	9.21	ND	4.74	01-31-00	290	3.6	<0.5	1.1	<1	26	--	--	1.0	NP
ADR-2	03-24-95	14.64	8.41	>3.00	NR[1]	03-24-95	Not sampled: well contained floating product									
ADR-2	06-05-95	14.64	11.45	>3.00	NR[1]	06-05-95	Not sampled: well contained floating product									
ADR-2	08-17-95	14.64	12.10	0.03	** 2.56	08-17-95	Not sampled: well contained floating product									
ADR-2	12-04-95	14.64	10.93	0.03	** 3.73	12-13-95	Not sampled: well contained floating product									
ADR-2	03-01-96	14.64	8.74	ND	5.90	03-13-96	29,000	1,100	1,200	710	3,800	<500	--	--		
ADR-2	05-29-96	14.64	10.43	ND	4.21	05-29-96	33,000	510	500	470	2,300	120	--	--		
ADR-2	08-29-96	14.64	11.64	ND	3.00	08-29-96	8,000	230	180	150	730	53	--	--		
ADR-2	11-21-96	14.64	11.23	ND	3.41	11-21-96	15,000	630	440	390	2,100	75	--	--		
ADR-2	03-26-97	14.64	11.13	ND	3.51	03-26-97	6,100	320	23	180	400	32	--	--		
ADR-2	05-21-97	14.64	11.64	ND	3.00	05-21-97	6,100	380	22	210	320	<30	--	--		
ADR-2	08-08-97	14.64	11.85	ND	2.79	08-08-97	8,400	380	35	230	910	<30	--	--		
ADR-2	11-18-97	14.64	3.33	ND	11.31	11-18-97	11,000	230	29	300	1,200	<60	--	--		
ADR-2	02-20-98	14.64	7.67	ND	6.97	02-20-98	4,700	320	30	130	360	20	--	--		
ADR-2	05-11-98	14.64	10.47	ND	4.17	05-11-98	Not sampled									
ADR-2	07-30-98	14.64	Not surveyed: well inaccessible													
ADR-2	10-08-98	14.64	11.67	ND	2.97	10-08-98	Not sampled									
ADR-2	02-18-99	14.64	Not surveyed: well inaccessible													
ADR-2	05-26-99	14.64	11.02	ND	3.62	05-26-99	5,900	670	5	340	104	16	--	--		

Table 1
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present***

ARCO Service Station 2169
889 West Grand Avenue, Oakland, California

Well Number	Date Gauged	TOC Elevation (ft-MSL)	Depth to Water (feet)	FP Thickness (feet)	Groundwater Elevation (ft-MSL)	Date Sampled	TPH Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	MTBE 8021B* (µg/L)	MTBE 8260 (µg/L)	TPH Diesel (µg/L)	Dissolved Oxygen (mg/L)	Purged/ Not Purged (P/NP)
ADR-2	08-23-99	14.64	9.82	ND	4.82	08-23-99	9,100	570	12	410	1,000	28	--	--	0.50	NP
ADR-2	10-27-99	14.64	9.85	Sheen	4.79	10-27-99	Not sampled: sheen present								0.65	NP
ADR-2	01-31-00	14.64	10.15	ND	4.49	01-31-00	7,700	280	3.4	370	390	23	--	--	2.0	NP

TOC: top of casing
ft-MSL: elevation in feet, relative to mean sea level
TPH: total petroleum hydrocarbons, California DHS LUFT Method
BTEX: benzene, toluene, ethylbenzene, total xylenes by EPA method 8021B. (EPA method 8020 prior to 10/27/99).
MTBE: Methyl tert-butyl ether
µg/L: micrograms per liter
mg/L: milligrams per liter
ND: none detected
NR: not reported; data not available or not measurable
- -: not analyzed or not applicable
<: denotes concentration not present at or above laboratory detection limit stated to the right.
[1]: well contained more than 3 feet of floating product; exact product thickness and groundwater elevation could not be measured
*: EPA method 8020 prior to 10/27/99
**: [corrected elevation (Z')] = Z + (h * 0.73) where: Z = measured elevation, h = floating product thickness, 0.73 = density ratio of oil to water
***: For previous historical groundwater elevation data please refer to *Fourth Quarter 1995 Groundwater Monitoring Program Results and Remediation System Performance Evaluation Report, ARCO Service Station 2169, 889 West Grand Avenue, Oakland, California, (EMCON, March 4, 1996).*

