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Atlantic Richfield Company

Chuck Carmel
Project Manager

PO Box 1257
San Ramon, CA 94583
Phone: (925) 275-3803
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E-Mail: charles.carmel@bp.com

April 29, 2014

Re: First Quarter 2014 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,

Chuck Carmel
Project Manager

Attachment

FIRST QUARTER 2014 MONITORING REPORT
Atlantic Richfield Company Station #2169
889 West Grand Avenue
Oakland, Alameda County, California

Prepared for:

Mr. Chuck Carmel
Atlantic Richfield Company
P.O. Box 1257
San Ramon, CA 94583

Prepared by:

Broadbent & Associates, Inc.
1370 Ridgewood Drive, Suite 5
Chico, California 95973
(530) 566-1400

April 29, 2014

No. 06-88-621

BROADBENT
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CREATING SOLUTIONS. BUILDING TRUST.

April 29, 2014

Project No. 06-88-621

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

Attn.: Mr. Chuck Carmel

Re: First Quarter 2014 Monitoring Report, Atlantic Richfield Company Station #2169, 889 West Grand Avenue, Oakland, California; ACEH Case #RO0000072

Dear Mr. Carmel:

Attached is the First Quarter 2014 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 First Quarter 2014.

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

Sincerely,
BROADBENT & ASSOCIATES, INC.

Jason Duda
Senior Scientist

Robert H. Miller, P.G., C.HG.
Principal Hydrogeologist

Enclosures

cc: Mr. Keith Nowell, Alameda County Environmental Health (submitted via ACEH ftp site)
Electronic copy uploaded to GeoTracker

FIRST QUARTER 2014 MONITORING REPORT
ARCO STATION #2169
OAKLAND, ALAMEDA COUNTY, CALIFORNIA

Broadbent & Associates, Inc. (Broadbent) is pleased to present this *First Quarter 2014 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:	Mr. Chuck Carmel / RM Project Manager
Broadbent Contact:	Mr. Jason Duda / (530) 566-1400
Broadbent Project No.:	06-88-621
Primary Regulatory Agency / ID No.:	ACEH, Case #RO0000072 (GeoTracker ID #T0600100112)
Current phase of project:	Case Closure Evaluation
List of Acronyms / Abbreviations:	See end of report text for list of acronyms/abbreviations used in report.

WORK PERFORMED THIS QUARTER (First Quarter 2014):

1. Submitted *Fourth Quarter 2013 Status Report* (Broadbent, 1/27/2014).
2. Submitted *Conceptual Site Model and Case Closure Request* (Broadbent, 3/26/14).
3. Conducted groundwater monitoring/sampling for First Quarter 2014 on February 20, 2014.

WORK SCHEDULED FOR NEXT QUARTER (Second Quarter 2014):

1. Submit *First Quarter 2014 Monitoring Report* (contained herein).
2. No environmental field work is anticipated to take place onsite during the Second Quarter 2014.

GROUNDWATER MONITORING PLAN SUMMARY:

Groundwater level gauging:	A-1, A-2, A-5, A-6, ADR-1, ADR-2, AR-2	(Ceased due to case closure evaluation)
Groundwater sample collection:	A-1, A-2, A-5, A-6, ADR-1, ADR-2, AR-2	(Ceased due to case closure evaluation)
Biodegradation indicator parameter monitoring:	NA	

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:	9.58 (A-5) to 11.10 (AR-2)	(ft below TOC)
Gradient direction:	North	(compass direction)
Gradient magnitude:	0.002	(ft/ft)
Average change in elevation:	0.76	(ft since last measurement)

Laboratory Analytical Data

Summary: GRO were detected in four wells at concentrations up to 5,200 µg/L in A-1; Benzene was detected in two wells at concentrations of 300 µg/L in A-1 and 2.2 µg/L in A-5; MTBE was detected in three wells at concentrations up to 2.8 µg/L in A-6; Toluene, Ethylbenzene, and Total Xylenes were also detected in select wells.

ACTIVITIES CONDUCTED & RESULTS:

First Quarter 2014 groundwater monitoring was conducted on February 20, 2014 by Broadbent personnel in accordance with the most recent monitoring plan. 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 9.58 ft at A-5 to 11.10 ft at AR-2, within the screened interval of each well. Resulting groundwater surface elevations ranged from 6.20 ft at A-2 to 6.77 ft at AR-2. Groundwater elevations are summarized in Table 1. Water level elevations yielded a very slight potentiometric groundwater gradient to the north at approximately 0.002 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 February 20, 2014. Samples were collected from each of the wells associated with the Site, 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 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 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 three of the seven wells sampled at concentrations up to 5,200 µg/L in well A-1. Benzene, Ethylbenzene, and Total Xylenes were detected above laboratory reporting limits in wells A-1 and A-5 at maximum concentrations of 300 µg/L, 420 µg/L, and 350 µg/L, respectively in well A-1. Toluene was detected above laboratory reporting limits in well A-1 at a concentration of 140 µg/L. MTBE was detected above the laboratory reporting limit in three wells sampled at concentrations up to 2.8 µg/L in well A-6. The remaining analytes were not detected above their laboratory reporting limits in the wells sampled this quarter. 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 gauged this quarter. Overall, groundwater elevations increased slightly (0.76 ft) since the last groundwater monitoring event on August 8, 2013. Groundwater elevations yielded a very slight potentiometric groundwater gradient to the north at approximately 0.002 ft/ft, generally consistent with recent gradient data presented in Table 3.

Detected analytical concentrations were within the historic minimum and maximum ranges recorded for each well during the First Quarter 2014 monitoring event with the exception of MTBE reaching an historic minimum concentration within well ADR-2 at 0.79 µg/L. Recent and historic laboratory analytical results are summarized in Table 1, Table 2, and Appendix C.

RECOMMENDATIONS:

It is recommended to cease regularly scheduled semi-annual groundwater monitoring and sampling activities at ARCO Station #2169 following submittal of Broadbent's *Conceptual Site Model and Case Closure Request* on March 26, 2014, while the Site is evaluated for closure. Upon receipt of approval from ACEH, preparation for and conduct of well abandonment activities will occur.

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.

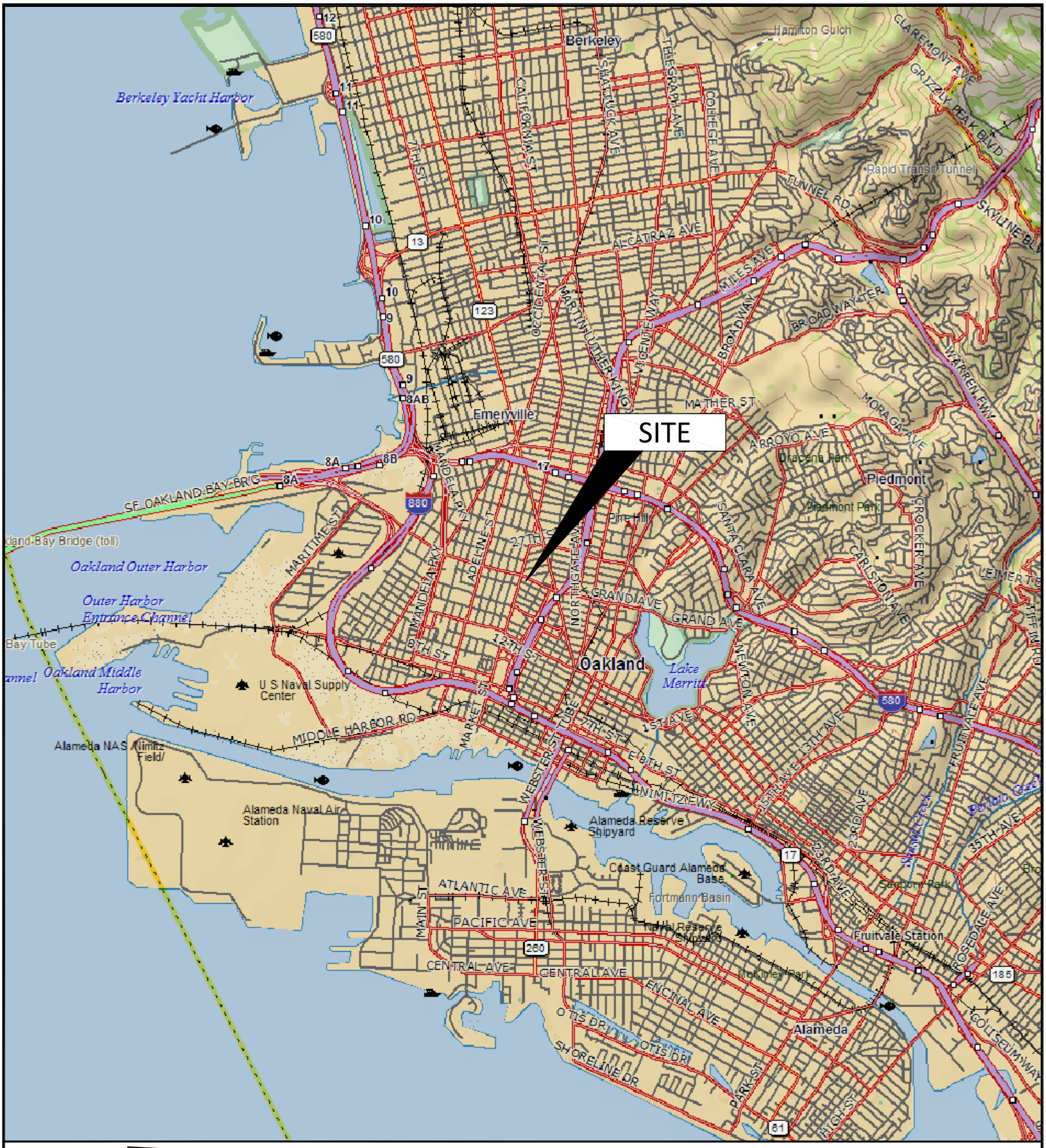
ATTACHMENTS:

Drawing 1:	Site Location Map
Drawing 2:	Groundwater Elevation Contours and Analytical Summary Map, February 20, 2014
Table 1:	Summary of Groundwater Monitoring Data: Relative Water Elevations and Laboratory Analyses
Table 2:	Summary of Fuel Additives Analytical Data
Table 3:	Historical Groundwater Gradient – Direction and Magnitude
Appendix A:	Field Methods
Appendix B:	Field Data Sheets and Non-Hazardous Waste Data Form
Appendix C:	Historic Groundwater Data Tables
Appendix D:	Laboratory Report and Chain-of-Custody Documentation
Appendix E:	GeoTracker Upload Confirmation Receipts

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

DRAWINGS



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APPROXIMATE SCALE (mi)

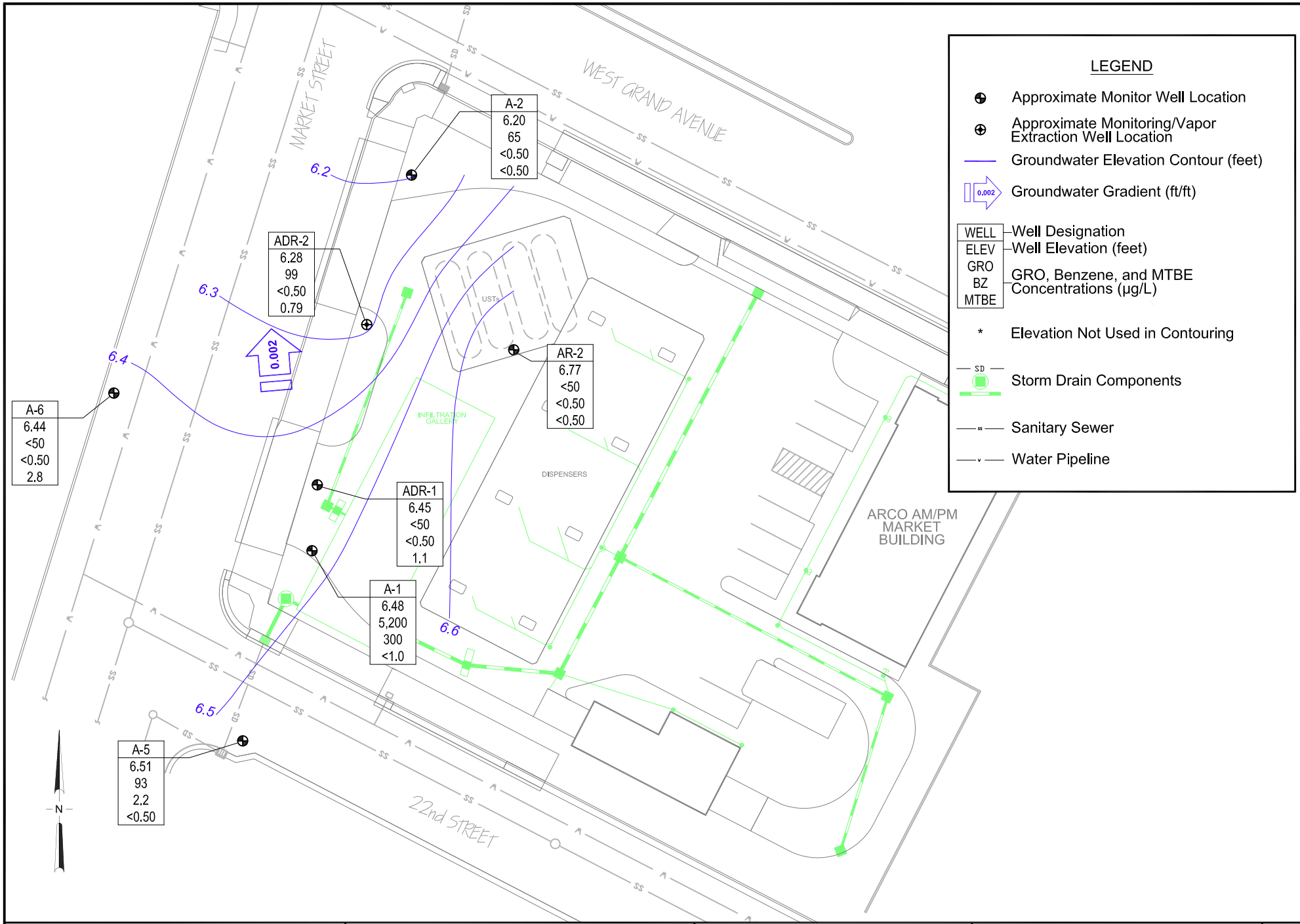
IMAGE SOURCE: DELORME

BROADBENT
1370 Ridgewood Drive, Suite 5
Chico, California 95973
Project No.: 06-88-621 Date: 4/16/2014

ARCO Station #2169
889 West Grand Avenue
Oakland, California

Site Location Map

Drawing
1



0 40 80

SCALE (ft)

BROADBENT
1370 Ridgewood Dr., Suite 5
Chico, California 95973
Project No.: 06-88-621 Date: 04/17/2014

ARCO Station #2169
889 West Grand Avenue
Oakland, California

Groundwater Elevation Contours and Analytical Summary Map
February 20, 2014

Drawing
2

TABLES

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	
2/26/2013	P		9.00	25.00	10.46	6.29	3,000	350	98	490	230	<10	1.00	7.79	
8/8/2013	P		9.00	25.00	11.09	5.66	6,100	980	36	130	99	<2.5	2.12	7.33	
2/20/2014	**P**		**9.00**	**25.00**	**10.27**	**6.48**	**5,200**	**300**	**140**	**420**	**350**	**<1.0**	**1.02**	**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	--	--	--	--	--	--	--	--	

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.															
02/02/2005	--	17.18	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
02/09/2006	--		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	
2/26/2013	P		10.00	25.00	11.02	6.16	110	<0.50	<0.50	<0.50	<1.0	<0.50	1.37	7.63	
8/8/2013	P		10.00	25.00	11.64	5.54	75	<0.50	<0.50	<0.50	<1.0	<0.50	3.38	7.48	
2/20/2014	**P**		**10.00**	**25.00**	**10.98**	**6.20**	**65**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**1.41**	**7.58**	
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	--	--	--	--	--	--	--	--	

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-3 Cont.															
8/14/2002	--	15.75	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
05/06/2004	--		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	--	--	--	--	--	--	--	--	

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.															
12/28/2001	--	15.25	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
5/22/2003	--		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	--	--	

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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-5 Cont.															
3/20/2001	--	13.51	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	--	--	
8/14/2002	--		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	

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							GRO/ TPHg	Benzene	Toluene	Ethyl-Benzene	Total Xylenes	MTBE			
A-5 Cont.															
2/22/2012	P	16.09	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	
2/26/2013	P		8.00	30.00	9.78	6.31	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.65	7.31	
8/8/2013	P		8.00	30.00	10.39	5.70	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.82	7.70	
2/20/2014	**P**		**8.00**	**30.00**	**9.58**	**6.51**	**93**	**2.2**	**<0.50**	**5.8**	**1.3**	**<0.50**	**1.25**	**7.86**	
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	--	--	
12/26/2000	--		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

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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			
A-6 Cont.															
8/11/2006	NP	16.10	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)
8/26/2011	P		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	
2/26/2013	P		8.00	28.50	9.83	6.27	620	<0.50	<0.50	<0.50	<1.0	3.6	1.36	7.44	
8/8/2013	P		8.00	28.50	10.46	5.64	<50	<0.50	<0.50	<0.50	<1.0	1.8	3.76	7.32	
2/20/2014	**P**		**8.00**	**28.50**	**9.66**	**6.44**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**2.8**	**1.23**	**7.61**	
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	

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.															
7/23/2003	--	13.95	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	
8/14/2007	NP		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	
2/26/2013	P		5.00	22.00	10.26	6.30	<50	<0.50	<0.50	<0.50	<1.0	1.3	1.09	7.73	
8/8/2013	P		5.00	22.00	10.89	5.67	<50	<0.50	<0.50	<0.50	<1.0	0.95	2.61	7.49	
2/20/2014	**P**		**5.00**	**22.00**	**10.11**	**6.45**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**1.1**	**1.12**	**6.94**	
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	--	--	

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-2 Cont.															
3/20/2001	--	14.64	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	--	--	--	--	--	--	--	--	
02/02/2005	--		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)