APPENDIX D

LABORATORY REPORT
AND CHAIN-OF-CUSTODY DOCUMENTATION

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Irvine
17461 Derian Ave
Suite 100
Irvine, CA 92614-5817
Tel: (949)261-1022

TestAmerica Job ID: 440-20841-1
Client Project/Site: ARCO 2169, Oakland

For:
Broadbent & Associates, Inc.
1324 Mangrove Ave
Suite 212
Chico, California 95926

Attn: Tom Venus

Authorized for release by:
9/4/2012 6:09:59 PM

Pat Abe
Project Manager I
pat.abe@testamericainc.com

Table of Contents

Sample Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-20841-1	A-1	Water	08/16/12 13:55	08/18/12 09:55
440-20841-2	A-2	Water	08/16/12 10:30	08/18/12 09:55
440-20841-3	A-5	Water	08/16/12 09:10	08/18/12 09:55
440-20841-4	A-6	Water	08/16/12 09:42	08/18/12 09:55
440-20841-5	AR-2	Water	08/16/12 13:13	08/18/12 09:55
440-20841-6	ADR-1	Water	08/16/12 11:20	08/18/12 09:55
440-20841-7	ADR-2	Water	08/16/12 12:15	08/18/12 09:55

Job ID: 440-20841-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-20841-1

Comments
No additional comments.

Receipt
The samples were received on 8/18/2012 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 5.8º C.

GC/MS VOA
No analytical or quality issues were noted.

GC VOA
No analytical or quality issues were noted.

VOA Prep
No analytical or quality issues were noted.

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Client Sample ID: A-1
Date Collected: 08/16/12 13:55
Date Received: 08/18/12 09:55

Lab Sample ID: 440-20841-1
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			08/23/12 00:24	2
1,2-Dichloroethane	ND		1.0		ug/L			08/23/12 00:24	2
Benzene	**120**		1.0		ug/L			08/23/12 00:24	2
Ethanol	ND		300		ug/L			08/23/12 00:24	2
Ethylbenzene	**30**		1.0		ug/L			08/23/12 00:24	2
Ethyl-t-butyl ether (ETBE)	ND		1.0		ug/L			08/23/12 00:24	2
Isopropyl Ether (DIPE)	ND		1.0		ug/L			08/23/12 00:24	2
m,p-Xylene	**20**		2.0		ug/L			08/23/12 00:24	2
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			08/23/12 00:24	2
o-Xylene	**2.5**		1.0		ug/L			08/23/12 00:24	2
Tert-amyl-methyl ether (TAME)	ND		1.0		ug/L			08/23/12 00:24	2
tert-Butyl alcohol (TBA)	ND		20		ug/L			08/23/12 00:24	2
Toluene	**5.2**		1.0		ug/L			08/23/12 00:24	2
Xylenes, Total	**23**		2.0		ug/L			08/23/12 00:24	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*08/23/12 00:24*	*2*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*08/23/12 00:24*	*2*
Toluene-d8 (Surr)	*96*		*80 - 120*		*08/23/12 00:24*	*2*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**1300**		50		ug/L			08/27/12 10:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*65 - 140*		*08/27/12 10:49*	*1*

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Client Sample ID: A-2
Date Collected: 08/16/12 10:30
Date Received: 08/18/12 09:55

Lab Sample ID: 440-20841-2
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/22/12 22:52	1
1,2-Dichloroethane	ND		0.50		ug/L			08/22/12 22:52	1
Benzene	ND		0.50		ug/L			08/22/12 22:52	1
Ethanol	ND		150		ug/L			08/22/12 22:52	1
Ethylbenzene	ND		0.50		ug/L			08/22/12 22:52	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/22/12 22:52	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/22/12 22:52	1
m,p-Xylene	ND		1.0		ug/L			08/22/12 22:52	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/22/12 22:52	1
o-Xylene	ND		0.50		ug/L			08/22/12 22:52	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/22/12 22:52	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/22/12 22:52	1
Toluene	ND		0.50		ug/L			08/22/12 22:52	1
Xylenes, Total	ND		1.0		ug/L			08/22/12 22:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*08/22/12 22:52*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*08/22/12 22:52*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*08/22/12 22:52*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**140**		50		ug/L			08/28/12 13:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*65 - 140*		*08/28/12 13:13*	*1*