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-2 Cont.															
8/16/2012	P	17.24	5.00	22.00	11.69	5.55	280	13	<1.0	7.1	<2.0	320	2.67	7.46	
2/26/2013	P		5.00	22.00	11.09	6.15	120	1.3	<0.50	<0.50	<1.0	6.4	1.17	7.76	
8/8/2013	P		5.00	22.00	11.68	5.56	94	<0.50	<0.50	<0.50	<1.0	6.9	2.79	7.75	
2/20/2014	**P**		**5.00**	**22.00**	**10.96**	**6.28**	**99**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**0.79**	**1.12**	**7.08**	
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
5/22/2003	--		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	

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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.															
2/7/2007	--	18.18	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	--	--	--	--	--	--	--	--	
4/17/2002	--		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	--	--	--	--	--	--	--	--	

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			
AR-2 Cont.															
02/02/2005	--	17.87	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	
2/26/2013	P		8.50	28.50	11.17	6.70	<50	<0.50	<0.50	<0.50	<1.0	<0.50	1.29	8.80	
8/8/2013	P		8.50	28.50	11.82	6.05	<50	<0.50	<0.50	<0.50	<1.0	<0.50	3.70	8.77	
2/20/2014	**P**		**8.50**	**28.50**	**11.10**	**6.77**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<0.50**	**1.67**	**7.87**	

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

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	
2/26/2013	<3,000	<200	<10	<10	<10	<10	<10	<10	
8/8/2013	<750	<50	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
2/20/2014	**<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	
2/26/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/20/2014	**<150**	**<10**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
A-3									
12/26/2000	--	--	<2.5	--	--	--	--	--	

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-3 Cont.									
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	--	--	
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

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.									
8/11/2006	<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	
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	
2/26/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
2/20/2014	**<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	--	--	

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.									
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	
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	
2/26/2013	<150	<10	3.6	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2013	<150	<10	1.8	<0.50	<0.50	<0.50	<0.50	<0.50	
2/20/2014	**<150**	**<10**	**2.8**	**<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	--	--	--	--	--	

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.									
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
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	
2/26/2013	<150	<10	1.3	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2013	<150	<10	0.95	<0.50	<0.50	<0.50	<0.50	<0.50	
2/20/2014	**<150**	**<10**	**1.1**	**<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									
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	
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	
2/26/2013	<150	<10	6.4	<0.50	<0.50	0.76	<0.50	<0.50	
8/8/2013	<150	<10	6.9	<0.50	<0.50	0.71	<0.50	<0.50	
2/20/2014	**<150**	**<10**	**0.79**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	**<0.50**	
AR-1									
7/20/2000	--	--	6	--	--	--	--	--	
9/19/2000	--	--	<3	--	--	--	--	--	
12/26/2000	--	--	<2.5	--	--	--	--	--	
6/12/2001	--	--	17	--	--	--	--	--	
12/28/2001	--	--	<2.5	--	--	--	--	--	

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-1 Cont.									
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	
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	
2/26/2013	<150	<10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	
8/8/2013	<150	<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	
AR-2 Cont.									
2/20/2014	<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. Summary of 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
2/19/2013	Northeast	0.001
8/8/2013	North-Northeast	0.001
2/20/2014	**North**	**0.002**

Table 3. Summary of 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)

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 their previous consultants. Broadbent & Associates, Inc. has not verified the accuracy of this information

APPENDIX A

FIELD METHODS

QUALITY ASSURANCE/QUALITY CONTROL
FIELD METHODS

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

1.0 EQUIPMENT CALIBRATION

Equipment calibration was performed per equipment manufacturer specifications before use.

2.0 DEPTH TO GROUNDWATER AND LIGHT NON-AQUEOUS PHASE LIQUID MEASUREMENT

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

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

3.0 WELL PURGING AND GROUNDWATER SAMPLE COLLECTION

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

3.1 Purging a Predetermined Well Volume

Purging a predetermined well volume is performed per ASTM International (ASTM) D4448-01. This purging method has the objective of removing a predetermined volume of stagnant water from the well prior to sampling. The volume of stagnant water is defined as either the volume of water contained within the well casing, or the volume within the well casing and sand/gravel in the annulus if natural flow through these is deemed insufficient to keep them flushed out.

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

To evaluate when purging is complete, one or more groundwater stabilization parameters are monitored and recorded during purging activities until stabilization is achieved. Most commonly, stabilization parameters include temperature, conductivity, and pH, but field procedures detailed in the scope of work may also include monitoring of dissolved oxygen concentrations, oxidation reduction potential, and/or turbidity[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 AND NON-HAZARDOUS WASTE DATA FORM

BROADBENT

DAILY REPORT

Page ____ of ____

Project: BP 2169 Project No.: 06-86-621

Field Representative(s): JR / SJ Day: Thursday Date: 2/20/2014

Time Onsite: From: 0700 To: 1230; 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: sunny; 62°F

Equipment In Use: peristaltic, 1/4" tubing, water level meter

Visitors: ____

TIME:	WORK DESCRIPTION:
0700	Arrived onsite; proceeded w/ safety meeting & documents
0740	Setup on AR-2; car battery died; called Jason vegetals w/ near miss possibility
0840	State wide Arrived onsite; proceeded w/ safety meeting
0908	Completed safety meeting; setup on A-6
0947	Setup on A-5
1028	Setup on A-2
1053	Setup on ADR-2
1125	Setup on ADR-1
1257	Setup on A-1
1230	Signed out/packed up & left site

Signature: [signature]

BROADBENT

GROUNDWATER MONITORING SITE SHEET

Page _____ of _____

Project: BP 2169 Project No.: 06-88-621 Date: 2/20/2014

Field Representative: JR/SJ 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					1200			10.27	23.70						
A-2					1025			10.98	24.65						
A-5					0953			9.58	24.18						
A-6					0917			9.66	26.95						
AR-2					0830			11.10	28.65						
ADR-1					1127			10.11	20.50						
ADR-2					1055			10.96	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: _____

Revision: 1/24/2012

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 2169 Project No.: 06-88-621 Date: 2/20/2014

Field Representative: SS/JR

Well ID: A-1 Start Time: 1200 End Time: _____ Total Time (minutes): _____

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

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

X Good Improvement Needed *(circle one)*

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

PREDETERMINED WELL VOLUME

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

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:

4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ____" | (____)

Total Well Depth (a): _____ (ft)

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

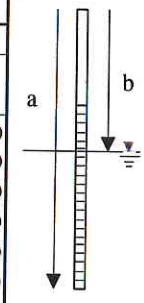
Water Column Height (WCH) = (a - b): _____ (ft)

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

Three Casing Volumes = WCV x 3: _____ (gal)

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

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



LOW-FLOW

Previous Low-Flow Purge Rate: _____ (lpm)

Total Well Depth (a): 23.70 (ft)

Initial Depth to Water (b): 10.27 (ft)

Pump In-take Depth = b + (a-b)/2: 16.99 (ft)

Maximum Allowable Drawdown = (a-b)/8: 1.60 (ft)

Low-Flow Purge Rate: 0.25 (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
1205	0.0	22.09	7.61	0.771	2.20	21	0.0	
1205	0.5	21.86	7.58	0.782	1.46	-72	0.0	
1209	1.5	21.75	7.60	0.789	1.07	-107	0.0	
1211	2.0	21.73	7.60	0.794	1.02	-117	0.0	
Previous Stabilized Parameters								

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

___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 10.28 (ft)

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

X Disp. Pump Tubing Other:

Sample ID: A-1 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)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 7/3/12

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 2169 Project No.: 06-88-621 Date: 2/20/14

Field Representative: SS/JR

Well ID: A-2 Start Time: 1025 End Time: _____ Total Time (minutes): _____

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

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

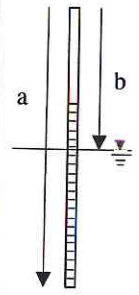
PURGING/SAMPLING METHOD Predetermined Well Volume X Low-Flow Other: *(circle one)*

PREDETERMINED WELL VOLUME

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

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

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



LOW-FLOW

Previous Low-Flow Purge Rate: _____ (lpm)
Total Well Depth (a): 24.65 (ft)
Initial Depth to Water (b): 10.98 (ft)
Pump In-take Depth = b + (a-b)/2: 17.82 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.71 (ft)
Low-Flow Purge Rate: 0.25 (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
1033	0.0	19.77	7.96	0.849	3.89	100	0.0	
1035	0.5	20.34	7.85	0.845	1.86	105	0.0	
1037	1.0	20.52	7.73	0.844	1.53	107	0.0	
1039	1.5	20.65	7.64	0.845	1.46	107	0.0	
1041	2.0	20.70	7.58	0.849	1.41	106	0.0	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 11.00 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: A-2 Sample Collection Time: 1045 (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)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 7/3/12

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 2169 Project No.: 06-88-621 Date: 2/20/14

Field Representative: SS / JR

Well ID: A-5 Start Time: 0953 End Time: _____ Total Time (minutes): _____

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

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

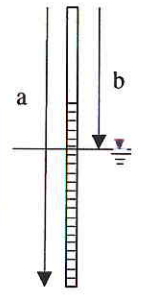
PURGING/SAMPLING METHOD Predetermined Well Volume X Low-Flow Other: *(circle one)*