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Client Sample ID: A-5
Date Collected: 08/16/12 09:10
Date Received: 08/18/12 09:55

Lab Sample ID: 440-20841-3
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/23/12 00:55	1
1,2-Dichloroethane	ND		0.50		ug/L			08/23/12 00:55	1
Benzene	**1.4**		0.50		ug/L			08/23/12 00:55	1
Ethanol	ND		150		ug/L			08/23/12 00:55	1
Ethylbenzene	**18**		0.50		ug/L			08/23/12 00:55	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/23/12 00:55	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/23/12 00:55	1
m,p-Xylene	**1.1**		1.0		ug/L			08/23/12 00:55	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/23/12 00:55	1
o-Xylene	ND		0.50		ug/L			08/23/12 00:55	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/23/12 00:55	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/23/12 00:55	1
Toluene	ND		0.50		ug/L			08/23/12 00:55	1
Xylenes, Total	**1.1**		1.0		ug/L			08/23/12 00:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*08/23/12 00:55*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*08/23/12 00:55*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*08/23/12 00:55*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**130**		50		ug/L			08/28/12 13:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*65 - 140*		*08/28/12 13:41*	*1*

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Client Sample ID: A-6
Date Collected: 08/16/12 09:42
Date Received: 08/18/12 09:55

Lab Sample ID: 440-20841-4
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/23/12 01:26	1
1,2-Dichloroethane	ND		0.50		ug/L			08/23/12 01:26	1
Benzene	ND		0.50		ug/L			08/23/12 01:26	1
Ethanol	ND		150		ug/L			08/23/12 01:26	1
Ethylbenzene	ND		0.50		ug/L			08/23/12 01:26	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/23/12 01:26	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/23/12 01:26	1
m,p-Xylene	ND		1.0		ug/L			08/23/12 01:26	1
Methyl-t-Butyl Ether (MTBE)	**1.5**		0.50		ug/L			08/23/12 01:26	1
o-Xylene	ND		0.50		ug/L			08/23/12 01:26	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/23/12 01:26	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/23/12 01:26	1
Toluene	ND		0.50		ug/L			08/23/12 01:26	1
Xylenes, Total	ND		1.0		ug/L			08/23/12 01:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*08/23/12 01:26*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*08/23/12 01:26*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*08/23/12 01:26*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/27/12 13:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*65 - 140*		*08/27/12 13:09*	*1*

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Client Sample ID: AR-2
Date Collected: 08/16/12 13:13
Date Received: 08/18/12 09:55

Lab Sample ID: 440-20841-5
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/23/12 01:56	1
1,2-Dichloroethane	ND		0.50		ug/L			08/23/12 01:56	1
Benzene	ND		0.50		ug/L			08/23/12 01:56	1
Ethanol	ND		150		ug/L			08/23/12 01:56	1
Ethylbenzene	ND		0.50		ug/L			08/23/12 01:56	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/23/12 01:56	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/23/12 01:56	1
m,p-Xylene	ND		1.0		ug/L			08/23/12 01:56	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/23/12 01:56	1
o-Xylene	ND		0.50		ug/L			08/23/12 01:56	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/23/12 01:56	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/23/12 01:56	1
Toluene	ND		0.50		ug/L			08/23/12 01:56	1
Xylenes, Total	ND		1.0		ug/L			08/23/12 01:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*08/23/12 01:56*	*1*
Dibromofluoromethane (Surr)	*104*		*80 - 120*		*08/23/12 01:56*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*08/23/12 01:56*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/27/12 13:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*65 - 140*		*08/27/12 13:37*	*1*

Client Sample ID: ADR-1
Date Collected: 08/16/12 11:20
Date Received: 08/18/12 09:55

Lab Sample ID: 440-20841-6
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50	ug/L			08/23/12 02:27	1
1,2-Dichloroethane	ND		0.50	ug/L			08/23/12 02:27	1
Benzene	**16**		0.50	ug/L			08/23/12 02:27	1
Ethanol	ND		150	ug/L			08/23/12 02:27	1
Ethylbenzene	**1.4**		0.50	ug/L			08/23/12 02:27	1
Ethyl-t-butyl ether (ETBE)	ND		0.50	ug/L			08/23/12 02:27	1
Isopropyl Ether (DIPE)	ND		0.50	ug/L			08/23/12 02:27	1
m,p-Xylene	**2.0**		1.0	ug/L			08/23/12 02:27	1
Methyl-t-Butyl Ether (MTBE)	**1.6**		0.50	ug/L			08/23/12 02:27	1
o-Xylene	ND		0.50	ug/L			08/23/12 02:27	1
Tert-amyl-methyl ether (TAME)	ND		0.50	ug/L			08/23/12 02:27	1
tert-Butyl alcohol (TBA)	ND		10	ug/L			08/23/12 02:27	1
Toluene	**0.52**		0.50	ug/L			08/23/12 02:27	1
Xylenes, Total	**2.0**		1.0	ug/L			08/23/12 02:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*08/23/12 02:27*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*08/23/12 02:27*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*08/23/12 02:27*	*1*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**480**		50	ug/L			08/27/12 14:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*65 - 140*		*08/27/12 14:05*	*1*

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Client Sample ID: ADR-2
Date Collected: 08/16/12 12:15
Date Received: 08/18/12 09:55

Lab Sample ID: 440-20841-7
Matrix: Water

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		1.0		ug/L			08/23/12 02:58	2
1,2-Dichloroethane	ND		1.0		ug/L			08/23/12 02:58	2
Benzene	**13**		1.0		ug/L			08/23/12 02:58	2
Ethanol	ND		300		ug/L			08/23/12 02:58	2
Ethylbenzene	**7.1**		1.0		ug/L			08/23/12 02:58	2
Ethyl-t-butyl ether (ETBE)	ND		1.0		ug/L			08/23/12 02:58	2
Isopropyl Ether (DIPE)	ND		1.0		ug/L			08/23/12 02:58	2
m,p-Xylene	ND		2.0		ug/L			08/23/12 02:58	2
Methyl-t-Butyl Ether (MTBE)	**320**		1.0		ug/L			08/23/12 02:58	2
o-Xylene	ND		1.0		ug/L			08/23/12 02:58	2
Tert-amyl-methyl ether (TAME)	**140**		1.0		ug/L			08/23/12 02:58	2
tert-Butyl alcohol (TBA)	ND		20		ug/L			08/23/12 02:58	2
Toluene	ND		1.0		ug/L			08/23/12 02:58	2
Xylenes, Total	ND		2.0		ug/L			08/23/12 02:58	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*08/23/12 02:58*	*2*
Dibromofluoromethane (Surr)	*102*		*80 - 120*		*08/23/12 02:58*	*2*
Toluene-d8 (Surr)	*96*		*80 - 120*		*08/23/12 02:58*	*2*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**280**		50		ug/L			08/27/12 14:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*65 - 140*		*08/27/12 14:33*	*1*

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Client Sample ID: A-1
Lab Sample ID: 440-20841-1
Date Collected: 08/16/12 13:55
Matrix: Water
Date Received: 08/18/12 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		2	10 mL	10 mL	47189	08/23/12 00:24	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	47986	08/27/12 10:49	PH	TAL IRV

Client Sample ID: A-2
Lab Sample ID: 440-20841-2
Date Collected: 08/16/12 10:30
Matrix: Water
Date Received: 08/18/12 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	47189	08/22/12 22:52	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	47986	08/28/12 13:13	PH	TAL IRV

Client Sample ID: A-5
Lab Sample ID: 440-20841-3
Date Collected: 08/16/12 09:10
Matrix: Water
Date Received: 08/18/12 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	47189	08/23/12 00:55	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	47986	08/28/12 13:41	PH	TAL IRV

Client Sample ID: A-6
Lab Sample ID: 440-20841-4
Date Collected: 08/16/12 09:42
Matrix: Water
Date Received: 08/18/12 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	47189	08/23/12 01:26	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	47986	08/27/12 13:09	PH	TAL IRV

Client Sample ID: AR-2
Lab Sample ID: 440-20841-5
Date Collected: 08/16/12 13:13
Matrix: Water
Date Received: 08/18/12 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	47189	08/23/12 01:56	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	47986	08/27/12 13:37	PH	TAL IRV

Client Sample ID: ADR-1
Lab Sample ID: 440-20841-6
Date Collected: 08/16/12 11:20
Matrix: Water
Date Received: 08/18/12 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		1	10 mL	10 mL	47189	08/23/12 02:27	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	47986	08/27/12 14:05	PH	TAL IRV

Lab Chronicle

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Client Sample ID: ADR-2
Date Collected: 08/16/12 12:15
Date Received: 08/18/12 09:55