PREDETERMINED WELL VOLUME

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

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

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



LOW-FLOW

Previous Low-Flow Purge Rate: _____ (lpm)
Total Well Depth (a): 24.18 (ft)
Initial Depth to Water (b): 9.58 (ft)
Pump In-take Depth = b + (a-b)/2: 16.88 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.83 (ft)
Low-Flow Purge Rate: 0.25 (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
0959	0.0	19.47	7.58	0.945	2.68	93	0.0	
1001	0.5	19.53	7.68	0.947	1.59	58	0.0	
1003	1.0	19.52	7.75	0.948	1.34	28	0.0	
1005	1.5	19.53	7.83	0.948	1.26	-7	0.0	
1007	2.0	19.53	7.86	0.948	1.25	-31	0.0	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 9.80 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: A-5 Sample Collection Time: 1010 (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)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 7/3/12

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 2169 Project No.: 06-88-621 Date: 2/20/14

Field Representative: SJ/JR

Well ID: A-6 Start Time: 0923 End Time: _____ Total Time (minutes): _____

PURGE EQUIPMENT

___ Disp. Bailer ___ 120V Pump X Flow Cell

X Disp. Tubing ___ 12V Pump X 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): _____ (ft)

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

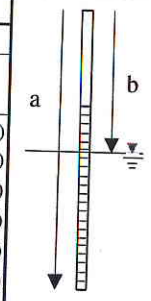
Water Column Height (WCH) = (a - b): _____ (ft)

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

Three Casing Volumes = WCV x 3: _____ (gal)

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

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



LOW-FLOW

Previous Low-Flow Purge Rate: _____ (lpm)

Total Well Depth (a): 26.95 (ft)

Initial Depth to Water (b): 9.66 (ft)

Pump In-take Depth = b + (a-b)/2: 18.31 (ft)

Maximum Allowable Drawdown = (a-b)/8: 2.16 (ft)

Low-Flow Purge Rate: 0.25 (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
0925	0.0	18.90	7.58	0.784	2.77	82	5.4	
0927	0.5	19.67	7.40	0.774	1.38			
0931	1.5	20.10	7.54	0.769	1.35	6	1.4	
0933	2.0	20.30	7.61	0.763	1.23	-14	0.0	
Previous Stabilized Parameters								

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

___ Other:

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 9.76 (ft)

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

X Disp. Pump Tubing Other:

Sample ID: A-6 Sample Collection Time: 0935 (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)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 7/3/12

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 2169 Project No.: 06-88-621 Date: 2/20/14

Field Representative: JR/ASJ

Well ID: AR-2 Start Time: 0830 End Time: ______ Total Time (minutes): ______

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

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

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

PREDETERMINED WELL VOLUME

(section struck through)

Casing Diameter | Unit Volume (gal/ft) *(circle one)*
1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other:
4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81) ___" | (___)

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

a b

LOW-FLOW

Previous Low-Flow Purge Rate: ______ (lpm)
Total Well Depth (a): 28.65 (ft)
Initial Depth to Water (b): 11.10 (ft)
Pump In-take Depth = b + (a-b)/2: 19.88 (ft)
Maximum Allowable Drawdown = (a-b)/8: 2.19 (ft)
Low-Flow Purge Rate: 0.25 (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 (mS circled)	DO mg/L	ORP mV	Turbidity NTU	NOTES Odor, color, sheen or other
0834	0	15.23	8.72	0.798	6.58	73	14.3	
0836	0.5	17.12	8.28	0.768	3.10	81	5.8	
[illegible]	[illegible]	[illegible]	[illegible]	0.760	2.35	[illegible]	[illegible]	
0840	1.5	18.16	8.01	0.753	1.98	35	5.7	
0842	2.0	18.45	7.90	0.750	1.76	51	~~12~~ 9.3	
0844	2.5	18.65	7.87	0.747	1.67	11 -28	3.5 0.0	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 11.73 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing X Disp. Pump Tubing Other:
Sample ID: AR-2 Sample Collection Time: ~~0844~~ 0845 (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)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: [signature]

Revision: 7/3/12

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page ____ of ____

Project: BP 2162 | Project No.: 06-88-621 | Date: 7/20/14

Field Representative: SS / SR

Well ID: ADR-1 | Start Time: 1127 | End Time: _____ | Total Time (minutes): _____

PURGE EQUIPMENT

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

WELL HEAD INTEGRITY (cap, lock, vault, etc.)

Good Improvement Needed *(circle one)* Comments:

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

PREDETERMINED WELL VOLUME

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

1" | (0.04) 1.25" | (0.08) 2" | (0.17) 3" | (0.38) Other: ___" | (___)

4" | (0.66) 6" | (1.50) 8" | (2.60) 12" | (5.81)

Total Well Depth (a): _____ (ft)

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

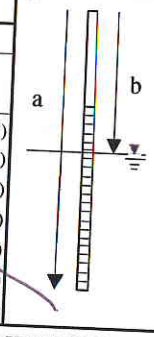
Water Column Height (WCH) = (a - b): _____ (ft)

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

Three Casing Volumes = WCV x 3: _____ (gal)

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

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



LOW-FLOW

Previous Low-Flow Purge Rate: _____ (lpm)

Total Well Depth (a): 20.56 (ft)

Initial Depth to Water (b): 10.11 (ft)

Pump In-take Depth = b + (a-b)/2: 15.34 (ft)

Maximum Allowable Drawdown = (a-b)/8: 1.31 (ft)

Low-Flow Purge Rate: 0.25 (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
1132	0.0	22.07	7.05	0.865	2.43	84	0.0	
1134	0.5	22.06	6.98	0.866	1.56	51	0.0	
1136	1.0	22.07	6.95	0.864	1.28	12	0.0	
1138	1.5	22.09	6.94	0.863	1.19	-19	0.0	
1140	2.0	22.11	6.94	0.861	1.12	-40	0.0	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 10.12 (ft)

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

Sample ID: ADR-1 Sample Collection Time: 1145 (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)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 7/3/12

BROADBENT

GROUNDWATER SAMPLING DATA SHEET

Page _____ of _____

Project: BP 2169 Project No.: 06-88-621 Date: 2/20/2014

Field Representative: JR/SCH

Well ID: ADR-2 Start Time: 1055 End Time: _____ Total Time (minutes): _____

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

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

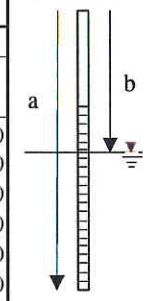
PURGING/SAMPLING METHOD Predetermined Well Volume (Low-Flow) Other: *(circle one)*

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



LOW-FLOW

Previous Low-Flow Purge Rate: _____ (lpm)
Total Well Depth (a): 25.86 (ft)
Initial Depth to Water (b): 10.96 (ft)
Pump In-take Depth = b + (a-b)/2: 18.41 (ft)
Maximum Allowable Drawdown = (a-b)/8: 1.87 (ft)
Low-Flow Purge Rate: 0.25 (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
1103	0	21.06	7.23	0.805	2.20	101	0.0	
1105	0.5	21.21	7.27	0.803	1.53	85	0.0	
1107	1.0	21.33	7.22	0.801	1.27	65	0.0	
1109	1.5	21.41	7.16	0.800	1.18	57	0.0	
1111	2.0	21.50	7.08	0.798	1.12	33	0.0	
Previous Stabilized Parameters								

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

SAMPLE COLLECTION RECORD

Depth to Water at Sampling: 11.16 (ft)
Sample Collected Via: ___ Disp. Bailer ___ Dedicated Pump Tubing
X Disp. Pump Tubing Other:
Sample ID: ADR-2 Sample Collection Time: 1115 (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)		
Alkalinity (mg/L)		
Other:		
Other:		

Signature: _____

Revision: 7/3/12

NO. 709892

NON-HAZARDOUS WASTE DATA FORM

BESI #

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 West Grand Ave
Oakland, CA

Generator's Phone: 949-460-5200

Container type removed from site:
☐ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck
☐ Other _____
Quantity 4 gallons

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 XX LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER _____

HANDLING INSTRUCTIONS: WEAR ALL APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT.

Generator Printed/Typed Name: On behalf of BP West Coast Products, LLC
Signature:
Month / Day / Year:

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

TRANSPORTER

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

Transporter 1 Printed/Typed Name: Alex Martinez
Signature:
Month / Day / Year: 2 / 20 / 14

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#: 530-753-1829

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	Depth to Water	Groundwater Elevation	Floating Product Thickness	Groundwater Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	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	Ground-water Elevation	Floating Product Thickness	Ground-water 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	Depth to Water	Groundwater Elevation	Floating Product Thickness	Groundwater Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	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

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-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

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-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

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-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

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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-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
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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
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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

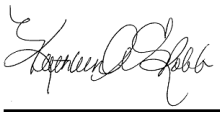
ANALYTICAL REPORT

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

TestAmerica Job ID: 440-70902-1
Client Project/Site: ARCO 2169, Oakland

For:
Broadbent & Associates, Inc.
1370 Ridgewood Drive
Suite 5
Chico, California 95973

Attn: Mr. Jason Duda



Authorized for release by:
3/7/2014 4:34:37 PM

Kathleen Robb, Project Manager II
(949)261-1022
kathleen.robb@testamericainc.com

Table of Contents

Sample Summary

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

TestAmerica Job ID: 440-70902-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-70902-1	A-1	Water	02/20/14 12:15	02/21/14 11:00
440-70902-2	A-2	Water	02/20/14 10:45	02/21/14 11:00
440-70902-3	A-5	Water	02/20/14 10:10	02/21/14 11:00
440-70902-4	A-6	Water	02/20/14 09:35	02/21/14 11:00
440-70902-5	AR-2	Water	02/20/14 08:45	02/21/14 11:00
440-70902-6	ADR-1	Water	02/20/14 11:45	02/21/14 11:00
440-70902-7	ADR-2	Water	02/20/14 11:15	02/21/14 11:00

Job ID: 440-70902-1

Laboratory: TestAmerica Irvine

Narrative

Job Narrative
440-70902-1

Comments
No additional comments.