Lab Sample ID: 440-20841-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/5030B		2	10 mL	10 mL	47189	08/23/12 02:58	YK	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	47986	08/27/12 14:33	PH	TAL IRV

Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 440-47189/4
Matrix: Water
Analysis Batch: 47189

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.50		ug/L			08/22/12 21:09	1
1,2-Dichloroethane	ND		0.50		ug/L			08/22/12 21:09	1
Benzene	ND		0.50		ug/L			08/22/12 21:09	1
Ethanol	ND		150		ug/L			08/22/12 21:09	1
Ethylbenzene	ND		0.50		ug/L			08/22/12 21:09	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			08/22/12 21:09	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			08/22/12 21:09	1
m,p-Xylene	ND		1.0		ug/L			08/22/12 21:09	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			08/22/12 21:09	1
o-Xylene	ND		0.50		ug/L			08/22/12 21:09	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			08/22/12 21:09	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			08/22/12 21:09	1
Toluene	ND		0.50		ug/L			08/22/12 21:09	1
Xylenes, Total	ND		1.0		ug/L			08/22/12 21:09	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*08/22/12 21:09*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*08/22/12 21:09*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*08/22/12 21:09*	*1*

Lab Sample ID: LCS 440-47189/5
Matrix: Water
Analysis Batch: 47189

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,2-Dibromoethane (EDB)			25.0	26.5		ug/L		106	75 - 125		
1,2-Dichloroethane			25.0	26.2		ug/L		105	60 - 140		
Benzene			25.0	23.2		ug/L		93	70 - 120		
Ethanol			250	247		ug/L		99	40 - 155		
Ethylbenzene			25.0	25.9		ug/L		104	75 - 125		
Ethyl-t-butyl ether (ETBE)			25.0	25.0		ug/L		100	65 - 135		
Isopropyl Ether (DIPE)			25.0	26.2		ug/L		105	60 - 135		
m,p-Xylene			50.0	51.1		ug/L		102	75 - 125		
Methyl-t-Butyl Ether (MTBE)			25.0	25.9		ug/L		104	60 - 135		
o-Xylene			25.0	24.8		ug/L		99	75 - 125		
Tert-amyl-methyl ether (TAME)			25.0	25.1		ug/L		101	60 - 135		
tert-Butyl alcohol (TBA)			125	122		ug/L		98	70 - 135		
Toluene			25.0	25.6		ug/L		102	70 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*96*		*80 - 120*

Method: 8260B/5030B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 440-20841-2 MS
Matrix: Water
Analysis Batch: 47189

Client Sample ID: A-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	ND		25.0	25.9		ug/L		104	70 - 130
1,2-Dichloroethane	ND		25.0	25.6		ug/L		103	60 - 140
Benzene	ND		25.0	23.2		ug/L		93	65 - 125
Ethanol	ND		250	241		ug/L		96	40 - 155
Ethylbenzene	ND		25.0	26.0		ug/L		104	65 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	23.5		ug/L		94	60 - 135
Isopropyl Ether (DIPE)	ND		25.0	25.1		ug/L		100	60 - 140
m,p-Xylene	ND		50.0	50.8		ug/L		102	65 - 130
Methyl-t-Butyl Ether (MTBE)	ND		25.0	24.3		ug/L		97	55 - 145
o-Xylene	ND		25.0	24.6		ug/L		99	65 - 125
Tert-amyl-methyl ether (TAME)	ND		25.0	23.5		ug/L		94	60 - 140
tert-Butyl alcohol (TBA)	ND		125	121		ug/L		96	65 - 140
Toluene	ND		25.0	25.3		ug/L		101	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*96*		*80 - 120*

Lab Sample ID: 440-20841-2 MSD
Matrix: Water
Analysis Batch: 47189

Client Sample ID: A-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dibromoethane (EDB)	ND		25.0	25.9		ug/L		104	70 - 130	0	25
1,2-Dichloroethane	ND		25.0	25.9		ug/L		104	60 - 140	1	20
Benzene	ND		25.0	23.1		ug/L		92	65 - 125	0	20
Ethanol	ND		250	232		ug/L		93	40 - 155	4	30
Ethylbenzene	ND		25.0	25.8		ug/L		103	65 - 130	1	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	24.0		ug/L		96	60 - 135	2	25
Isopropyl Ether (DIPE)	ND		25.0	25.3		ug/L		101	60 - 140	1	25
m,p-Xylene	ND		50.0	50.5		ug/L		101	65 - 130	1	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	24.9		ug/L		100	55 - 145	3	25
o-Xylene	ND		25.0	24.2		ug/L		97	65 - 125	2	20
Tert-amyl-methyl ether (TAME)	ND		25.0	24.5		ug/L		98	60 - 140	4	30
tert-Butyl alcohol (TBA)	ND		125	121		ug/L		97	65 - 140	1	25
Toluene	ND		25.0	25.0		ug/L		100	70 - 125	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*96*		*80 - 120*

Method: 8015B/5030B - Gasoline Range Organics (GC)

Lab Sample ID: MB 440-47986/3
Matrix: Water
Analysis Batch: 47986

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/27/12 09:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*65 - 140*		*08/27/12 09:47*	*1*

Lab Sample ID: MB 440-47986/33
Matrix: Water
Analysis Batch: 47986

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	ND		50		ug/L			08/28/12 01:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*84*		*65 - 140*		*08/28/12 01:34*	*1*

Lab Sample ID: LCS 440-47986/2
Matrix: Water
Analysis Batch: 47986

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			800	712		ug/L		89	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*65 - 140*

Lab Sample ID: LCS 440-47986/32
Matrix: Water
Analysis Batch: 47986

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)			800	709		ug/L		89	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*65 - 140*

Lab Sample ID: 440-21149-C-7 MS
Matrix: Water
Analysis Batch: 47986

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	ND		800	722		ug/L		90	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*92*		*65 - 140*

Method: 8015B/5030B - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: 440-21149-C-7 MSD
Matrix: Water
Analysis Batch: 47986

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		800	693		ug/L		87	65 - 140	4	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*84*		*65 - 140*

Lab Sample ID: 440-21308-A-1 MS
Matrix: Water
Analysis Batch: 47986

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
GRO (C4-C12)	ND		800	634		ug/L		79	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*65 - 140*

Lab Sample ID: 440-21308-A-1 MSD
Matrix: Water
Analysis Batch: 47986

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
GRO (C4-C12)	ND		800	624		ug/L		78	65 - 140	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*88*		*65 - 140*

QC Association Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

GC/MS VOA

Analysis Batch: 47189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-20841-1	A-1	Total/NA	Water	8260B/5030B	
440-20841-2	A-2	Total/NA	Water	8260B/5030B	
440-20841-2 MS	A-2	Total/NA	Water	8260B/5030B	
440-20841-2 MSD	A-2	Total/NA	Water	8260B/5030B	
440-20841-3	A-5	Total/NA	Water	8260B/5030B	
440-20841-4	A-6	Total/NA	Water	8260B/5030B	
440-20841-5	AR-2	Total/NA	Water	8260B/5030B	
440-20841-6	ADR-1	Total/NA	Water	8260B/5030B	
440-20841-7	ADR-2	Total/NA	Water	8260B/5030B	
LCS 440-47189/5	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-47189/4	Method Blank	Total/NA	Water	8260B/5030B	

GC VOA

Analysis Batch: 47986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-20841-1	A-1	Total/NA	Water	8015B/5030B	
440-20841-2	A-2	Total/NA	Water	8015B/5030B	
440-20841-3	A-5	Total/NA	Water	8015B/5030B	
440-20841-4	A-6	Total/NA	Water	8015B/5030B	
440-20841-5	AR-2	Total/NA	Water	8015B/5030B	
440-20841-6	ADR-1	Total/NA	Water	8015B/5030B	
440-20841-7	ADR-2	Total/NA	Water	8015B/5030B	
440-21149-C-7 MS	Matrix Spike	Total/NA	Water	8015B/5030B	
440-21149-C-7 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B/5030B	
440-21308-A-1 MS	Matrix Spike	Total/NA	Water	8015B/5030B	
440-21308-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B/5030B	
LCS 440-47986/2	Lab Control Sample	Total/NA	Water	8015B/5030B	
LCS 440-47986/32	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-47986/3	Method Blank	Total/NA	Water	8015B/5030B	
MB 440-47986/33	Method Blank	Total/NA	Water	8015B/5030B	

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)