Receipt
The samples were received on 2/21/2014 11:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4º C.

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

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

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

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

TestAmerica Job ID: 440-70902-1

Client Sample ID: A-1
Date Collected: 02/20/14 12:15
Date Received: 02/21/14 11:00

Lab Sample ID: 440-70902-1
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			02/26/14 20:57	2
1,2-Dichloroethane	ND		1.0		ug/L			02/26/14 20:57	2
Ethanol	ND		300		ug/L			02/26/14 20:57	2
Ethyl-t-butyl ether (ETBE)	ND		1.0		ug/L			02/26/14 20:57	2
Isopropyl Ether (DIPE)	ND		1.0		ug/L			02/26/14 20:57	2
m,p-Xylene	**260**		2.0		ug/L			02/26/14 20:57	2
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			02/26/14 20:57	2
o-Xylene	**90**		1.0		ug/L			02/26/14 20:57	2
Tert-amyl-methyl ether (TAME)	ND		1.0		ug/L			02/26/14 20:57	2
tert-Butyl alcohol (TBA)	ND		20		ug/L			02/26/14 20:57	2
Toluene	**140**		1.0		ug/L			02/26/14 20:57	2
Xylenes, Total	**350**		2.0		ug/L			02/26/14 20:57	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*80 - 120*		*02/26/14 20:57*	*2*
Dibromofluoromethane (Surr)	*97*		*76 - 132*		*02/26/14 20:57*	*2*
Toluene-d8 (Surr)	*111*		*80 - 128*		*02/26/14 20:57*	*2*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**300**		2.5		ug/L			02/27/14 15:22	5
Ethylbenzene	**420**		2.5		ug/L			02/27/14 15:22	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*80 - 120*		*02/27/14 15:22*	*5*
Dibromofluoromethane (Surr)	*109*		*76 - 132*		*02/27/14 15:22*	*5*
Toluene-d8 (Surr)	*115*		*80 - 128*		*02/27/14 15:22*	*5*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**5200**		500		ug/L			02/27/14 18:08	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*65 - 140*		*02/27/14 18:08*	*10*

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

TestAmerica Job ID: 440-70902-1

Client Sample ID: A-2
Date Collected: 02/20/14 10:45
Date Received: 02/21/14 11:00

Lab Sample ID: 440-70902-2
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			02/26/14 19:30	1
1,2-Dichloroethane	ND		0.50		ug/L			02/26/14 19:30	1
Benzene	ND		0.50		ug/L			02/26/14 19:30	1
Ethanol	ND		150		ug/L			02/26/14 19:30	1
Ethylbenzene	ND		0.50		ug/L			02/26/14 19:30	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			02/26/14 19:30	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			02/26/14 19:30	1
m,p-Xylene	ND		1.0		ug/L			02/26/14 19:30	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			02/26/14 19:30	1
o-Xylene	ND		0.50		ug/L			02/26/14 19:30	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			02/26/14 19:30	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			02/26/14 19:30	1
Toluene	ND		0.50		ug/L			02/26/14 19:30	1
Xylenes, Total	ND		1.0		ug/L			02/26/14 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*80 - 120*		*02/26/14 19:30*	*1*
Dibromofluoromethane (Surr)	*102*		*76 - 132*		*02/26/14 19:30*	*1*
Toluene-d8 (Surr)	*109*		*80 - 128*		*02/26/14 19:30*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**65**		50		ug/L			02/26/14 14:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*65 - 140*		*02/26/14 14:45*	*1*

Client Sample ID: A-5
Date Collected: 02/20/14 10:10
Date Received: 02/21/14 11:00

Lab Sample ID: 440-70902-3
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			02/28/14 01:26	1
1,2-Dichloroethane	ND		0.50		ug/L			02/28/14 01:26	1
Benzene	**2.2**		0.50		ug/L			02/28/14 01:26	1
Ethanol	ND		150		ug/L			02/28/14 01:26	1
Ethylbenzene	**5.8**		0.50		ug/L			02/28/14 01:26	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			02/28/14 01:26	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			02/28/14 01:26	1
m,p-Xylene	**1.3**		1.0		ug/L			02/28/14 01:26	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			02/28/14 01:26	1
o-Xylene	ND		0.50		ug/L			02/28/14 01:26	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			02/28/14 01:26	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			02/28/14 01:26	1
Toluene	ND		0.50		ug/L			02/28/14 01:26	1
Xylenes, Total	**1.3**		1.0		ug/L			02/28/14 01:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*80 - 120*		*02/28/14 01:26*	*1*
Dibromofluoromethane (Surr)	*106*		*76 - 132*		*02/28/14 01:26*	*1*
Toluene-d8 (Surr)	*106*		*80 - 128*		*02/28/14 01:26*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**93**		50		ug/L			02/26/14 15:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*65 - 140*		*02/26/14 15:13*	*1*

Client Sample ID: A-6
Date Collected: 02/20/14 09:35
Date Received: 02/21/14 11:00

Lab Sample ID: 440-70902-4
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			02/26/14 21:55	1
1,2-Dichloroethane	ND		0.50		ug/L			02/26/14 21:55	1
Benzene	ND		0.50		ug/L			02/26/14 21:55	1
Ethanol	ND		150		ug/L			02/26/14 21:55	1
Ethylbenzene	ND		0.50		ug/L			02/26/14 21:55	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			02/26/14 21:55	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			02/26/14 21:55	1
m,p-Xylene	ND		1.0		ug/L			02/26/14 21:55	1
Methyl-t-Butyl Ether (MTBE)	**2.8**		0.50		ug/L			02/26/14 21:55	1
o-Xylene	ND		0.50		ug/L			02/26/14 21:55	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			02/26/14 21:55	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			02/26/14 21:55	1
Toluene	ND		0.50		ug/L			02/26/14 21:55	1
Xylenes, Total	ND		1.0		ug/L			02/26/14 21:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*80 - 120*		*02/26/14 21:55*	*1*
Dibromofluoromethane (Surr)	*104*		*76 - 132*		*02/26/14 21:55*	*1*
Toluene-d8 (Surr)	*110*		*80 - 128*		*02/26/14 21:55*	*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			02/26/14 15:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*79*		*65 - 140*		*02/26/14 15:40*	*1*

Client Sample ID: AR-2
Date Collected: 02/20/14 08:45
Date Received: 02/21/14 11:00

Lab Sample ID: 440-70902-5
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			02/26/14 22:24	1
1,2-Dichloroethane	ND		0.50		ug/L			02/26/14 22:24	1
Benzene	ND		0.50		ug/L			02/26/14 22:24	1
Ethanol	ND		150		ug/L			02/26/14 22:24	1
Ethylbenzene	ND		0.50		ug/L			02/26/14 22:24	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			02/26/14 22:24	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			02/26/14 22:24	1
m,p-Xylene	ND		1.0		ug/L			02/26/14 22:24	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			02/26/14 22:24	1
o-Xylene	ND		0.50		ug/L			02/26/14 22:24	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			02/26/14 22:24	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			02/26/14 22:24	1
Toluene	ND		0.50		ug/L			02/26/14 22:24	1
Xylenes, Total	ND		1.0		ug/L			02/26/14 22:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*80 - 120*		*02/26/14 22:24*	*1*
Dibromofluoromethane (Surr)	*108*		*76 - 132*		*02/26/14 22:24*	*1*
Toluene-d8 (Surr)	*111*		*80 - 128*		*02/26/14 22:24*	*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			02/26/14 16:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*65 - 140*		*02/26/14 16:08*	*1*

Client Sample ID: ADR-1
Date Collected: 02/20/14 11:45
Date Received: 02/21/14 11:00

Lab Sample ID: 440-70902-6
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			02/26/14 22:53	1
1,2-Dichloroethane	ND		0.50		ug/L			02/26/14 22:53	1
Benzene	ND		0.50		ug/L			02/26/14 22:53	1
Ethanol	ND		150		ug/L			02/26/14 22:53	1
Ethylbenzene	ND		0.50		ug/L			02/26/14 22:53	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			02/26/14 22:53	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			02/26/14 22:53	1
m,p-Xylene	ND		1.0		ug/L			02/26/14 22:53	1
Methyl-t-Butyl Ether (MTBE)	**1.1**		0.50		ug/L			02/26/14 22:53	1
o-Xylene	ND		0.50		ug/L			02/26/14 22:53	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			02/26/14 22:53	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			02/26/14 22:53	1
Toluene	ND		0.50		ug/L			02/26/14 22:53	1
Xylenes, Total	ND		1.0		ug/L			02/26/14 22:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*80 - 120*		*02/26/14 22:53*	*1*
Dibromofluoromethane (Surr)	*102*		*76 - 132*		*02/26/14 22:53*	*1*
Toluene-d8 (Surr)	*113*		*80 - 128*		*02/26/14 22:53*	*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			02/26/14 16:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*86*		*65 - 140*		*02/26/14 16:35*	*1*