Certification Summary

Client: Broadbent & Associates, Inc.
Project/Site: ARCO 2169, Oakland

TestAmerica Job ID: 440-20841-1

Laboratory: TestAmerica Irvine

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arizona	State Program	9	AZ0671	10-13-12
California	LA Cty Sanitation Districts	9	10256	01-31-13
California	NELAC	9	1108CA	01-31-13
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-23-13
Hawaii	State Program	9	N/A	01-31-13
Nevada	State Program	9	CA015312007A	07-31-12
New Mexico	State Program	6	N/A	01-31-12
Northern Mariana Islands	State Program	9	MP0002	01-31-13
Oregon	NELAC	10	4005	09-12-12
USDA	Federal		P330-09-00080	06-06-14

Laboratory Management Program LaMP Chain of Custody Record

Page ____ of ____

bp rm

BP Site Node Path:	BP 2169	**Req Due Date (mm/dd/yy):**	**Rush TAT:** Yes ___ No ___
BP Facility No:	2169	**Lab Work Order Number:**	440-20841

Lab Name: Test America	Facility Address: 889 W. Grand Ave	Consultant/Contractor: Broadbent and Associates
Lab Address: 17461 Derian Avenue, Suite 100, Irvine, CA 92614	City, State, ZIP Code: Oakland, CA	Consultant/Contractor Project No: 06-88-602
Lab PM: Pate Abe	Lead Regulatory Agency: ACEH	Address: 1324 Mangrove Ave., Suite 212, Chico CA 95926
Lab Phone: 1-949-261-1022	California Global ID No.: T0600100112	Consultant/Contractor PM: Tom Venus
Lab Shipping Accnt: Fed-Ex# 1103-6633-7	Enfos Proposal No: 0060C-0002 / WR245683	Phone: 530-566-1400 / 530-566-1402 (fx) Email: tvenus@broadbentinc.com
Lab Bottle Order No:	Accounting Mode: Provision _x_ OOC-BU ___ OOC-RM ___	Email EDD To: tvenus@broadbentinc.com and to lab.enfosdoc@bp.com
Other Info:	Stage: Execute (40) Activity: Projecet Spend (80)	Invoice To: BP _x_ Contractor ___
BP Project Manager (PM): Shannon Couch		
BP PM Phone: 1-925-275-3804		
BP PM Email: shannon.couch@bp.com		

Report Type & QC Level: Standard _x_ Full Data Package ___

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Is this location a well?	Total Number of Containers	Unpreserved	H2SO4	HNO3	HCl	Methanol		GRO by 8015M	BTEX/5 FO + EDB by 8260	1,2-DCA and Ethanol by 8260						Comments
	A-1	8-16-12	1355		x		y	6				x			x	x	x						
	A-2		1030		x		y	6				x			x	x	x						
	A-5		0910		x		y	6				x			x	x	x						
	A-6		0942		x		y	6				x			x	x	x						
	AR-2		1313		x		y	6				x			x	x	x						
	ADR-1		1120		x		y	6				x			x	x	x						
	ADR-2		1215		x		y	6				x			x	x	x						~~ON HOLD~~
	TB - 2169 - 08162012		1430		x		n	2				x											ON HOLD

Comments Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: James Ramos	[signature]	8-17-12	1700	[signature] / TA	8/18/12	0955
Sampler's Company: Broadbent						
Shipment Method: Fed Ex Ship Date: 8-17-12						
Shipment Tracking No: 8007 0583 4091						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 6.0 °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-20841-1

Login Number: 20841

List Source: TestAmerica Irvine

List Number: 1

Creator: Perez, Angel

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	James Ramos
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
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.	N/A	
Residual Chlorine Checked.	N/A	

APPENDIX E

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!

Submittal Type:	**GEO_WELL**
Report Title:	**3Q12 GEO_WELL 2169**
Facility Global ID:	**T0600100112**
Facility Name:	**ARCO #02169**
File Name:	**GEO_WELL.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**9/12/2012 9:55:43 AM**
Confirmation Number:	**7480117738**

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**
Report Title:	**3Q12 GW Monitoring**
Report Type:	**Monitoring Report - Semi-Annually**
Facility Global ID:	**T0600100112**
Facility Name:	**ARCO #02169**
File Name:	**440-20841-1_04 Sep 12 1910_EDF.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**67.118.40.90**
Submittal Date/Time:	**9/12/2012 9:53:47 AM**
Confirmation Number:	**2444080412**

VIEW QC REPORT

VIEW DETECTIONS REPORT