Client Sample ID: ADR-2
Date Collected: 02/20/14 11:15
Date Received: 02/21/14 11:00

Lab Sample ID: 440-70902-7
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		0.50		ug/L			02/26/14 23:22	1
1,2-Dichloroethane	ND		0.50		ug/L			02/26/14 23:22	1
Benzene	ND		0.50		ug/L			02/26/14 23:22	1
Ethanol	ND		150		ug/L			02/26/14 23:22	1
Ethylbenzene	ND		0.50		ug/L			02/26/14 23:22	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			02/26/14 23:22	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			02/26/14 23:22	1
m,p-Xylene	ND		1.0		ug/L			02/26/14 23:22	1
Methyl-t-Butyl Ether (MTBE)	**0.79**		0.50		ug/L			02/26/14 23:22	1
o-Xylene	ND		0.50		ug/L			02/26/14 23:22	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			02/26/14 23:22	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			02/26/14 23:22	1
Toluene	ND		0.50		ug/L			02/26/14 23:22	1
Xylenes, Total	ND		1.0		ug/L			02/26/14 23:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*80 - 120*		*02/26/14 23:22*	*1*
Dibromofluoromethane (Surr)	*104*		*76 - 132*		*02/26/14 23:22*	*1*
Toluene-d8 (Surr)	*113*		*80 - 128*		*02/26/14 23:22*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C12)	**99**		50		ug/L			02/26/14 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*80*		*65 - 140*		*02/26/14 17:03*	*1*

Method Summary

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

TestAmerica Job ID: 440-70902-1

Method	Method Description	Protocol	Laboratory
8260B/5030B	Volatile Organic Compounds (GC/MS)	SW846	TAL IRV
8015B/5030B	Gasoline Range Organics (GC)	SW846	TAL IRV

Protocol References:

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

Laboratory References:

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

Lab Chronicle

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

TestAmerica Job ID: 440-70902-1

Client Sample ID: A-1

Lab Sample ID: 440-70902-1

Date Collected: 02/20/14 12:15

Matrix: Water

Date Received: 02/21/14 11:00

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	165202	02/26/14 20:57	AT	TAL IRV
Total/NA	Analysis	8260B/5030B	DL	5	10 mL	10 mL	165293	02/27/14 15:22	MM1	TAL IRV
Total/NA	Analysis	8015B/5030B		10	10 mL	10 mL	165473	02/27/14 18:08	IM	TAL IRV

Client Sample ID: A-2

Lab Sample ID: 440-70902-2

Date Collected: 02/20/14 10:45

Matrix: Water

Date Received: 02/21/14 11:00

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	165202	02/26/14 19:30	AT	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	164801	02/26/14 14:45	PH	TAL IRV

Client Sample ID: A-5

Lab Sample ID: 440-70902-3

Date Collected: 02/20/14 10:10

Matrix: Water

Date Received: 02/21/14 11:00

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	165497	02/28/14 01:26	WC	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	164801	02/26/14 15:13	PH	TAL IRV

Client Sample ID: A-6

Lab Sample ID: 440-70902-4

Date Collected: 02/20/14 09:35

Matrix: Water

Date Received: 02/21/14 11:00

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	165202	02/26/14 21:55	AT	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	164801	02/26/14 15:40	PH	TAL IRV

Client Sample ID: AR-2

Lab Sample ID: 440-70902-5

Date Collected: 02/20/14 08:45

Matrix: Water

Date Received: 02/21/14 11:00

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	165202	02/26/14 22:24	AT	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	164801	02/26/14 16:08	PH	TAL IRV

Lab Chronicle

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

TestAmerica Job ID: 440-70902-1

Client Sample ID: ADR-1

Lab Sample ID: 440-70902-6

Date Collected: 02/20/14 11:45

Matrix: Water

Date Received: 02/21/14 11:00

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	165202	02/26/14 22:53	AT	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	164801	02/26/14 16:35	PH	TAL IRV

Client Sample ID: ADR-2

Lab Sample ID: 440-70902-7

Date Collected: 02/20/14 11:15

Matrix: Water

Date Received: 02/21/14 11:00

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	165202	02/26/14 23:22	AT	TAL IRV
Total/NA	Analysis	8015B/5030B		1	10 mL	10 mL	164801	02/26/14 17:03	PH	TAL IRV

Laboratory References:

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

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

Lab Sample ID: MB 440-165202/3
Matrix: Water
Analysis Batch: 165202

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			02/26/14 18:32	1
1,2-Dichloroethane	ND		0.50		ug/L			02/26/14 18:32	1
Benzene	ND		0.50		ug/L			02/26/14 18:32	1
Ethanol	ND		150		ug/L			02/26/14 18:32	1
Ethylbenzene	ND		0.50		ug/L			02/26/14 18:32	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			02/26/14 18:32	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			02/26/14 18:32	1
m,p-Xylene	ND		1.0		ug/L			02/26/14 18:32	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			02/26/14 18:32	1
o-Xylene	ND		0.50		ug/L			02/26/14 18:32	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			02/26/14 18:32	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			02/26/14 18:32	1
Toluene	ND		0.50		ug/L			02/26/14 18:32	1
Xylenes, Total	ND		1.0		ug/L			02/26/14 18:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*		*02/26/14 18:32*	*1*
Dibromofluoromethane (Surr)	*104*		*76 - 132*		*02/26/14 18:32*	*1*
Toluene-d8 (Surr)	*112*		*80 - 128*		*02/26/14 18:32*	*1*

Lab Sample ID: LCS 440-165202/4
Matrix: Water
Analysis Batch: 165202

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	25.5		ug/L		102	70 - 130		
1,2-Dichloroethane			25.0	27.1		ug/L		108	57 - 138		
Benzene			25.0	25.0		ug/L		100	68 - 130		
Ethanol			250	250		ug/L		100	50 - 149		
Ethylbenzene			25.0	27.2		ug/L		109	70 - 130		
Ethyl-t-butyl ether (ETBE)			25.0	26.6		ug/L		106	60 - 136		
Isopropyl Ether (DIPE)			25.0	26.8		ug/L		107	58 - 139		
m,p-Xylene			50.0	54.9		ug/L		110	70 - 130		
Methyl-t-Butyl Ether (MTBE)			25.0	25.4		ug/L		102	63 - 131		
o-Xylene			25.0	28.1		ug/L		113	70 - 130		
Tert-amyl-methyl ether (TAME)			25.0	25.4		ug/L		102	57 - 139		
tert-Butyl alcohol (TBA)			125	135		ug/L		108	70 - 130		
Toluene			25.0	26.6		ug/L		106	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*80 - 120*
Dibromofluoromethane (Surr)	*110*		*76 - 132*
Toluene-d8 (Surr)	*111*		*80 - 128*

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

Lab Sample ID: 440-70902-2 MS
Matrix: Water
Analysis Batch: 165202

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	25.7		ug/L		103	70 - 131
1,2-Dichloroethane	ND		25.0	26.6		ug/L		106	56 - 146
Benzene	ND		25.0	24.4		ug/L		98	66 - 130
Ethanol	ND		250	243		ug/L		97	54 - 150
Ethylbenzene	ND		25.0	26.2		ug/L		105	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	25.8		ug/L		103	70 - 130
Isopropyl Ether (DIPE)	ND		25.0	25.2		ug/L		101	64 - 138
m,p-Xylene	ND		50.0	53.5		ug/L		107	70 - 133
Methyl-t-Butyl Ether (MTBE)	ND		25.0	25.1		ug/L		100	70 - 130
o-Xylene	ND		25.0	27.3		ug/L		109	70 - 133
Tert-amyl-methyl ether (TAME)	ND		25.0	24.7		ug/L		99	68 - 133
tert-Butyl alcohol (TBA)	ND		125	129		ug/L		103	70 - 130
Toluene	ND		25.0	25.8		ug/L		103	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*76 - 132*
Toluene-d8 (Surr)	*113*		*80 - 128*

Lab Sample ID: 440-70902-2 MSD
Matrix: Water
Analysis Batch: 165202

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	27.2		ug/L		109	70 - 131	6	25
1,2-Dichloroethane	ND		25.0	27.6		ug/L		110	56 - 146	4	20
Benzene	ND		25.0	25.2		ug/L		101	66 - 130	3	20
Ethanol	ND		250	245		ug/L		98	54 - 150	1	30
Ethylbenzene	ND		25.0	27.2		ug/L		109	70 - 130	4	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	28.3		ug/L		113	70 - 130	9	25
Isopropyl Ether (DIPE)	ND		25.0	27.5		ug/L		110	64 - 138	9	25
m,p-Xylene	ND		50.0	55.2		ug/L		110	70 - 133	3	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	28.4		ug/L		114	70 - 130	13	25
o-Xylene	ND		25.0	28.4		ug/L		113	70 - 133	4	20
Tert-amyl-methyl ether (TAME)	ND		25.0	27.7		ug/L		111	68 - 133	11	30
tert-Butyl alcohol (TBA)	ND		125	133		ug/L		106	70 - 130	3	25
Toluene	ND		25.0	26.4		ug/L		106	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*80 - 120*
Dibromofluoromethane (Surr)	*110*		*76 - 132*
Toluene-d8 (Surr)	*110*		*80 - 128*

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

Lab Sample ID: MB 440-165293/3
Matrix: Water
Analysis Batch: 165293

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			02/27/14 07:49	1
1,2-Dichloroethane	ND		0.50		ug/L			02/27/14 07:49	1
Benzene	ND		0.50		ug/L			02/27/14 07:49	1
Ethanol	ND		150		ug/L			02/27/14 07:49	1
Ethylbenzene	ND		0.50		ug/L			02/27/14 07:49	1
Ethyl-t-butyl ether (ETBE)	ND		0.50		ug/L			02/27/14 07:49	1
Isopropyl Ether (DIPE)	ND		0.50		ug/L			02/27/14 07:49	1
m,p-Xylene	ND		1.0		ug/L			02/27/14 07:49	1
Methyl-t-Butyl Ether (MTBE)	ND		0.50		ug/L			02/27/14 07:49	1
o-Xylene	ND		0.50		ug/L			02/27/14 07:49	1
Tert-amyl-methyl ether (TAME)	ND		0.50		ug/L			02/27/14 07:49	1
tert-Butyl alcohol (TBA)	ND		10		ug/L			02/27/14 07:49	1
Toluene	ND		0.50		ug/L			02/27/14 07:49	1
Xylenes, Total	ND		1.0		ug/L			02/27/14 07:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*80 - 120*		*02/27/14 07:49*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 132*		*02/27/14 07:49*	*1*
Toluene-d8 (Surr)	*110*		*80 - 128*		*02/27/14 07:49*	*1*

Lab Sample ID: LCS 440-165293/4
Matrix: Water
Analysis Batch: 165293

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	28.0		ug/L		112	70 - 130		
1,2-Dichloroethane			25.0	28.0		ug/L		112	57 - 138		
Benzene			25.0	26.0		ug/L		104	68 - 130		
Ethanol			250	253		ug/L		101	50 - 149		
Ethylbenzene			25.0	28.2		ug/L		113	70 - 130		
Ethyl-t-butyl ether (ETBE)			25.0	25.9		ug/L		104	60 - 136		
Isopropyl Ether (DIPE)			25.0	26.0		ug/L		104	58 - 139		
m,p-Xylene			50.0	57.4		ug/L		115	70 - 130		
Methyl-t-Butyl Ether (MTBE)			25.0	25.8		ug/L		103	63 - 131		
o-Xylene			25.0	28.9		ug/L		116	70 - 130		
Tert-amyl-methyl ether (TAME)			25.0	25.1		ug/L		100	57 - 139		
tert-Butyl alcohol (TBA)			125	137		ug/L		110	70 - 130		
Toluene			25.0	27.3		ug/L		109	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*80 - 120*
Dibromofluoromethane (Surr)	*104*		*76 - 132*
Toluene-d8 (Surr)	*112*		*80 - 128*

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

Lab Sample ID: 440-71000-C-30 MS
Matrix: Water
Analysis Batch: 165293

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
1,2-Dibromoethane (EDB)	ND		250	264		ug/L		106	70 - 131
1,2-Dichloroethane	ND		250	279		ug/L		112	56 - 146
Benzene	ND		250	261		ug/L		104	66 - 130
Ethanol	ND		2500	2720		ug/L		109	54 - 150
Ethylbenzene	ND		250	282		ug/L		113	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		250	282		ug/L		113	70 - 130
Isopropyl Ether (DIPE)	ND		250	286		ug/L		114	64 - 138
m,p-Xylene	ND		500	576		ug/L		115	70 - 133
Methyl-t-Butyl Ether (MTBE)	ND		250	271		ug/L		108	70 - 130
o-Xylene	ND		250	294		ug/L		118	70 - 133
Tert-amyl-methyl ether (TAME)	ND		250	270		ug/L		108	68 - 133
tert-Butyl alcohol (TBA)	ND		1250	1450		ug/L		116	70 - 130
Toluene	ND		250	279		ug/L		112	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*
Dibromofluoromethane (Surr)	*109*		*76 - 132*
Toluene-d8 (Surr)	*110*		*80 - 128*

Lab Sample ID: 440-71000-C-30 MSD
Matrix: Water
Analysis Batch: 165293

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
1,2-Dibromoethane (EDB)	ND		250	262		ug/L		105	70 - 131	1	25
1,2-Dichloroethane	ND		250	265		ug/L		106	56 - 146	5	20
Benzene	ND		250	248		ug/L		99	66 - 130	5	20
Ethanol	ND		2500	2650		ug/L		106	54 - 150	2	30
Ethylbenzene	ND		250	270		ug/L		108	70 - 130	5	20
Ethyl-t-butyl ether (ETBE)	ND		250	265		ug/L		106	70 - 130	6	25
Isopropyl Ether (DIPE)	ND		250	267		ug/L		107	64 - 138	7	25
m,p-Xylene	ND		500	551		ug/L		110	70 - 133	4	25
Methyl-t-Butyl Ether (MTBE)	ND		250	257		ug/L		103	70 - 130	5	25
o-Xylene	ND		250	280		ug/L		112	70 - 133	5	20
Tert-amyl-methyl ether (TAME)	ND		250	251		ug/L		100	68 - 133	7	30
tert-Butyl alcohol (TBA)	ND		1250	1400		ug/L		112	70 - 130	4	25
Toluene	ND		250	260		ug/L		104	70 - 130	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*
Dibromofluoromethane (Surr)	*105*		*76 - 132*
Toluene-d8 (Surr)	*110*		*80 - 128*

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

Lab Sample ID: MB 440-165497/3
Matrix: Water
Analysis Batch: 165497

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		1.0		ug/L			02/27/14 16:54	1
1,2-Dichloroethane	ND		1.0		ug/L			02/27/14 16:54	1
Benzene	ND		1.0		ug/L			02/27/14 16:54	1
Ethanol	ND		300		ug/L			02/27/14 16:54	1
Ethylbenzene	ND		1.0		ug/L			02/27/14 16:54	1
Ethyl-t-butyl ether (ETBE)	ND		1.0		ug/L			02/27/14 16:54	1
Isopropyl Ether (DIPE)	ND		1.0		ug/L			02/27/14 16:54	1
m,p-Xylene	ND		2.0		ug/L			02/27/14 16:54	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0		ug/L			02/27/14 16:54	1
o-Xylene	ND		1.0		ug/L			02/27/14 16:54	1
Tert-amyl-methyl ether (TAME)	ND		1.0		ug/L			02/27/14 16:54	1
tert-Butyl alcohol (TBA)	ND		20		ug/L			02/27/14 16:54	1
Toluene	ND		1.0		ug/L			02/27/14 16:54	1
Xylenes, Total	ND		2.0		ug/L			02/27/14 16:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*		*02/27/14 16:54*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 132*		*02/27/14 16:54*	*1*
Toluene-d8 (Surr)	*103*		*80 - 128*		*02/27/14 16:54*	*1*

Lab Sample ID: LCS 440-165497/4
Matrix: Water
Analysis Batch: 165497

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)			50.0	53.2		ug/L		106	70 - 130		
1,2-Dichloroethane			50.0	54.4		ug/L		109	57 - 138		
Benzene			50.0	50.9		ug/L		102	68 - 130		
Ethanol			500	560		ug/L		112	50 - 149		
Ethylbenzene			50.0	51.7		ug/L		103	70 - 130		
Ethyl-t-butyl ether (ETBE)			50.0	49.9		ug/L		100	60 - 136		
Isopropyl Ether (DIPE)			50.0	56.8		ug/L		114	58 - 139		
m,p-Xylene			100	108		ug/L		108	70 - 130		
Methyl-t-Butyl Ether (MTBE)			50.0	52.6		ug/L		105	63 - 131		
o-Xylene			50.0	54.8		ug/L		110	70 - 130		
Tert-amyl-methyl ether (TAME)			50.0	55.0		ug/L		110	57 - 139		
tert-Butyl alcohol (TBA)			250	265		ug/L		106	70 - 130		
Toluene			50.0	51.8		ug/L		104	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*111*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*76 - 132*
Toluene-d8 (Surr)	*106*		*80 - 128*

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

Lab Sample ID: 440-71084-A-3 MS
Matrix: Water
Analysis Batch: 165497

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
1,2-Dibromoethane (EDB)	ND		25.0	26.2		ug/L		105	70 - 131
1,2-Dichloroethane	ND		25.0	26.8		ug/L		107	56 - 146
Benzene	ND		25.0	25.3		ug/L		101	66 - 130
Ethanol	ND		250	237		ug/L		95	54 - 150
Ethylbenzene	ND		25.0	25.2		ug/L		101	70 - 130
Ethyl-t-butyl ether (ETBE)	ND		25.0	24.7		ug/L		99	70 - 130
Isopropyl Ether (DIPE)	ND		25.0	27.8		ug/L		111	64 - 138
m,p-Xylene	ND		50.0	52.5		ug/L		105	70 - 133
Methyl-t-Butyl Ether (MTBE)	ND		25.0	26.1		ug/L		104	70 - 130
o-Xylene	ND		25.0	26.9		ug/L		108	70 - 133
Tert-amyl-methyl ether (TAME)	ND		25.0	26.9		ug/L		108	68 - 133
tert-Butyl alcohol (TBA)	ND		125	127		ug/L		102	70 - 130
Toluene	ND		25.0	26.0		ug/L		104	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*76 - 132*
Toluene-d8 (Surr)	*105*		*80 - 128*

Lab Sample ID: 440-71084-A-3 MSD
Matrix: Water
Analysis Batch: 165497

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
1,2-Dibromoethane (EDB)	ND		25.0	26.6		ug/L		106	70 - 131	2	25
1,2-Dichloroethane	ND		25.0	26.9		ug/L		108	56 - 146	0	20
Benzene	ND		25.0	25.4		ug/L		101	66 - 130	0	20
Ethanol	ND		250	245		ug/L		98	54 - 150	3	30
Ethylbenzene	ND		25.0	24.7		ug/L		99	70 - 130	2	20
Ethyl-t-butyl ether (ETBE)	ND		25.0	26.1		ug/L		104	70 - 130	6	25
Isopropyl Ether (DIPE)	ND		25.0	28.4		ug/L		113	64 - 138	2	25
m,p-Xylene	ND		50.0	51.4		ug/L		103	70 - 133	2	25
Methyl-t-Butyl Ether (MTBE)	ND		25.0	27.4		ug/L		109	70 - 130	5	25
o-Xylene	ND		25.0	26.5		ug/L		106	70 - 133	1	20
Tert-amyl-methyl ether (TAME)	ND		25.0	28.4		ug/L		114	68 - 133	6	30
tert-Butyl alcohol (TBA)	ND		125	126		ug/L		101	70 - 130	0	25
Toluene	ND		25.0	25.9		ug/L		104	70 - 130	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*76 - 132*
Toluene-d8 (Surr)	*106*		*80 - 128*

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

Lab Sample ID: MB 440-164801/29
Matrix: Water
Analysis Batch: 164801

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			02/26/14 06:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*65 - 140*		*02/26/14 06:31*	*1*

Lab Sample ID: LCS 440-164801/28
Matrix: Water
Analysis Batch: 164801

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	717		ug/L		90	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*65 - 140*

Lab Sample ID: 440-70861-A-1 MS
Matrix: Water
Analysis Batch: 164801

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	569		ug/L		68	65 - 140		

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

Lab Sample ID: 440-70861-A-1 MSD
Matrix: Water
Analysis Batch: 164801

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	580		ug/L		69	65 - 140	2	20

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

Lab Sample ID: MB 440-165473/4
Matrix: Water
Analysis Batch: 165473

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			02/27/14 15:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*88*		*65 - 140*		*02/27/14 15:14*	*1*

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

Lab Sample ID: LCS 440-165473/3
Matrix: Water
Analysis Batch: 165473

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	806		ug/L		101	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*65 - 140*

Lab Sample ID: 440-70910-B-2 MS
Matrix: Water
Analysis Batch: 165473

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)	6900		16000	21700		ug/L		92	65 - 140		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*65 - 140*

Lab Sample ID: 440-70910-B-2 MSD
Matrix: Water
Analysis Batch: 165473

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)	6900		16000	21700		ug/L		93	65 - 140	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*65 - 140*

GC/MS VOA

Analysis Batch: 165202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-70902-1	A-1	Total/NA	Water	8260B/5030B	
440-70902-2	A-2	Total/NA	Water	8260B/5030B	
440-70902-2 MS	A-2	Total/NA	Water	8260B/5030B	
440-70902-2 MSD	A-2	Total/NA	Water	8260B/5030B	
440-70902-4	A-6	Total/NA	Water	8260B/5030B	
440-70902-5	AR-2	Total/NA	Water	8260B/5030B	
440-70902-6	ADR-1	Total/NA	Water	8260B/5030B	
440-70902-7	ADR-2	Total/NA	Water	8260B/5030B	
LCS 440-165202/4	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-165202/3	Method Blank	Total/NA	Water	8260B/5030B	

Analysis Batch: 165293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-70902-1 - DL	A-1	Total/NA	Water	8260B/5030B	
440-71000-C-30 MS	Matrix Spike	Total/NA	Water	8260B/5030B	
440-71000-C-30 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/5030B	
LCS 440-165293/4	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-165293/3	Method Blank	Total/NA	Water	8260B/5030B	

Analysis Batch: 165497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-70902-3	A-5	Total/NA	Water	8260B/5030B	
440-71084-A-3 MS	Matrix Spike	Total/NA	Water	8260B/5030B	
440-71084-A-3 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/5030B	
LCS 440-165497/4	Lab Control Sample	Total/NA	Water	8260B/5030B	
MB 440-165497/3	Method Blank	Total/NA	Water	8260B/5030B	

GC VOA

Analysis Batch: 164801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-70861-A-1 MS	Matrix Spike	Total/NA	Water	8015B/5030B	
440-70861-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B/5030B	
440-70902-2	A-2	Total/NA	Water	8015B/5030B	
440-70902-3	A-5	Total/NA	Water	8015B/5030B	
440-70902-4	A-6	Total/NA	Water	8015B/5030B	
440-70902-5	AR-2	Total/NA	Water	8015B/5030B	
440-70902-6	ADR-1	Total/NA	Water	8015B/5030B	
440-70902-7	ADR-2	Total/NA	Water	8015B/5030B	
LCS 440-164801/28	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-164801/29	Method Blank	Total/NA	Water	8015B/5030B	

Analysis Batch: 165473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-70902-1	A-1	Total/NA	Water	8015B/5030B	
440-70910-B-2 MS	Matrix Spike	Total/NA	Water	8015B/5030B	
440-70910-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B/5030B	
LCS 440-165473/3	Lab Control Sample	Total/NA	Water	8015B/5030B	
MB 440-165473/4	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
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

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

TestAmerica Job ID: 440-70902-1

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
Alaska	State Program	10	CA01531	06-30-14
Arizona	State Program	9	AZ0671	10-13-14
California	LA Cty Sanitation Districts	9	10256	01-31-15
California	State Program	9	2706	06-30-14
Guam	State Program	9	Cert. No. 12.002r	01-23-14 *
Hawaii	State Program	9	N/A	01-29-15 *
Nevada	State Program	9	CA015312007A	07-31-14
New Mexico	State Program	6	N/A	01-31-14 *
Northern Mariana Islands	State Program	9	MP0002	01-31-14 *
Oregon	NELAP	10	4005	01-29-15
USDA	Federal		P330-09-00080	06-06-14
USEPA UCMR	Federal	1	CA01531	01-31-15

* Expired certification is currently pending renewal and is considered valid.

bp rm

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: 440-70902

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: Kathleen Robb	Lead Regulatory Agency: ACEH	Address: 1370 Ridgewood Dr., Ste. 5, Chico, CA 95973
Lab Phone: 1-949-261-1022	California Global ID No.: T0600100112	Consultant/Contractor PM: Jason Duda
Lab Shipping Acct: Fed-Ex# 1103-6633-7	Enfos Proposal No: 0060C-0010/WR273347	Phone: 530-566-1400 / 530-566-1402 (fx) Email: jduda@broadbentinc.com
Lab Bottle Order No:	Accounting Mode: Provision _x_ OOC-BU ___ OOC-RM ___	Email EDD To: jduda@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): Chuck Carmel

BP PM Phone: 1-925-275-3804

BP PM Email: chuck.carmel@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
	A-1	2-20-14	1215		x		y	6				x		x	x	x
	A-2		1045		x		y	6				x		x	x	x
	A-5		1010		x		y	6				x		x	x	x
	A-6		0935		x		y	6				x		x	x	x
	AR-2		0845		x		y	6				x		x	x	x
	ADR-1		1145		x		y	6				x		x	x	x
	ADR-2		1115		x		y	6				x		x	x	x
	TB-2169-02202014		—		x		y	6				x		x	x	x

Report Type & QC Level: 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.

440-70902 Chain of Custody

ON HOLD

Sampler's Name: James R/Sarah J	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Broadbent	[signature] / Broadbent	2/20/14	1700			
Shipment Method: Fed Ex Ship Date: 2/20/14	[signature] / Broadbent	2/20/14	1700			
Shipment Tracking No:				Olga Oneles	2/21/14	11:00

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: 2.6°C/1.4°F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

BP Remediation Management COC - Effective Dates:

BP LaMP COC Rev.

T# 80N1865461811

QS-IR-63

Login Sample Receipt Checklist

Client: Broadbent & Associates, Inc.

Job Number: 440-70902-1

Login Number: 70902

List Source: TestAmerica Irvine

List Number: 1

Creator: Perez, Angel

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

APPENDIX E

GEOTRACKER UPLOAD CONFIRMATION RECEIPTS

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:	**1Q14 GWM Analytical Data**
Report Type:	**Monitoring Report - Semi-Annually**
Facility Global ID:	**T0600100112**
Facility Name:	**ARCO #02169**
File Name:	**440-70902-1_07 Mar 14 1651_EDF.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**69.170.45.210**
Submittal Date/Time:	**4/29/2014 10:09:52 AM**
Confirmation Number:	**5712526440**

VIEW QC REPORT

VIEW DETECTIONS REPORT

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:	**1Q14 Geowell**
Facility Global ID:	**T0600100112**
Facility Name:	**ARCO #02169**
File Name:	**GEO_WELL.zip**
Organization Name:	**Broadbent & Associates, Inc.**
Username:	**BROADBENT-C**
IP Address:	**69.170.45.210**
Submittal Date/Time:	**4/29/2014 10:10:38 AM**
Confirmation Number:	**1438570141**